NEWS JUICE

Intelligent Compilation from The Hindu, Indian Express & others along with News Background

NEWS HEADLINES

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What is News Juice?

BY PREPMATE
1. What is norovirus, the stomach bug that infected two students in Kerala?

Relevant for GS Prelims & Mains Paper III; Science & Technology

At least two cases of norovirus have been found in Thiruvananthapuram among lower primary school students.

Health department officials said the infection, which causes vomiting, diarrhoea and fever as symptoms, was diagnosed after samples were tested at a government analytical lab. More samples have been sent for examination. So far, it is believed that students got food poisoning from mid-day meals distributed at the schools.

What is norovirus?
Norovirus is a highly contagious virus that is also sometimes referred to as the ‘stomach flu’ or the ‘winter vomiting bug’. It can be transmitted through contaminated food, water, and surfaces. The primary route is oral-faecal.

It is similar to diarrhoea-inducing rotavirus and infects people across age groups. Disease outbreaks typically occur aboard cruise ships, in nursing homes, dormitories, and other closed spaces.

According to the WHO, emerging evidence suggests that “norovirus infection is associated with intestinal inflammation, malnutrition and may cause long-term morbidity”. It adds that an estimated 685 million cases of norovirus are seen annually, including 200 million cases amongst children under 5.

What are the symptoms?
The initial symptoms of norovirus are vomiting and/or diarrhoea, which show up one or two days after exposure to the virus.

Patients also feel nauseous, and suffer from abdominal pain, fever, headaches and body aches. In extreme cases, loss of fluids could lead to dehydration.

What precautions can one take?
One may get infected multiple times as the virus has different strains. Norovirus is resistant to many disinfectants and can withstand heat up to 60°C. Therefore, merely steaming food or chlorinating water does not kill the virus. The virus can also survive many common hand sanitisers.

The basic precaution is also the most obvious — repeatedly washing hands with soap after using the lavatory or changing diapers. It is important to wash hands carefully before eating or preparing food. During outbreaks, surfaces must be disinfected with a solution of hypochlorite at 5,000 parts per million.

The US Centre for Disease Control and Prevention suggests that those infected should avoid contact with others and avoid preparing food for others while sick and for two days after symptoms stop.

What is the treatment?
The disease is self-limiting. The infection, even though it takes a lot out of the patient, normally lasts only two or three days, and most individuals who are not very young, very old, or malnourished can ride it out with sufficient rest and hydration.

Diagnosis is done by real-time reverse transcription-polymerase chain reaction. No vaccines are available for the disease.

It is important to maintain hydration in the acute phase. In extreme cases, patients have to be administered rehydration fluids intravenously.

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2. Engaging with the Taliban

Relevant for GS Prelims & Mains Paper II; Bilateral Relations

When India sent an official delegation to Kabul earlier this week, it was the first time that New Delhi signalled that it wanted a formal engagement with the Taliban.

With this, it appears that the Indian foreign and security establishment is less divided about the need to engage formally with the Taliban and prevent getting marginalised in a country that New Delhi sees as vital to its strategic interests in the region, and where the people’s affection for India is legendary.

Although recognition of the Taliban government is not on the cards yet, Thursday’s visit may have paved the way for the reopening of the Indian embassy, albeit a downgraded one.

From 1996 to now, India’s journey from first opposition, then diffidence to engaging with the Taliban, to the resigned acceptance of its inevitability, is in no small measure a story of India’s problematic relationship with Pakistan.

In 1996, when the Taliban fought their way through warring mujahideen factions into Kabul for the first time, India, fearing a spillover on Kashmir insurgency (there was indeed some), backed the Northern Alliance with money and weapons. As the scholar Avinash Paliwal has pointed out (My Enemy’s Enemy: India in Afghanistan from the Soviet Union to the US Withdrawal), New Delhi did briefly contemplate opening contacts with the group but dropped the idea as the establishment was divided on reaching out to a group tied to Pakistan.

India bore the brunt of this nexus twice. During the 1999 hijacking of IC814, when the Pakistani hijackers took the plane to Kandahar, the then ruling Taliban acted as a support arm of the hijackers. Second, in 2008, the CIA traced the bombing of the Indian Embassy at Kabul to the Haqqani group, part of the Taliban and deeply embedded with the Pakistani security establishment. The bombing was reported to have been carried out at the orders of the ISI. Moreover, Lashkar-e-Taiba and Jaish-e-Mohammed were increasingly reported to be present in Afghanistan.

Reconsidering the Taliban

After 9/11, under the US umbrella, India invested money and energy into the rebuilding of Afghanistan. But by 2010, with increasing doubts about the US continuance, India was once again considering reaching out to the Taliban.

In the final months of UPA-2, Mullah Abdul Salam Zaeef, who was the Ambassador in Pakistan in the Taliban’s first regime, made a splash at a literary event in Goa. He had been invited as the author of the bestselling My Life with the Taliban. Then Home Minister P Chidambaram was in a photograph that also included him. Then in the opposition, the BJP trained its guns at the government for keeping company with an Islamist extremist. Media reports then quoted government sources as saying it was not Zaeef’s first visit, and that keeping a door open to the Taliban was necessary. The reasons were the same as they are today: New Delhi did not want to be left out or marginalised in the Afghanistan of the future. After getting Osama bin Laden in Pakistan in 2011, the Obama Administration was getting ready to declare an end to the war, and the US and the Taliban had already made tentative contact towards talks.

But with Pakistan continuing to loom large – the Pakistan security establishment, which had a huge role in the birth of the Taliban, had given Mullah Omar and other Taliban leaders sanctuary in Quetta after the 2001 US invasion, and sustained them with money and weapons — New Delhi did not have the will to pursue the plan seriously.

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Pakistan shadow
As talks between the Taliban and the Trump Administration took off, the Indian establishment decided to put its weight behind President Ashraf Ghani and the government of Afghanistan, which had been left out of the talks. When it became increasingly clear that far from collapsing, the talks might actually lead to Taliban rule or at least a set-up in Kabul with a significant Taliban presence, India flagged “concerns” about terrorism, even as it looked for a seat at the table in any of the several regional groups, and also for openings to the Taliban.

One view was to build relations with factions in the Taliban that were opposed to Pakistan, but there was little clarity on how strong such fractionalism was, and if such factions had any influence. An Indian diplomat who had been approached by a Taliban leader once in a foreign capital said talking to the Taliban was "the same as talking to the ISI".

It was evident that India had missed the bus. Pakistan had delivered the Taliban to the Trump Administration for talks. Russia was backing the Taliban fully as the future ruler of Afghanistan, seeing in this sweet revenge for its own defeat in Afghanistan by US-financed, Pakistan-trained mujahideen; Iran, also glad at America’s defeat at the hands of the Taliban, hosted a delegation of the Shia-persecuting group in Tehran. China leveraged its relationship with Pakistan to get a foot into Kabul.

Nine months after the Taliban took over Kabul, 15 countries have a diplomatic presence in the country. Pakistan, China and Russia never shut down; others, including the EU, have re-opened to facilitate to humanitarian assistance. The Taliban regime is not recognised by any country yet. When members of the Shanghai Co-operation Organisation’s anti-terror sub-group met in Delhi recently to discuss the situation in Afghanistan, host India was the only one without a diplomatic presence in Kabul.

Counter-intuitive timing
India’s cautious opening to the Taliban has come at a time when the group has made it clear it has not changed from its previous mediaevalism. Restrictions on women have increased, from not being allowed to attend school to curbs on free movement in public spaces and at work. A UN Taliban monitoring committee has reported that the Taliban continue to remain close to al-Qaeda, with a significant presence of its multinational fighting force in Afghanistan. The report has also flagged JeM and LeT training camps in Nangarhar and Kumar, close to the Pakistan border. India is the chair of the Taliban sanctions committee.

However, a view that has gained ground in the Indian establishment is that it is time to de-hyphenate Pakistan from the Taliban, especially as the Pakistan security establishment is finding the going tough with the Kabul regime.

The Pakistani Taliban (TTP), which has spread terror in Pakistan since it came into existence in 2007, has found sanctuary in Afghanistan, and it has taken several rounds of negotiations mediated by the Afghan Taliban for the Pakistan security establishment to arrive at a ceasefire with the TTP. There are other disagreements between the Kabul regime and Pakistan, including over Durand Line as the border between the two countries.

Another reason advanced for India’s change in policy is that the Taliban in power are more divided than they were as a fighting force, and that the situation may provide room for a layered political and diplomatic engagement with different actors. It has also helped that the Taliban have made no hostile statements on Kashmir since taking over in Kabul.

The ban on girls’ high-school education is reported to have brought out rifts in the open between hardliners led by supreme leader Mullah Haibatullah Akhundzada and others seen as pro-West Taliban, such as Sher Mohammad Abbas Stanekzai. In all this, the Haqqani are projecting themselves as the true moderates.
Gautam Mukhopadhaya, a former Indian Ambassador to Kabul, said the hardening of the regime, widening internal rifts, and the resistance against the Taliban getting more organised made for a “far from stable Taliban rule”.

As long as the move helps the Afghan people, facilitating humanitarian assistance through international organisations, and paving the way for access to consular services, Mukhopadhaya said it was a step in the right direction.

“It is a good move towards Afghan people, provided the [Afghan] opposition is being taken into confidence and is kept in touch with on a parallel track, and basic principles are not sacrificed for formal relations,” Mukhopadhaya said.

Source: The Indian Express

3. World’s first fishing cat census done in Chilika

Relevant for GS Prelims & Mains Paper III; Environment

The Chilika Lake, Asia's largest brackish water lagoon, has 176 fishing cats, according to a census done by the Chilika Development Authority (CDA) in collaboration with the Fishing Cat Project (TFCP).

This is the world’s first population estimation of the fishing cat done outside the protected area network. According to the CDA, phase 1 of the estimation was conducted in 2021 in the 115 sq.km marshland in the north and north-eastern section of Chilika and its surrounding areas. Phase 2 was conducted in 2022 in the Parikud side along the coastal islands of Chilika.

A total of 150 camera traps were deployed in two phases with each fixed in the field for 30 days. Spatially explicit capture recapture method was used to analyse the data, the CDA said in a statement.

‘Participatory spirit’

“It was truly participatory in spirit since local fishermen and villagers of Chilika were the primary participants in this exercise. Without their support, the world’s first such population estimation outside protected areas on this globally threatened cat, would not have been possible,” said Susanta Nanda, Chief Executive Officer, CDA.

“Ten graduate and postgraduate students also volunteered during the exercise. Chilika Wildlife Division staff actively facilitated and participated in the estimation. Such a participatory effort involving multiple stakeholders for studying this elusive and threatened species sets a wonderful precedent,” said Partha Dey, co-founder, TFCP.

The CDA said the globally threatened cats are found in wetlands in major South and Southeast Asian river basins starting from the Indus in Pakistan till the Mekong in Vietnam and in Sri Lanka and Java. They are found in 10 Asian countries but have stayed undetected in Vietnam and Java since the last decade or so.

“Wetlands in Asia are being lost at alarmingly rapid rates and proper data on their current status or even baseline data are missing. The status of many wetland species remains understudied and highly threatened. Tracking specialist species such as the fishing cat gives us an indication of what might be happening to these ecosystems, which are safeguards against climate change and droughts,” said Tiasa Adhya, the co-founder of TFCP.

Source: The Hindu

4. The provisions of the withdrawn draft on social media regulations
Relevant for GS Prelims & Mains Paper II; Polity & Governance

On June 2, the Ministry of Electronics and Information Technology (MeitY) put out a draft proposal, seeking comments from the general public on a set of proposed amendments to the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021. The draft document was however withdrawn the same day. It had proposed measures to strengthen the oversight mechanism for regulating content on social media platforms. The draft stated that the measures dealt with "new and emerging issues" and addresses identified "gaps" in the legislation so as to make the internet more open, safe, trusted and accountable to its users. The MeITY reposted the draft amendments on its website, inviting comments from stakeholders in the next 30 days, the same day this article went to press.

What is the law?
Broadly, the IT Rules (2021) mandate social media platforms to exercise greater diligence with respect to the content on their platforms. They are required to establish a grievance redressal mechanism, and remove unlawful and unfitting content within stipulated time frames.

The grievance officer of the platform’s redressal mechanism is responsible for receiving and resolving complaints of the users. She/he is expected to acknowledge receipt of the complaint within 24 hours and dispose the same in an appropriate manner within 15 days. Content portraying an individual in full or partial nudity, in a sexual act or impersonating some other individual in the act (using morphed photos) are required to be removed within 24 hours of receiving the complaint. Its access and spread by any other means on the platform should also be disabled. Other than this, the privacy policies of the social media platforms must ensure that users are educated about not circulating copyrighted material and anything that can be construed as defamatory, racially or ethnically objectionable, paedophilic, threatening the unity, integrity, defence, security or sovereignty of India or friendly relations with foreign states, or violative of any contemporary law.

What changes were proposed in the withdrawn draft?
The draft proposed an additional level of oversight, namely, the ‘Grievance Appellate Committee’, functioning over and above the intermediary’s grievance redressal officer. Broadly, in case a user is not satisfied with the resolution provided by the intermediary, she/he can appeal against the decision at the appellate rather than going directly to court. However, this did not take away the user’s right to appeal in any other court. The draft stipulated that all orders of this appellate must be complied with. The suggested question on ‘oversight’ stemmed from the fact that the appellate was to be constituted by the Central Govt — empowered to appoint the Chairperson and other members.

Digital advocacy group, Internet Freedom Foundation (IFF) said that “worryingly, this would have made the government the arbiter of permissible speech on the internet and incentivised social media platforms to suppress any speech that may not be palatable to the government.” Additionally, the draft put forth the obligation that all social media intermediaries resolve all complaints within 72 hours of reporting. Intermediaries are known to invest sizeable time in thoroughly scrutinising and determining the content and user accounts they are called to censor. For example, Twitter took two-three days to censor former U.S. President Donald Trump’s account following a close review of his tweets and their context, particularly in light of the January 6 violence at the White House, the previous year. The shortened timelines therefore invited fears of a hastier approach to get things done. “Such a short-time line would have created the possibility of disposal of grievances without application of mind and led to arbitrary restriction on speech,” the IFF states.

What needs to be remembered is that all social media platforms deal with a sizeable user base and an even more massive content flow. For example, between March 25 and April 26 this year, Twitter acted against a total of 1,494 URLs for violating varied community standards. In addition, it processed 108 grievances seeking account suspensions and overturned 52 account suspensions during the mentioned period. Even if a miniscule fraction of these people were to approach the appellate, both the microblogging platform and the committee could be potentially burdened. Not to forget, the data is for a month-long period and for a single
entity, and such occurrences are recurrent and could only multiply the case count. Further, a sub-clause suggested the appellate dispose such cases within thirty days furthering the probability for hasty decisions.

**Have there been any legal challenges?**
Both Bombay and Madras High Courts stayed the imposition of sub-clauses 1 and 3 of Rule 9 of the legislative guidelines in August and September of the previous year, respectively. The two sub-clauses dealt with the 'Code of Ethics' for online publishers dealing with news and current affairs content and/or curated content. The sub-clauses had stated that the entities subscribe to a three-tier mechanism in dealing with grievances (relevant to their platform) so as to adhere to their code. This entails self-regulation by the publishers (level I), by self-regulating bodies of the publishers (level II) and finally, an oversight mechanism by the Central Govt (level III).

When argued at the Bombay High Court in August 2021, Additional Solicitor General Anil Singh mentioned that 97% publishers of news and current affairs had not challenged the 2021 Rules and thus the provisions are accepted and implemented. The Bombay High Court however ruled, “People would be starved of the liberty of thought and feel suffocated to exercise their right of freedom of speech and expression, if they are made to live in present times of content regulation on the internet with the Code of Ethics hanging over their head as the Sword of Damocles.” The Supreme Court will now hear this matter on July 19.

*Source: The Hindu*

**5. The debates around the Surrogacy Act**

*Relevant for GS Prelims & Mains Paper II; Polity & Governance*

Petitioners in the Delhi High Court questioned why marital status, age, or gender were the criteria for being allowed to commission or not commission surrogacy in India. The female petitioner said that she already had a child but the trauma of the first childbirth experience and her need to juggle work with child care persuaded her that surrogacy would be a better option for the second child. But under the provisions of the Surrogacy Act, she was denied a chance at commissioning surrogacy.

As per the Surrogacy Act that kicked in from January this year, a married couple can opt for surrogacy only on medical grounds. The law defines a couple as a married Indian “man and woman” and also prescribes an age-criteria with the woman being in the age group of 23 to 50 years and the man between 26 to 55 years. Additionally, the couple should not have a child of their own. Though the law allows single women to resort to surrogacy, she should either be a widow or a divorcee, between the age of 35 to 45 years. Single men are however, not eligible.

**What is the Surrogacy Act?**
The Surrogacy (Regulation) Bill was introduced in Parliament in November 2016, and passed in the Winter session of Parliament in 2021.

The Act sought to regulate the surrogacy part of a rather flourishing infertility industry in the country. Defining ‘surrogacy’ as a practice where a woman undertakes to give birth to a child for another couple and agrees to hand over the child to them after birth, it allows ‘altruistic surrogacy’ — wherein only the medical expenses and insurance coverage is provided by the couple to the surrogate mother during pregnancy. No other monetary consideration will be permitted.

**Why is there a need for a Surrogacy Act in India?**
India has emerged as a hub for infertility treatment, attracting people from the world over with its state of the art technology and competitive prices to treat infertility. Soon enough, due to prevailing socio-economic inequities, underprivileged women found an option to ‘rent their wombs’ and thereby make money to take
care of their expenses — often to facilitate a marriage, enable children to get an education, or to provide for hospitalisation or surgery for someone in the family.

Once information of the availability of such wombs got out, the demand also picked up. Unscrupulous middle men inveigled themselves into the scene and exploitation of these women began. Several instances began to emerge where women, in often desperate straits, started lodging police complaints after they did not receive the promised sum.

Other issues also began to crop up. For instance, in 2008 a Japanese couple began the process with a surrogate mother in Gujarat, but before the child was born they split with both of them refusing to take the child. In 2012, an Australian couple commissioned a surrogate mother, and arbitrarily chose one of the twins that were born.

The time therefore, was ripe for proper regulation.

**Who all are allowed to make use of the services of a surrogate mother?**

Any couple that has ‘proven infertility’ are candidates. The ‘intending couple’ as the Act calls them, will be eligible if they have a ‘certificate of essentiality’ and a ‘certificate of eligibility’ issued by the appropriate authority. The former will be issued if the couple fulfils three conditions: One, a certificate of infertility of one or both from a district medical board; Two, an order of parentage and custody of the surrogate child passed by a Magistrate’s court; Thirdly, insurance cover for the surrogate mother.

An eligibility certificate mandates that the couple fulfil the following conditions: They should be Indian citizens who have been married for at least five years; the female must be between 23 to 50 years and the male, 26 to 55 years; they cannot have any surviving children (biological, adopted or surrogate); However, this would not include a ‘child who is mentally or physically challenged or suffers from life threatening disorder or fatal illness.’

**Who can become a surrogate mother?**

Only a close relative of the couple can be a surrogate mother, one who is able to provide a medical fitness certificate. She should have been married, with a child of her own, and must be between 25 and 35 years, but can be a surrogate mother only once.

**What are the controversies behind the Act?**

Even at the Bill stage, while there was a general murmur of appreciation, and some strident approval from infertility experts, there was some apprehension about the too restrictive regulations. For instance, it does not allow single women, or men, or gay couples to go in for surrogacy. Representations from these groups emerged even as Health Minister J.P. Nadda introduced the Bill in the House.

Others, primarily those involved in organ transplantation, pointed out how despite a similar, stringent law — the Transplantation of Human Organs Act — organ commerce continues to thrive in the country. Brokers continue to operate, though with less temerity and more covertly, sometimes with hospital authorities, to pull wool over the eyes of the appropriate authority and law enforcement officials. Clearly the issue will have to be handled with a stern visage, even as sensitivities of people are factored in.

**What lies ahead?**

These apprehensions and perceived hitches due to the exclusionary criteria, have already come to the forefront in the short period that the Act has been operational. A path of litigation is possibly the course ahead, and if a critical mass builds up, amendments might have to be resorted to in order to resolve the grievances and ensure access for all categories of parents.

**Source:** The Hindu
6. The status of eVTOL: a soon to be reality?

Relevant for GS Prelims & Mains Paper III; Science & Technology

The Union Civil Aviation Minister, Jyotiraditya Scindia, has said that the Government of India is exploring the possibility of inviting manufacturers of Electric Vertical Take off and Landing (eVTOL) aircraft to set up base in India. The Minister had been on a visit to the U.S. and Canada in April and in his interactions with key players in the industry, it was said that several eVTOL players were ‘keen on setting up production centres’ in the country. In late May, while speaking at “India@2047”, which was part of the seventh edition of the India Ideas Conclave in Bengaluru, the Minister also said that India is in ‘conversation’ with a number of eVTOL producers — the implication being a futuristic vision for India.

What is eVTOL?

As the acronym suggests, an electric vertical take-off and landing (eVTOL) aircraft is one that uses electric power to hover, take off, and land vertically. Most eVTOLs also use what is called as distributed electric propulsion technology which means integrating a complex propulsion system with the airframe. There are multiple motors for various functions; to increase efficiency; and to also ensure safety. This is technology that has grown on account of successes in electric propulsion based on progress in motor, battery, fuel cell and electronic controller technologies and also fuelled by the need for new vehicle technology that ensures urban air mobility (UAM). Thus, eVTOL is one of the newer technologies and developments in the aerospace industry.

An article in Inside Unmanned Systems, a leading business intelligence platform, describes eVTOL as being “a runway independent technological solution” for the globe's transportation needs. This is because it opens up new possibilities which aircraft with engines cannot carry out in areas such as manoeuvrability, efficiency and even from the environmental point of view. The article adds that there are an estimated 250 eVTOL concepts or more being fine-tuned to bring alive the concept of UAM. Some of these include the use of multi-rotors, fixed-wing and tilt-wing concepts backed by sensors, cameras and even radar. The key word here is “autonomous connectivity”. Some of these are in various test phases. There are also others undergoing test flights so as to be certified for use. In short, eVTOLs have been likened to “a third wave in an aerial revolution”; the first being the advent of commercial flying, and the second, the age of helicopters.

Why are the developments in powering eVTOLs?

An article in Avionics International says the roles eVTOLs adopt depends on battery technology and the limits of onboard electric power. Power is required during the key phases of flight such as take off, landing and flight (especially in high wind conditions). There is also the important factor of weight. BAE Systems, for example, is looking at formats using a variety of Lithium batteries. Nano Diamond Batteries is looking at “Diamond Nuclear Voltaic (DNV) technology” using minute amounts of carbon-14 nuclear waste encased in layered industrial diamonds to create self-charging batteries. There are some industry experts who are questioning the use of only batteries and are looking at hybrid technologies such as hydrogen cells and batteries depending on the flight mission. There is even one that uses a gas-powered generator that powers a small aircraft engine, in turn charging the battery system. But whatever the technology, there will be very stringent checks and certification requirements.

What are the challenges?

As the technology so far is a mix of unpiloted and piloted aircraft, the areas in focus include “crash prevention systems”. These use cameras, radar, GPS (global positioning system) and infrared scanners. There are also issues such as ensuring safety in case of powerplant or rotor failure. Aircraft protection from cyberattacks is another area of focus.

A third area is in navigation and flight safety and the use of technology when operating in difficult terrain, unsafe operating environments and also bad weather.
How did it begin?

There is general agreement that the eVTOL world is moving forward based on the spark provided by NASA researcher Mark D. Moore who came up with the concept of a personal (one man) air vehicle while working towards his doctorate. Called the “Puffin” and thought of in 2009-10, it was about four metres tall and with a wingspan of 4.4 metres. It had 60hp electric motors that powered two propellers. Its other specifications included a four-point landing gear, a weight of 272kg, 45kg of batteries, a pilot payload of about 90kg, fetching it a total weight of 407 kg. Its top speed was under 245 kmph with a range of about 80km. A prototype was unveiled in 2010 and the concept was discussed at a conference on aeromechanics in 2010, according to an article in Electric VTOL News. In his paper, “NASA Puffin Electric Tailsitter VTOL Concept”, Moore described “electric propulsion as offering dramatic new vehicle mission capabilities, … but the only penalising characteristic” being “the current energy storage technology level”.

Are there any big players now?

Since then there have been a number of ideas by industry, such as the Volocopter VC1 from Germany and the Opener BlackFly from the U.S. The top aircraft manufacturers, Airbus and Boeing, have also joined the race. Airbus unveiled its prototype, Vahana Alpha One or the Airbus Vahana (from the Sanskrit Vahana), at the Paris Air Show in 2017. It was pitched as a “cost-comparable replacement for short-range urban transportation” based on a fan-run tilt-wing design. Prototypes made test flights. Airbus then shifted to the “CityAirbus” project (air taxi) which has propellers and direct-drive electric motors.

Boeing is working on the Boeing Passenger Air Vehicle, as an “American autonomous personal air vehicle prototype”. However, the major disruptors have been start-ups, backed by huge dollar flow.

A company, Lilium, started in 2015, which claims to be the “developer of the first all-electric vertical take-off and landing eVTOL jet”, says that it is moving towards developing prototypes “designed to extract over 100kW of power from a system weighing just over 4kg” — which gives us an idea of the advancements. Its Lilium Jet theory has been designed for concepts such as private flights, six-seater passenger flights, or no seating for the zero-emissions logistics market.

It says that the concept looks to connect towns and cities (40km-200km) at speeds of up to 300km/h. It has called this as aimed at Regional Air Mobility, which it clarifies is not to be confused with Urban Air Mobility (UAM) — connecting intra-city points over shorter distances, or less than 20 km. It is also working on a seven-seater model, for use in existing helipads; In the U.S., for example, this would mean approximately 14,000 possible locations. The power demand across different phases of flight and the predicted range have been discussed in detail in a technology paper.

China, Israel and the U.K too have programmes to look out for.

How does one get an idea of the kinds of eVTOLs?

Electric VTOL News, for instance, has a World eVTOL Aircraft Directory. Started in 2016 and listing half-a-dozen known designs, it has now progressed to categorising almost all known electric and hybrid-eVTOL concepts. Categories are: “Vectored Thrust”, where any thruster is used for lift and cruise; “Hover Bikes/Personal Flying Devices”, which are single-person eVTOL aircraft and in multicopter-type wingless configurations; “Lift and Cruise”, where independent thrusters are used for cruise and lift without any thrust vectoring; “Wingless (Multicopter)”, or where there is no thruster for cruise but only for lift; and “Electric Rotorcraft” or eVTOLs that use a rotor, such as an electric helicopter or autogyro.

What about certification?

Some companies have concepts that are aimed at dual certifications by regulatory agencies in the western world. In March this year, the Federal Aviation Administration (FAA) and the United Kingdom Civil Aviation Authority announced being engaged in discussions focused on “facilitating certification and validating new eVTOL aircraft, their production, continued airworthiness, operations, and personnel licensing”. Both bodies also highlighted the need to maintain very high safety standards. Further to this, eVTOL technology is to use
existing regulatory frameworks despite being in the form of new and emerging technologies. The FAA has clarified that it plans to certify eVTOLs as powered-lift aircraft (an existing category) but in future, “develop additional powered-lift regulations” for innovation in operations and pilot training. It plans to use a "special class” process in 14 CFR 21.17(b) to oversee the unique features of emerging powered-lift models. But this certification will use the performance-based airworthiness standards found in Part 23 of the FAA regulations. The FAA’s important clarification that the changes will be gradual has been welcomed by eVTOL developers, who are leaning on the Part 23 framework as the bedrock for type certification.

EVTOL certification is also complex because of planned operations within urban areas, new battery systems and the need for higher levels of automated redundancy.

How has the progress been?
The Paris summer Olympics 2024 is expected to be the big moment, according to an article in Bloomberg. France is working on two dedicated routes to transport passengers. Landing and takeoff zones at the Pontoise-Cormeilles-en-Vexin hub are being tested on parameters such as noise levels, integration of drones and eVTOLs with existing air traffic, battery charging and also maintenance.

How will it be in India?
Mr. Scindia has been reported as asking Beta Technologies, which has a partnership with the Blade group (it has a presence in India), to look at the Indian market. An official from Blade India told The Hindu that Blade is an urban air mobility company that aims to connect places that are heavily congested and also not well connected by air services. The concept of ‘Advanced Air Mobility’ comes in, i.e., connecting places through vertical aircraft and thus skipping road travel. This is being done now by helicopters, but eVTOLs will step into this space.

The official said that Blade U.S. is currently working with electric vertical aircraft (EVA) manufacturers such as Beta Technologies and has partnered with them for an all electric fleet by the year 2024. eVTOLs are noise free, have a zero carbon footprint and are more affordable. Beta technologies and other EVA manufacturers have been extended an invitation to manufacture in India.

Amit Dutta, Managing Director, Blade India is the chairperson of the Confederation of Indian Industry (CII) Taskforce for Urban Air Mobility. In his suggestions for policy and regulation changes to better integrate EVAs, he has advised regulatory authorities in India to look at: formulating regulations for pilotless vehicles, airworthiness certifications, and the need for a pilot’s licence; implementing efficient energy management systems, onboard sensors, collision detection systems and advanced technologies such as artificial intelligence; having in place infrastructural support such as take-off and landing zones, parking lots, charging stations and what are called vertiports; creating a robust air traffic management system that is integrated with other modes of transportation, and putting in place a database to ensure operational and mechanical safety.

In addition to this, there are psychological barriers that need to be overcome when it comes to flying in a fully autonomous aircraft. Therefore, the official added, there needs to be a document that outlines compliance for eVTOLs and also aligns frameworks to meet the standards adopted in commercial aviation, especially when it comes to safety. The current timeline for certification with India’s Directorate General of Civil Aviation is two years. The Blade India official says that there is a need for a committee to spell out the guidelines for eVTOL operations and speed up the process.

What is the value of the market?
The global market for eVTOLs was put at $8.5 million in 2021 and is to grow to $30.8 million by 2030. The demand will be on account of green energy and noise-free aircraft, cargo carrying concepts and the need for new modes of transport.
According to the Blade India official, the UAM market is expected to expand at a compound annual growth rate of 25% between 2018-25. By 2025, it is anticipated to be a $74 billion market. This includes the eVTOLs market since UAM ideally focuses on the use of eVTOLs, the official added.

Source: The Hindu

7. Kolkata, centuries before Job Charnock: What newly excavated finds tell us

Recent archaeological excavations in Dum Dum, some of them dating back as far as the first century CE, have provided further evidence of human habitation in Kolkata from centuries before the time British administrator Job Charnock was said to have founded the city. The excavations were carried out by the Kolkata Circle of the Archaeological Survey of India (ASI) at a mound outside Clive House in March-April.

Documented history
Charnock, who worked for the East India Company, has historically been credited with founding the city in 1690 when the Company was consolidating its trade business in Bengal. Calcutta comprised Kalikata, Gobindapur and Sutanuti villages, which the British bought from local landlords. Between the 14th and 16th centuries, the area was under the rule of the Bengal Sultanate of the Mughals.

The view about Charnock being the founder was challenged, and in 2003, Calcutta High Court declared that Charnock ought not to be regarded as the founder. It ordered the government to purge his name from all textbooks and official documents containing the history of the city’s founding.

Based on a report from an academic committee, the court found that a “highly civilised society” and “an important trading centre” had existed on the site long before Charnock established his settlement. The committee found that a place called Kalikata was an important religious centre adjacent to Kalighat village with its Kali temple. The site is mentioned in Bipradas Pipilai’s Manasa Manga (1495) and Abul Fazl’s Ain-I-Akbari (1596). In 1608, Emperor Jehangir granted the jagirdari of Kalikata to a zamindar family, known as the Sabarna Roy Choudhury family.

What’s been excavated
The new finds include 12 cultural layers of habitations over virgin soil, various types of potteries belonging to various periods (Gupta, post-Gupta, Kushan, Islamic, early mediaeval, mediaeval); coins including some with punch marks and some of copper; broken parts of terracotta figurines; copper antiquities such as hairpin and iron nail; fish hooks, stone beads etc. Soil samples, charcoal and pottery have been sent for scientific dating, and a report will arrive in 6 to 8 months.

“There is definitely a history of this place which predates the colonial era,” said Subha Majumdar, Superintending Archaeologist, ASI Kolkata Circle, who is heading the excavation. “Even before the zamindari of Sabarna Roy Choudhury and others, the place had settlements. After preliminary examination of the findings, we can say that there was human settlement in this area dating back to first and second centuries CE. Once we get the report, we will be able to say clearly when the first settlement took place,” Majumdar said.
The new finds include 12 cultural layers of habitations over virgin soil, various types of potteries, coins, broken parts of terracotta figurines etc.

**Why Clive House**

Majumdar said Clive House and the mound outside were selected for excavation for the site’s historical significance.

In 2001, an excavation by the ASI at Clive House had found some evidence indicating that the city could have had a history predating the colonial era. Those finds, however, were not scientifically dated. “In 2019, further excavation began. However, the work was suspended due to the pandemic. In March-April, the work resumed,” Majumdar said.
Soil samples, charcoal and pottery have been sent for scientific dating, and a report will arrive in six to eight months.

Clive House, which itself stands on a mound, is one of the oldest buildings in Kolkata. Some portions of it have been encroached. It is named after Robert Clive, the first British Governor of Bengal Presidency, who used it as a country house. Details are vague as to who built it and when: Some records mention a treaty between Nawab Siraj ud-Daulah and Robert Clive in this building on February 6 or 9, 1757.

It is close to a site called Chandraketugarh, where excavations in the 1950s and 1960s revealed an almost continuous sequence of habitations from six periods from the pre-Mauryan to the Pala periods. “The house was built at a strategic position given it stood en route to Chandraketugarh which once thrived with settlements. And the house was on a mound, which provided a strategic view of the area. After moving in, Clive modified the building,” Majumdar said.
8. What are ‘green jobs’, mentioned by the PM in his Environment Day speech?

Relevant for GS Prelims & Mains Paper III; Environment

At an event to mark World Environment Day recently, Prime Minister Narendra Modi spoke about India’s consistent efforts to combat climate change. During his speech, he also mentioned India’s efforts to create ‘green jobs’, and said: “There is another aspect of these efforts of India (in fighting climate change) which is rarely discussed and that is the subject of green jobs. The way India is taking decisions in the interest of the environment and implementing them rapidly, is also generating a large number of green job opportunities. This is also a topic that should be thought about.”

What are ‘green jobs’?
‘Green jobs’ refer to a class of jobs that directly have a positive impact on the planet, and contribute to the overall environmental welfare. Jobs involving renewable energy, conservation of resources, ensuring energy efficient means are categorised under the same. In all, they’re aimed at reducing the negative environmental impact of economic sectors and furthering the process of creating a low-carbon economy.

The idea behind a low-carbon economy or decarbonisation is fairly simple — it is about maintaining a sustainable economy, one that doesn’t lead to vast emissions of greenhouse gasses, especially carbon dioxide. India and ‘green jobs’

The Skill Council for Green Jobs was launched by the Union government on October 1, 2015. Aligned to the National Skill Development Missions, it was set up to be a not-for-profit, independent, industry-led initiative. Promoted by the Ministry of New and Renewable Energy (MNRE) and the Confederation of Indian Industry (CII), the council aims to help manufacturers and other service providers in India’s ‘green business’ sector to implement industry-led, collaborative skills push the country on the path to truly realising the real potential and significance of ‘green jobs’. According to the Skill Council for Green Jobs, awareness and training individuals regarding green jobs skills will ensure limiting greenhouse gas emissions, minimising waste and pollution, protect and restore ecosystems, support adaptation to the effects of climate change.

Scenario across the world
The United Nations Environment Programme’s 2019 Emissions Gap report dictates that it is essential for greenhouse gas emissions to reduce by 7.6% per annum between the years 2020 to 2030 in order to reach the target that was set during the Paris Agreement. Failing to meet the same would consequently result in a failure to effectively combat global warming. Consequently, a decarbonised economy plays a key role in ensuring a greener, safer, healthier and more sustainable planet to inhabit. Globally too, there have been multiple initiatives to further the ‘green jobs’ sector. The International Labour Organisation, the International Trade Union Confederation, the United Nations Environment Programme and the International Employers Organisation collectively launched the Green Jobs Initiative in 2008, aimed at bettering placements, training and creating opportunities for individuals to work in ‘green jobs’.

The United Kingdom is likely to have nearly 694,000 green jobs by the year 2030, projecting an overall 11% increase per year in the green economy.

According to Eliot Whittington, the director of policy at the Cambridge Institute for Sustainability Leadership (CISL), the move to normalising ‘green jobs’ and making them an unquestionable, inherent part of the economy can only be achieved through systemic shifts, where multiple organisations work in harmony and that isolated innovations do not go a long way in ensuring the same.

The way forward
According to the ILO, India moving to a green economy by the next decade would alone create about 3 million jobs in the renewable energy sector. The renewable energy sector created about 47,000 new jobs in 2017 accounting for a 12% increase in just the span of a year, they said.

For India ‘green jobs’ can prove immensely useful to the country with sectors like renewable energy, waste management, green transport and urban farming all having great potential to employ a trained workforce. An integrated, systematic approach, experts believe, is crucial to ensuring this.

Source: The Indian Express

9. What are ‘carbon bombs’, why environmentalists want them defused?

Relevant for GS Prelims & Mains Paper III; Environment

A group of environmentalists, lawyers, and activists have come together to identify and ‘defuse carbon bombs’– coal, oil and gas projects that have the potential to contribute significantly to global warming.

The usage of the term ‘carbon bombs’ picked up after an investigative project of The Guardian from May this year. The project reported the plans of countries and private companies all over the world to engage in 195 ‘carbon bomb’ projects. Each such project, it is believed, will release huge amounts of CO2 emissions into the atmosphere.

What are carbon bombs?
Defining the term in its report, The Guardian said that it is “an oil or gas project that will result in at least a billion tonnes of CO2 emissions over its lifetime.”

Whenever coal, oil, or gas is extracted it results in pollution and environmental degradation. Further, carbon emissions take place in particularly large amounts when fuel is burned.

In total, around 195 such projects have been identified world over, including in the US, Russia, West Asia, Australia and India. According to the report, they will collectively overshoot the limit of emissions that had been agreed to in the Paris Agreement of 2015.

The agreement was to contain the global rise in average temperature to 2 °C and strive for the target of 1.5 °C as compared to pre-industrial levels – when the widespread use of coal for industry in the beginning in the mid-19th century led to a rapid rise in average global temperatures.

What does the investigation say?
More than 60% of these carbon bomb projects are already underway, according to the investigation. Apart from coal, oil, and gas operations, the report highlighted the threat of methane, which “routinely leaks from gas operations and is a powerful greenhouse gas, trapping 86 times more heat than CO2 over 20 years”.

It also put the blame on the companies conducting these operations, pointing to present time where multiple factors, especially the Russia-Ukraine crisis, have led to a reduction in supply and rise in the demand for fuel. As Russian oil has been banned by countries in the West, prices have risen to the benefit of oil and gas producing companies.

The report criticised reliance on fuel from conventional sources and not making use of emerging, green sources of energy. Energy companies such as ExxonMobil, Total, Chevron, Shell and BP (British Petroleum) are all mentioned as having coal bomb projects.
“Under the IEA net zero emissions scenario, and all Paris-aligned scenarios, all energy sources remain important through 2050, and oil and natural gas remain essential components of the energy mix,” an ExxonMobil spokesperson told The Guardian.

This in reference to the International Energy Agency, an international organisation which put together a road map to reduce global carbon emissions to as close to zero as possible by 2050.

Net zero emissions means that all carbon emissions into the atmosphere must be absorbed by methods like increasing the forest cover, and decreasing man-made emissions.

A spokesperson for Shell said: "As a result of [our] planned level of capital investment, we expect a gradual decline of about 1-2% a year in total oil production through to 2030, including divestments."

In response to the third Intergovernmental Panel on Climate Change (IPCC) report this year, UN Secretary-General Antonio Guterres had spoken of the need to maintain global temperatures: “...We are on a fast track to climate disaster...we are on a pathway to global warming of more than double the 1.5-degree limit agreed in Paris...but high-emitting governments and corporations are not just turning a blind eye; they are adding fuel to the flames. To keep the 1.5-degree limit agreed in Paris within reach, we need to cut global emissions by 45% this decade, but current climate pledges would mean a 14% increase in emissions. Investing in new fossil fuels infrastructure is moral and economic madness.”

**What is the plan for 'defusing' carbon bombs?**

The network working towards this goal is called Leave It In the Ground Initiative (LINGO). Its mission is to "leave fossil fuels in the ground and learn to live without them." It believes the root of climate change is the burning of fossil fuels, and the 100% use of renewable energy sources is the solution.

On its website, it has listed carbon bomb projects from all over the world. This includes the Carmichael Coal Project owned by the Adani Group, Gevra Coal Mines in Chhattisgarh owned by Coal India, and Rajmahal Coal Mines in eastern Jharkhand owned by Eastern Coalfields.

LINGO aims to organise ground support for protesting such projects, challenge them through litigation, and conduct analysis and studies for the same.

**Source: The Indian Express**
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