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Turkey- Russia Military Drill in Eastern Mediterranean

Why in News

Turkey has announced that Russia will hold **live-fire naval exercises** in the eastern Mediterranean. This will happen during **escalating tensions between Turkey and its coastal neighbors Greece and Cyprus** over the rights to search for energy resources in the region.

Key Points

- **Complex Geo-politics:** Turkey is a **North Atlantic Treaty Organization (NATO)** member, and it is strange to expect NATO-member Turkey to engage such drills on Russia's behalf.
 - It can be noted that the two countries have in recent years significantly strengthened their military, political and economic ties.
- **Russia-Turkey Link:**
 - Apart from the announced drill, they are coordinating closely on their military presence in Syria.
 - Turkey has purchased **Russia's advanced S-400 missiles** and has agreed to go with a Russian-built nuclear power plant on its southern coast.

- **Reasons:**

- Recently, the U.S. lifted a decades-old arms embargo (1987) on Cyprus which created the fresh strains between Turkey and Greece.
- Turkey condemned the move and urged the USA to reverse course to safeguard Turkish-speaking Cypriots.

The Embargo: To prevent an arms race that would hinder UN-facilitated reunification efforts for Cyprus.

It was directed against the southern, Greek Cypriot part of the island, where Cyprus' internationally recognised government is seated.

- **Impact of Russia-Turkey Military Drill:**

- Turkey's announcement comes at a time when Turkish survey vessels and drillships continue to prospect for hydrocarbons in waters where Greece and Cyprus claim exclusive economic rights.
- **Russia** maintains a **sizeable naval presence** in the eastern Mediterranean and regularly conducts naval manoeuvres.
- It's also at odds with the **European Union** over its territorial disputes with bloc members Greece and Cyprus.
- **France** recently increased its military presence in the area to support Greece and Cyprus.

- **Impact on India:**

- **Energy:** Mediterranean oil accounted for about 4.5% of India's overall imports in the year 2019-20. Stability of this region is important for India's energy security.
- **Diaspora:** Any turmoil in the region will have an impact on **India's diaspora** in the region.
- India is not only a party, but also founded the **Non Aligned Movement** whereas Turkey and Russia lean to different polar ideologies.

It is a real test of Indian diplomatic skills to create a balance between different ideologies.

- The diplomatic exchanges between Turkey and India have intensified in recent past following **India's decision to end the special status of Kashmir.**

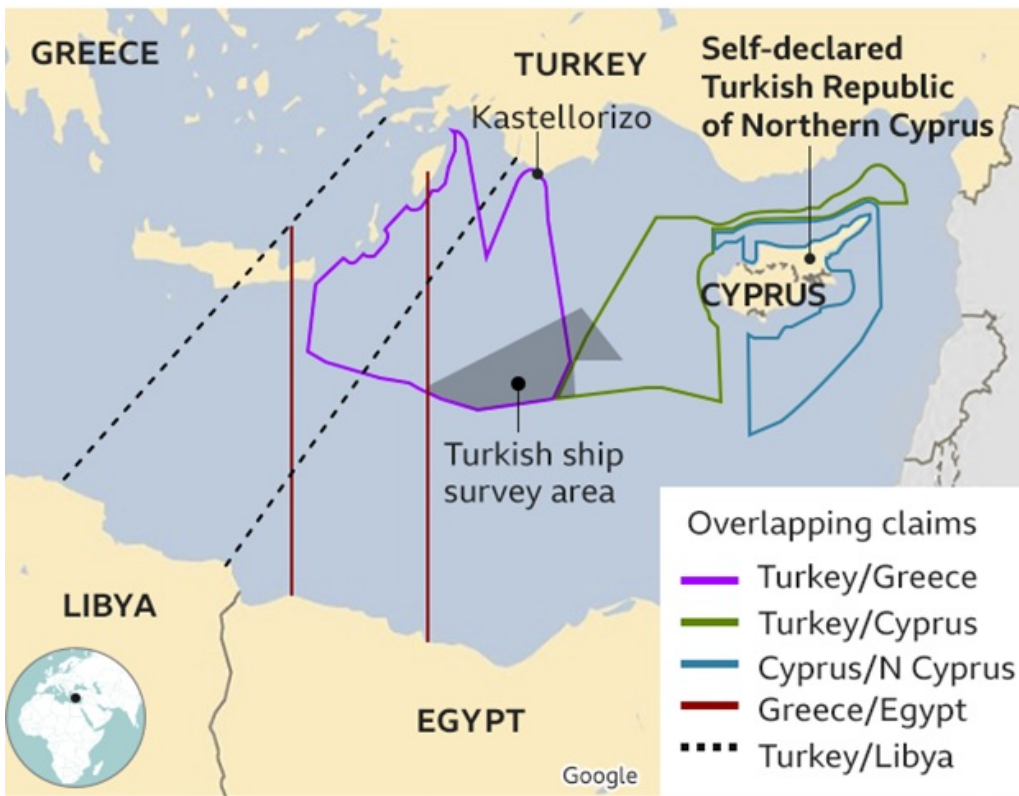
India's voice over this remains important being a protagonist of **democracy, right to self-determination and sovereign responsibility.**

Background of Conflict

- Energy is one of the key factors in the contemporary geopolitics of the Mediterranean region.

- Turkish **energy exploration** in the eastern Mediterranean has stoked tensions that is rooted in:
 - **Conflicting interpretations of maritime boundaries.**
 - The **feud between Turkey and Cyprus over gas reserves** around the island, whose northern third is controlled by Turkish forces.
 - Turkish forces captured the northern third of Cyprus in 1974, following a coup attempt in which a military junta in Athens sought to unite Cyprus with Greece.
 - The Republic of Cyprus officially has sovereignty over the entire island, though it in effect remains divided.
 - It builds upon a much longer history of enmity between the Greeks and the Turks going back to before the modern Turkish state was founded.

Greece and Turkey have overlapping claims in the Eastern Mediterranean



Way Forward

Conflicting claims over resources because of unresolved border disputes can potentially create a new tension-hotbed in the Mediterranean region. Multiple challenges like pandemic, slow economy have already posed a significant challenge for global leaders and therefore it is very important to address the concerns of stakeholders involved in the region to ensure collective peace and prosperity for all.

G-20 Foreign Ministers Meet

Why in News

Recently, Saudi Arabia hosted the **G-20** foreign ministers meeting with focus on cross-border movement amid the **Covid-19 pandemic**.

Currently, **Saudi Arabia holds the presidency** of G-20. It is the **first Arab nation** to take over the G20 Presidency.

Key Points

- **The Meeting:**
 - The foreign ministers **acknowledged the importance of opening borders, and promoting measures to allow the economy to thrive** in light of the protective measures for the **Covid-19 pandemic**.
 - Many health safety protocols were brought in to minimize the risk of spread of the Covid-19, like closed borders.
 - However, they have now become a **huge obstacle** in running trade and businesses worldwide resulting in a crisis of life and livelihood for many.
 - India apprised the G-20 foreign ministers about steps taken by India including **Vande Bharat Mission** and creation of **travel bubbles** for the welfare and protection of foreign citizens stranded in India as well as its own citizens abroad.
- **Recent Initiatives Taken by G-20:**
 - Earlier, in the 3rd G-20 **Finance Ministers and Central Bank Governors (FMCBG)** meeting held in July 2020, G-20 came up with the **G20 Action Plan** to deal with the pandemic.

The Action Plan includes a list of collective commitments under the pillars of Health Response, Economic Response, Strong and Sustainable Recovery and International Financial Coordination.
 - The G-20 also organised a virtual meeting of **G-20 Digital Economy Ministers** to highlight the digital initiatives taken by the countries to deal with Covid-19.

- **India's Proposal:**

- Development of **voluntary 'G-20 Principles on Coordinated Cross-Border Movement of People'** with three elements:
 - **Standardisation of testing procedures** and universal acceptability of test results.
 - Standardisation of **Quarantine procedures.**
 - Standardisation of **'movement and transit' protocols.**
- Governments around the world need to ensure that **interests of foreign students are protected** and **movement of stranded seafarers** back to their home country is facilitated.

The education institutes around the globe have been shut for months due to pandemic. With borders closed now, foreign students who had returned to their home countries are now finding it difficult to rejoin their respective institutions.

G-20

- The G20 is an **informal group of 19 countries** and the **European Union**, with representatives of the **International Monetary Fund and the World Bank.**
- The G20 membership comprises a **mix of the world's largest advanced and emerging economies**, representing about two-thirds of the world's population, 85% of global gross domestic product, 80% of global investment and over 75% of global trade.
- The members of the G20 are Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, the United Kingdom, the United States and the European Union.
- It does not have **any permanent secretariat** or headquarters.

Source: IE

English as Medium of Education

Why in News

Recently, the Supreme Court refused to stay the Andhra Pradesh High Court's order **striking down** the state government's decision to make **English the medium of education for government school students** from Classes I to VI beginning 2020-21 academic year.

The Court pointed out that **Section 29(2)(f) of the Right to Education (RTE) Act, 2009** says that the medium of instruction shall, as far as practicable, be in a child's mother tongue.

Key Points

- **Constitutional and Legal Provisions:**
 - **Article 29 (Protection of interests of minorities)** gives all citizens right to **conserve their language and prohibits discrimination on the basis of language.**
 - **Article 120 (Language to be used in Parliament)** provides for use of Hindi or English for transactions of parliament but gives the right to members of parliament to express themselves in their mother tongue.
 - **Part XVII of the Indian Constitution** deals with the **official languages** in **Articles 343 to 351.**
 - **Article 350A (Facilities for instruction in mother-tongue at primary stage)** provides that it shall be the endeavour of every State and of every local authority within the State to provide adequate facilities for **instruction in the mother-tongue at the primary stage of education to children belonging to linguistic minority groups.**
 - **Article 351 (Directive for development of the Hindi language)** provides that it shall be the duty of the Union to **promote the spread of the Hindi language.**
 - The **Eighth Schedule** recognises **following 22 languages as official languages:** Assamese, Bengali, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Malayalam, Manipuri, Marathi, Nepali, Oriya, Punjabi, Sanskrit, Sindhi, Tamil, Telugu, Urdu, Bodo, Santhali, Maithili and Dogri.
 - **Right to Education (RTE) Act, 2009** says that the medium of instruction shall, as far as practicable, be in a child's mother tongue.
- **Arguments in Favour of English as Medium of Instruction:**
 - **Career:** The ability to speak in english qualifies one for many jobs which are not yet available for speakers of regional languages.
 - **Competitive Exams:** Lack of knowledge of english will put the students of government schools on a backfoot as compared to those of English-medium private schools in competitive exams,
 - **Higher Education:** Most technical and scientific books are available only in english and much of higher education is also imparted in english. This may hinder the access of students from government schools to STEM and higher education.
 - **Global Opportunities:** English being the global lingua franca gives the students opportunity to compete at the global level.
 - **Status Symbol:** Knowing english is often equated with progressiveness.

- **Arguments against English as Medium of Instruction:**
 - **Accessibility to Knowledge:** The use of mother tongue or regional languages makes the process of learning familiar, comprehensible, and approachable for the students. This encourages wholehearted engagement of students in the learning process and boosts their confidence.
 - **Promotion of Local Culture:** Also, using mother tongue allows students to express themselves better and communicate their experiences, their multifaceted identities, and their cultures.
 - **Encouragement to Merit:** The use of English language often creates a divide between students hailing from backward castes and communities and the 'upper' class. Often, **real talent and merit gets suppressed** due to an **imposed linguistic disability**.

- **Government Initiatives to Promote Regional Languages:**
 - The recently announced **New Education Policy** states that wherever possible, students **till Class 5 in schools** should be taught in mother tongue/regional language/local language. It also introduces the **Three-Language Formula** for **primary education**, as per the recommendation of **Kothari Commission, 1968**.
 - The **Commission for Scientific and Technical Terminology (CSTT)** is providing publication grants towards the publications of University Level Books in regional languages.
 - It was established in 1961 to evolve technical terminology in all Indian Languages.
 - The **National Translation Mission (NTM)** is being implemented through the **Central Institute of Indian Languages (CIIL)**, Mysore under which the text books of various subjects prescribed in Universities and Colleges are being translated in all languages of the Eighth Schedule.
 - CIIL was established in 1969 under the administrative control of the **Ministry of Education**.
 - Its objective is to **coordinate the development of Indian languages**, to bring about the essential unity of Indian languages through **scientific studies** and **protect and document minor, minority and tribal languages**.
 - The Government of India is running a scheme known as **“Protection and Preservation of Endangered Languages”** for conservation of threatened languages.
 - The **University Grants Commission (UGC)** also promotes regional languages in higher education courses in the country and supports nine Central Universities under the scheme **“Establishment of Centre for Endangered Languages in Central Universities”**.
 - Recently, an initiative **Namath Basai** by Kerala State Government has proved to be very beneficial in educating children from tribal areas by adopting vernacular languages as medium of instruction.
- **Global Efforts:**
 - The **Yuelu Proclamation made by United Nations Educational, Scientific and Cultural Organization (UNESCO) at Changsha, China, in 2018** plays a central role in guiding the efforts of countries and regions around the world to **protect linguistic resources and diversity**.
 - The **United Nations General Assembly** has proclaimed **2019 as the International Year of Indigenous Languages (IYIL)**. The IYIL 2019 strives to preserve, support and promote indigenous languages at the national, regional and international levels.

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- **Countries around the world have successfully substituted english with their mother tongues** and have been able to produce world-class scientists, researchers, technicians and thinkers. The barrier of language is only as long as there is lack of proper encouragement to the generation of knowledge in the respective language. The government should encourage original scientific writing, publication of books in regional languages to help this transition.
 - Also, studies around the world have shown that children are able to **learn multiple languages** if they are taught from an early age. We can actively promote regional languages without compromising knowledge of English language which can be taught as an extra subject. It is important to remember that **English is one of many skills which we can equip the children with** in order for them to fully participate in and experience the world.

Source: IE

UN Special Rapporteurs on EIA 2020

Why in News

Recently, a group of **Special Rapporteurs to the United Nations** (UN) has written to the Indian government **expressing concerns over the draft Environment Impact Assessment (EIA) notification 2020**.

Special Rapporteurs are **independent experts working on behalf of the UN**. They work on a country or a thematic mandate specified by the **United Nations Human Rights Council** (UNHRC).

Key Points

- The group has highlighted that the proposed notification **appeared to have clauses that obstructed people's rights to a safe, clean and healthy environment**.
- There are **clauses which exempt several large industries and projects from the public consultation**, as part of the **Environmental Impact Assessment process**.
 - The draft notification **provides for a reduction of the time period from 30 days to 20 days** for the public to submit their responses during a public hearing for any application seeking environmental clearance.
 - This time frame is inadequate for the preparation of views, comments and suggestions and without a meaningful public hearing, the whole EIA process **would lack transparency and credibility**.

- The draft notification **does not require publication of information or holding of public consultation for projects** labelled by the Central government as ‘**involving strategic considerations**’.
- The 2020 draft notification **allows for post-facto approval for projects** which means that the clearances for projects can be awarded even if they have started construction or have been running phase without securing environmental clearances.
 - Post facto approval is the **derogation of the fundamental principles of environmental jurisprudence and violation of the precautionary principle**, which is a principle of environmental sustainability.
- The group has **sought the government's response** on how the provisions of the notification are consonant with **India's obligations under international law**.
 - India is a party to the **Rio declaration (also known as the Earth Summit) adopted by the United Nations Conference on Environment and Development (UNCED) in 1992**, which articulated a catalogue of environmental principles including sustainable development, precautionary principle, and EIA.
 - Following the **Rio Conference 1992**, EIA became part of the **formalised legal framework in India in 1994**.
 - India is also party to the **Convention on Biological Diversity (CBD) and United Nations Framework on Climate Change (UNFCCC)**, which contain a requirement to have a prior EIA in situations having a significant threat to the environment.
- **Indian Government's Response:**
 - The Environment Ministry Secretary has held that **nothing in the proposed EIA, 2020 violates the UN Declaration of Human Rights** and that the rapporteurs' concerns are “**misplaced**”.
 - The proposed EIA is still a draft and was issued for public consultation. The **imperfections in the existing EIA would be amended** in the new notification.
 - With regard to **post facto clearances**, the **violation of not taking prior approval would be punished as per law** and projects that are already running would be considered only on merit.

Way Forward

- These clauses and exemptions are **unjustified** and the general **public must be consulted**. The argument becomes **even stronger after the recent Vizag gas leak incident**.

- It becomes even more significant in the wake of the **Covid-19 pandemic** which has **demonstrated the value of the environment** for human's well-being. **Reduced forest cover and consequent closeness of wildlife and related virus reservoirs (zoonotic diseases)** to humans, and more polluted air impacting human health highlight the need to preserve the environment.
- The ministry, instead of reducing the time for public consultation, should **focus on ensuring access to information as well as awareness** about the public hearing and its impact upon the whole EIA process.
- **“Grow Now, Sustain Later” should not be the policy**, as the notion is dangerously tilted against the concept of sustainable development and with the EIA, there should **also be a Social Impact Assessment to achieve sustainable development in true sense**.

Source: TH

Impact of Lockdown on Indian Corporates

Why in News

Recently an investment information and credit rating agency **analysis looked into** the effect of **prolonged nationwide lockdown on Indian corporate sector**.

Key Points

- **Study:** Around 500 companies which were surveyed have shown aggregate revenues contracting by **31.1%** year-on-year basis in the first quarter of Financial Year 2021.
- **Exceptions:** Stress is visible across major sectors, with the exception of select sectors like IT, telecom, sugar and pharmaceuticals.

- **Impact:**

- The contraction in revenues was visible across most major sectors, but it was **sharpest in consumer-oriented sectors** where revenues contracted to nearly half of the previous year's levels.
- Sectors like **airlines, hotels, retail, automotive and consumer durables**, which primarily comprise **discretionary purchases**, are significantly impacted.
 - **Discretionary spending:** It refers to **non-essential items**, such as recreation and entertainment, that consumers purchase when they have enough income left over after paying the necessary expenses such as the mortgage and utilities.
- **FMCG and consumer foods** were relatively less impacted given the essential nature of these purchases.
- **Commodity-linked sectors** contracted by **34%** on a y-o-y basis with almost all the major commodity sectors, including oil and gas, metals and mining, iron and steel and cement, reporting revenue contraction on the back of tepid realizations due to **benign commodity prices and subdued volumes**.
 - **Commodity-linked sectors:** Sectors which are dependent upon the **commodity market** (involves buying, selling, or trading a raw product, such as oil, gold, or coffee).
- **Industrial and infrastructure-oriented sectors** also contributed to the slowdown with **29% and 38%** y-o-y de-growth **respectively** during the quarter, given the restrictions on activity.
- **Non-pharma exporters, real estate and construction** companies also face one of their worst years.
- **Banking Sector:** Poor credit growth, including retail loans, along with rising **Non-Performing Assets (NPAs)** and credit costs will be harmful for banks and **Non-Banking Financial Companies (NBFCs)**.

- **Reasons:**
 - **Restrictions on manufacturing, industrial, construction and consumption activities** for the major part of **Q1 FY2021** due to imposition of nationwide lockdown primarily hurt the financial performance of the Indian corporate sector.
 - **Demand-side:** Mainly due to customer wariness because of the uncertain economic environment and erosion of purchasing power.
 - **Consumer Confidence Survey:** One of India's most lucrative assets is its large consumer base. But people appeared to be less optimistic about their current situation and future expectations.
 - Data from the **Reserve Bank of India** showed **consumer confidence** has collapsed.
 - The **current situation index and the future expectations index** were both below 100, indicating that consumers were pessimistic. A reading above 100 represents optimism.
- **Consequences:**

Despite the benefit of subdued raw material prices and favourable rupee movement in select sectors like IT, the negligible revenues for the major part of the quarter has:

 - Made companies struggle to cover even operating costs.
 - Lower realization of profit in commodity sectors (especially metals and oil and gas), with Profit Before Tax margins contracting to multi-year lows.
- **Expectations:**
 - The **revival will be marginal** from these historic lows. However, a sustained recovery to pre-pandemic levels would be gradual.
 - **Banking:** NPAs are expected to swell for non-banking finance companies, too, with microfinance, MSME loans and wholesale/developer funding witnessing the sharpest spike.
 - **Normal monsoons** with sufficient and well distributed rainfall are expected to revive investment sentiments and job creation which are very crucial to sustain the growth in earnings.
 - **Electricity generation** will also see a 6% to 8% growth, however, capital goods sector revenue is likely to decline by 5% indicating that the recovery is not yet broad-based.
 - In **pharmaceuticals**, new launches from a strong product pipeline will propel 15% growth.
 - **Movement** of goods on National Highways, as indicated by the **Fastag** and **E-way** bill volumes, shows recovery to 85% of pre-pandemic levels in July 2020, which was also visible in the railway freight and port tonnage data.

Way Forward

- Healthy rural demand on the back of normal monsoons, healthy Kharif sowing and government support in the form of increased the **Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA)** allocations, MSME guarantee loans, etc. has been the **silver lining** in an otherwise bleak environment, offering some impetus to overall demand and economic recovery.
- Accordingly, select sectors have witnessed faster recovery vis-à-vis earlier expectations. However, the rapid proliferation of the pandemic and intermittent regional lockdowns has the potential to further disrupt supply chains and consumer sentiments so they can better be used with caution.

Source TH

Significance of Dead Coral Reef

Why in News

According to a recent study by researchers from University of Queensland (UQ), Australia, **more life can be supported by dead coral remains than live corals.**

Dead coral reefs support cryptic organisms like hidden sea creatures, including fishes, snails, tiny crabs and worms, who hide under its rubble **to save themselves from predation.**

Cryptic organisms

- These are organisms that are **morphologically indistinguishable** (identical in appearance) but are **genetically distinct**. Many species that are classified as single species but are found to be genetically different are called **cryptic species**.
- Examples of cryptic species include the **African elephant**. A 2001 study found the elephants were actually two genetically distinct, non-interbreeding species, the African bush elephant and the African elephant.

Key Points



- **Method:** The researchers designed three-dimensional-printed coral stacks called **Rubble Biodiversity Samplers (RUBS)** to survey cryptic organisms.
 - The **3D-printed coral** mimicked surrounding reef rubble and invited unwitting reef organisms to be monitored.
 - By sampling the RUBS' structures over time, the team were able to **identify changes in the cryptic population.**
- **Findings:** The researchers found the **missing link in the coral reef food webs.** This data fills important knowledge gaps, such as how small cryptic animals support coral reefs from the bottom of the food chain, all the way up to bigger predators.
 - This also helped to know the importance **of dead coral reef rubble** to the ocean ecosystem.
 - The RUBS technology provides a new opportunity for **reef management,** particularly for **reef education and awareness.**

- **Coral Reefs:**

- Coral reefs are **large underwater structures composed of the skeletons of colonial marine invertebrates called coral.**
- Corals extract **calcium carbonate** from seawater to create a hard, durable exoskeleton that protects their soft, sac-like bodies. These exoskeleton remains of millions of corals pile up with time to form coral reefs.
- The corals have a **symbiotic relationship with an algae** called the **zooxanthellae.**
 - These algae live inside the coral polyp's body and provide the coral with **food.** The polyps, in turn, provide a **home and carbon dioxide** for the algae.
 - These algae are responsible for the variety of **colours** of corals.
- Coral reefs cover less than 1% of the ocean floor but they are among the most productive and diverse ecosystems on Earth.
- They are referred to as "**the rainforests of the sea**" for their biodiversity,
- **Death of Coral Reefs:** When corals become stressed due to any changes, including pollution or global warming, they can expel algae and get **bleached**, meaning the 'death' of the coral reef.
 - There has been increasing **concerns of fast paced coral bleaching** due to **emission of greenhouse gases** and **climate change.**
 - A number of global initiatives are being taken to address the issues, like the **International Coral Reef Initiative**, the US Coral Reef Task Force etc.
 - In india, the **Zoological Survey of India (ZSI)**, with help from Gujarat's forest department, is attempting a process to restore coral reefs using "**biorock**" or **mineral accretion technology.**

Way Forward

- There has been little information on the role of dead coral reefs so far. The study can help **in studying the oceanic ecosystem** in a more holistic way.
- The research is certainly a lesson that even **dead coral reefs need to be preserved** in order to protect the biodiversity that remains. The understanding of foundational structure of coral reefs might inform efforts to **create artificial reefs**, which may be a short-term solution to the dying coral reef problem.

Source: Down to Earth

Intermediate-Mass Black Hole

Why in News

Analysis of signals from gravitational waves detected in 2019 at the **Laser Interferometer Gravitational-Wave Observatory (LIGO), the USA** and the detector **Virgo, Italy** have indicated a black hole with unusual mass

These waves were a result of a collision between two **black holes** billions of years ago.

Key Points

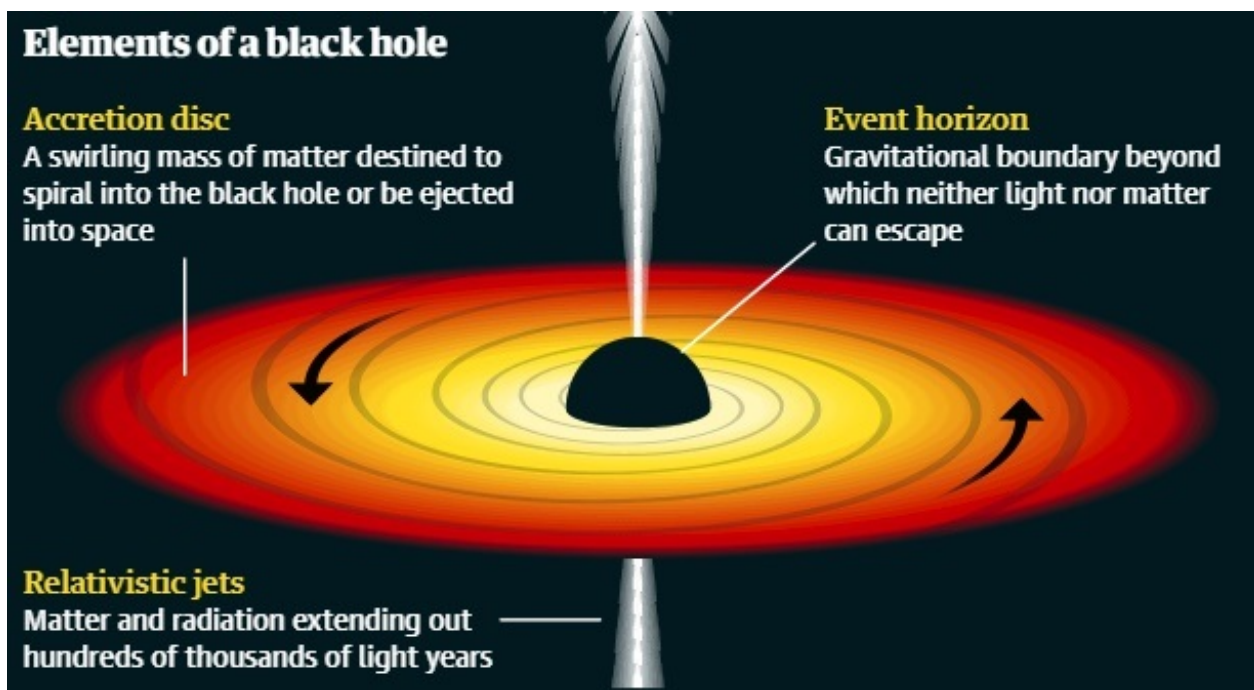
- The signal has been named **GW190521** and likely represented the instant that the two black holes merged.
 - It **lasted less than one-tenth of a second.**
 - It was calculated to have **come from roughly 17 billion light-years away, a time when the universe was about half its age.**
- Out of the two, the **larger black hole was of 85 solar masses** and the **smaller black hole was of 66 solar masses.** Post-merger they created a **new black hole of about 142 solar masses** and **energy equivalent to 8 solar masses** was released in the form of gravitational waves, leading to the **strongest ever wave detected** by scientists so far.
 - A **solar mass** is the mass of the sun or more precisely, it is **1.989×10^{30} kilograms**, which is equivalent to about 333,000 Earths.
 - Astronomers use a solar mass as a **basic unit of mass.**
- **Unusual Mass Category:**
 - The black hole with 85 solar masses falls in an **“intermediate-mass” range (first-ever to be observed) and it defies the traditional knowledge** of how black holes are formed.
 - According to traditional knowledge, stars that could give birth to black holes **between 65 and 120 solar masses** do not do so because they **blow themselves apart when they die, without collapsing into a black hole.**
 - In the merger leading to the GW190521 signal, the **larger black hole was well within the unexpected range**, known as the **pair-instability mass gap.**
- **Suggested Reasons for Unusual Mass:**

The researchers suggest that the larger 85-solar-mass black hole **was not the product of a collapsing star but was itself the result of a previous merger.**

Black Hole

- It refers to a point in space where the **matter is so compressed as to create a gravity field from which even light cannot escape.**

- The concept was **theorized by Albert Einstein in 1915** and the term ‘**black hole**’ was coined in the **mid-1960s** by American physicist **John Archibald Wheeler**.
- All the black holes observed so far belong to **two categories**:
 - One category **ranges between a few solar masses and tens of solar masses**. These are thought to form when massive stars die.
 - The other category is of **supermassive black holes**. These range from **hundreds of thousands to billions of times that of the sun** from the Solar system to which Earth belongs.
- In April 2019, the scientists at the **Event Horizon Telescope Project** released the **first-ever image of a Black Hole** (more precisely, of its shadow).
The image was made possible by the **Event Horizon Telescope** which is a **group of 8 radio telescopes** (used to detect radio waves from space) located in different parts of the world.
- **Gravitational waves are created when two black holes orbit each other and merge.**



Gravitational Waves

- These are **invisible ripples that form when**:
 - A star explodes in a **supernova**.
 - Two big stars orbit each other.
 - Two black holes merge.

- They **travel at the speed of light and squeeze and stretch anything in their path.**
As a gravitational wave travels through space-time, it causes it to stretch in one direction and compress in the other, Any object that occupies that region of space-time also stretches and compresses as the wave passes over them, though very slightly, which can only be detected by specialized devices like LIGO.
- Gravitational Waves are a **relatively new field of discovery.**
 - These were proposed by Albert Einstein in his **General Theory of Relativity**, over a century ago.
 - However, the **first gravitational wave was actually detected by LIGO only in 2015.**

Source: IE

Hurricane Nana

Why in News

Atlantic Hurricane Nana has made a landfall on the coast of **Belize**.

- The country Belize is located on the **northeast coast of Central America.**
- Few days back, **Hurricane Laura** made landfall in southwestern Louisiana (South Central United States).



Key Points

- **Tropical Cyclone:**

- A hurricane is a **type of storm called a tropical cyclone**, which forms over tropical or subtropical waters.
- A tropical cyclone is a **rotating low-pressure weather system** that has organized **thunderstorms but no fronts** (a boundary separating two air masses of different densities).

- **Speed of Winds:**

- Tropical cyclones with maximum sustained surface **winds** of less than **39 miles per hour (mph)** are called **tropical depressions**.
- Those with maximum sustained winds of 39 mph or **higher are called tropical storms**.
- When a storm's maximum sustained winds reach **74 mph**, it is called a **hurricane**.

- **Measurement of Wind Speed:**
 - The **Saffir-Simpson Hurricane Wind Scale** is a **1 to 5 rating**, or category, based on a hurricane's maximum sustained winds.
 - The higher the category, the **greater the hurricane's** potential for property **damage**.
- **Formation:**
 - There needs to be **warm ocean water** and **moist, humid air** in the region.
 - When humid air is flowing upward at a zone of low pressure over warm ocean water, the water is released from the air as creating the **clouds of the storm**.
- **Features:**
 - It has a **low pressure centre** and clouds spiraling towards the eyewall surrounding the "**eye**", the central part of the system where the weather is normally calm and free of clouds.
 - Its **diameter** is typically around **200 to 500 km**, but can reach 1000 km.
 - The **winds** blow **counterclockwise** in the **Northern Hemisphere** and clockwise in the Southern Hemisphere.
 - A tropical cyclone brings very violent winds, torrential rain, high waves and, in some cases, very destructive storm surges and coastal flooding.
- **Different Names:**
 - **Hurricane:** Caribbean Sea, Gulf of Mexico, North Atlantic Ocean and the eastern and central North Pacific Ocean
 - **Typhoon:** Western North Pacific
 - **Cyclone:** Bay of Bengal and Arabian Sea
 - **Willy-willies:** Australia

Source: IE

US-India Strategic Partnership Forum

Why in News

Recently, the Prime Minister of India delivered the keynote address at the 3rd Annual Leadership Summit of **US-India Strategic Partnership Forum (USISPF)**.

Key Points

- **Established:** The USISPF is a **non-profit organization** established in 2017.
- **Objective:** Strengthening the **USA-India bilateral and strategic partnership**.

- **Aim:** Strengthening **economic and commercial ties** between the two countries through **policy advocacy** that will lead to driving economic growth, entrepreneurship, employment-creation, and innovation to create a more inclusive society.

Enabling business and governments to collaborate and create meaningful opportunities that can positively change the lives of citizens.

- **Theme for 2020:** US-India Navigating New Challenges.
- **Economic Relations:** In 2019, overall **USA-India bilateral trade** in goods and services reached **USD 149 billion**.

USA energy exports are an important area of growth in the trade relationship.

Source: PIB
