



VEDHIK
IAS ACADEMY

The New Learning Mantra



VEDHIK

DAILY NEWS ANALYSIS

14 - JULY - 2022

FOREWORD


We, at Team Vedhik is happy to introduce a new initiative - "Daily Current Affairs_The Hindu" compilations to help you with UPSC Civil Services Examination preparation. We believe this initiative - "Daily Current Affairs_The Hindu" would help students, especially beginners save time and streamline their preparations with regard to Current Affairs. A content page and an Appendix has been added segregating and mapping the content to the syllabus.

It is an appreciable efforts by Vedhik IAS Academy helping aspirants of UPSC Civil Services Examinations. I would like to express my sincere gratitude to Dr. Babu Sebastian, former VC - MG University in extending all support to this endeavour. Finally I also extend my thanks to thank Ms. Shilpa Sasidharan and Mr. Shahul Hameed for their assistance in the preparing the compilations.

We welcome your valuable comments so that further improvement may be made in the forthcoming material. We look forward to feedback, comments and suggestions on how to improve and add value for students. Every care has been taken to avoid typing errors and if any reader comes across any such error, the authors shall feel obliged if they are informed at their Email ID.



CONTENTS

- News - Scale up the India-South Korea bilateral partnership GSP 02 A
 - News - I2U2 can become a regional feature like Quad Sullivan GSP 02 B
 - News - Cannot impose 'omnibus' ban on demolitions SC GSP 02 E
 - Editorials - Staying watchful GSP 03 A
 - News - 'Q1 new investment projects fall 20.5%' GSP 03 A
 - News - In high-res unfolding mysteries of the night sky GSP 03 L
 - News - India ranks 135 out of 146 in Gender Gap Index GSP 03 M
 - News - India has achieved clean energy targets 9 years before deadline' GSP 03 P
 - News - India, China talks to be held on July 17 GSP 03 U
- 

Scale up the India-South Korea bilateral partnership

There is much potential for Seoul to become the fourth pillar in New Delhi's Indo-Pacific strategy



LAKHVINDER SINGH &
ARVINDER SINGH LAMBA

Indo-Pacific turbulence has reached an all-time high, to the point where it rivals the diverse foreign policy challenges across the United States and Europe. At a time when the international rules-based order is getting increasingly contested, the options available to governments in the foreign, economic, and security policy areas (including maritime security), are under serious stress.

From drift to a shift

During the past five years, India and South Korea have experienced considerable divergence in their respective national objectives. There was a clear drift by South Korea away from multilateral security initiatives led by the United States, such as the Quad (the U.S., Australia, India and Japan); meanwhile, India has been actively participating in them.

The newly elected Korean President, Yoon Suk Yeol, has brought about a paradigm shift in South Korean foreign and security policies. He has proposed that South Korea should step up to become a "global pivotal state, anchored in liberal values and a rules-based order", that "advances freedom, peace, and prosperity through liberal democratic values and substantial cooperation". South Ko-

rea's new willingness to become a global pivotal state and play an active role in regional affairs is bound to create multiple opportunities for a multi-dimensional India-Korea partnership.

In the last few years, India and South Korea have faced serious blockades to their economic ties. Trade between the two countries was sluggish and there was no major inflow of South Korean investment into India. India and South Korea were also trying to upgrade their Comprehensive Economic Partnership Agreement (CEPA) agreement, but to no avail.

Correcting a China tilt

South Korea's strategic policy shift to correct its heavy tilt towards China is bound to bring new economic opportunities for both countries. Both nations will now be in a better position to understand and accommodate the other's trade investments and supply chain needs. The trade target of \$50 billion by 2030, which looked all but impossible a few months ago, now seems within reach.

The emerging strategic alignment is creating a new convergence of capabilities and closer synergy in new areas of economic cooperation such as public health, green growth, digital connectivity, and trade, among others.

In 2020, India and South Korea signed a Roadmap for Defence Industries Cooperation between the Republic of India and the Republic of Korea (ROK) deal. However, due to the lack of political and strategic alignment, nothing came of it. With the strategic shift in South Korea's defence orientation, new



doors of cooperation for defence and security have emerged. Advanced defence technologies and modern combat systems are the new domains for the next level of defence cooperation between the two countries.

Indo-Pacific outlook

South Korea's participation in additional maritime security activities in the Indian Ocean, such as the annual Malabar and other exercises with Quad countries, will further strengthen India's naval footprint in the Indo-Pacific region. During the Moon Jae-in presidency in Korea, Japan and South Korea were at loggerheads. There was little scope for strengthening the trilateral security dialogue in the region between India, South Korea and Japan. The shift in South Korean policies will enable a strong India, South Korea and Japan defence policy coordination that could effectively forge new joint regional security policies.

India has evolved excellent strategic partnerships with Japan, Vietnam and Australia. Unfortunately, so far, South Korea has not received the same level of attention from the Indian establishment. This needs to change. South Korea could be the fourth pillar in India's Indo-Pacific strategy along

with Japan, Australia, and Vietnam. This can bring about a paradigm shift in India's position and influence in the region.

The time has come for the Indian and South Korean bilateral partnership to be strategically scaled up at the political, diplomatic and security domain levels. With South Korea's emergence as a leader in critical technologies, cybersecurity and cyber-capacity building, outer space and space situational awareness capabilities, South Korea can contribute immensely to enhance India's foundational strengths in the Indo-Pacific.

However, the current emerging alignment between India and South Korea, which has the potential to bring the two countries closer together, may prove short lived if proper attention is not paid to the multi-dimensional challenges it faces. The Chinese leadership is adversely impacted by policy changes brought in by the Yoon administration. The real challenge for global geopolitics is this: can South Korea withstand the inevitable Chinese pressure and stick to its new alignment?

The U.S. factor, North Korea

As Republicans are gaining strength again in domestic politics in the U.S., we need to consider what will happen if the former U.S. President, Donald Trump, returns to power in the next elections. Mr. Trump was unconvinced about the relevance of the U.S.-Korea partnership and had discussed withdrawing U.S. forces from South Korea.

The threat of Mr. Trump at one

time to abandon the relationship with South Korea has completely collapsed. In the coming days, as North Korea conducts more missile and nuclear tests, it may lead to regional tension. Any breakout of hostilities on the Korean Peninsula can derail South Korea's Indo-Pacific project.

South Korea's peace process with North Korea has completely collapsed. In the coming days, as North Korea conducts more missile and nuclear tests, it may lead to regional tension. Any breakout of hostilities on the Korean Peninsula can derail South Korea's Indo-Pacific project.

During the Moon presidency, South Korea was forced to sign the "three no's" agreement with China. Under this agreement, Korea agreed to: no additional Terminal High Altitude Area Defense (THAAD) deployment; no participation in the U.S.'s missile defence network, and no establishment of a trilateral military alliance with the U.S. and Japan.

India can help South Korea withstand Chinese pressure and North Korean threats. An independent, strong, and democratic South Korea can be a long-term partner with India, that will add significant value to India's Indo-Pacific strategy. This new partnership can have a long-term positive impact for both countries and the Indo-Pacific region. It is an opportunity that neither country can afford to miss.

Lakhvinder Singh is Director of Peace and Security Studies at the Asia Institute in Seoul, South Korea. Lt.Gen. Arvinder Singh Lamba, former Vice-chief of Army staff, Indian Army, is heading the Institute of Peace and Conflict Studies

I2U2 can become a regional feature like Quad: Sullivan

‘India one of the most strategically consequential countries’

SRIRAM LAKSHMAN

The U.S. believes that ‘I2U2’, a group comprising India, Israel, the U.S., and the UAE, can become “a feature” of the West Asian region, just like the Quad is for the Indo-Pacific.

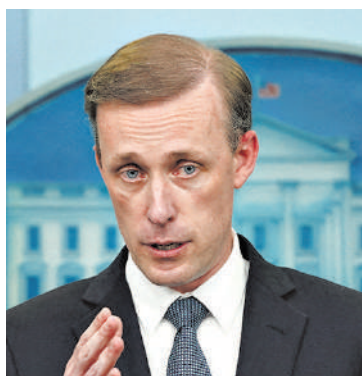
This idea was articulated by U.S. National Security Adviser Jake Sullivan on board Air Force One, *en route* to Israel with U.S. President Joe Biden.

Prime Minister Narendra Modi is scheduled to meet virtually with Mr. Biden, Israeli Prime Minister Yair Lapid and UAE President Mohammed bin Zayed Al Nahyan on Thursday.

“And we think I2U2 can become a feature of the broader region, just as the Quad has become a central pillar of the Indo-Pacific strategy of the United States,” Mr. Sullivan told the travelling press as per a transcript released by the White House.

His remarks were made in response to a question on what the objective was in bringing India “into so many issues” such as the Indo-Pacific Economic Framework, the Quad and I2U2.

I2U2, which was launched



Jake Sullivan

last autumn, has been called the “West Asian Quad” by some commentators.

Mr. Sullivan said India was one of the most “strategically consequential countries” in the Indo-Pacific and therefore “should” play a central role in U.S. strategy. India also had a long-standing relationship with the Gulf countries and Israel, he said, adding that the U.S. was looking forward to Mr. Modi’s participation in the I2U2 summit.

India and the West Asian countries in I2U2 could come together and work on agricultural technology, an example of Mr. Biden’s vision for West Asia, according to Mr. Sullivan.

He said Mr. Biden had a vision for a globally integrated West Asian region, one that is not “just focused on issues

that have been top of mind for American foreign policy-makers over the last 20 years – terrorism and wars”.

Mr. Sullivan said there would be a “significant” announcement around food security and agricultural technology from the I2U2 meeting, as this was an area where there was a current crisis that the four countries could come together to address.

Russian oil

With regard to price caps for Russian oil, the U.S. is engaging not just with the EU and the U.K. but also “key consuming countries” and others, including India and China, Mr. Sullivan said.

The U.S. was being “transparent, direct, and straightforward with the major consuming countries” about reducing Russian revenues while minimising economic disruptions globally, in the countries concerned, and the U.S., Mr. Sullivan said.

He indicated that the discussions were unlikely to conclude in days. The G7 group of the world’s advanced economies had agreed to explore the issue of oil caps when it met last month in Germany.

Cannot impose 'omnibus' ban on demolitions: SC

It reiterates rule of law can't be ignored

KRISHNADAS RAJAGOPAL
NEW DELHI

The Supreme Court on Wednesday wondered whether it can pass "omnibus" orders to stop demolitions by municipal authorities across the country even as senior advocate Dushyant Dave insisted that the nation should refuse to accept the bulldozer "culture".

Solicitor-General Tushar Mehta, appearing for the U.P. government, objected to Mr. Dave's submission that the demolitions targeted a certain community. On June 16, the court told the government that demolitions could happen only in accordance with the law and could not be retaliatory.

On Wednesday, Mr. Mehta said: "All communities are Indian communities... We cannot have community-based PILs [public interest litigation petitions] in the Supreme Court."

Mr. Dave asked why then had the authorities not taken the bulldozers to unauthorised constructions

and farmhouses in some of the poshest colonies of the Capital. "Entire Sainik Farms is illegal... Are we not all governed by the rule of law," he asked.

Next hearing in August

"Nobody can dispute that rule of law cannot be ignored... But can an omnibus order be passed against demolitions... When in cases where authorities are rightly entitled to take action, will such an omnibus order stand in their way," a Bench led by Justices B.R. Gavai and P.S. Narasimha asked, posting the case for a detailed hearing on August 10.

Senior advocate Harish Salve, also for the State government, said the "argument on rule of law was powerful indeed". "But the factual foundation is wobbly. Can Your Lordships pass an order saying a house cannot be demolished merely because it belongs to an accused," he asked.

CONTINUED ON ► PAGE 10

Staying watchful

Inflation risks undermining growth
and macroeconomic stability

The concerted efforts made by the Reserve Bank and the Union government to contain inflation appear to be having some impact, albeit marginal, in slowing the pace of price gains, the latest retail inflation data show. Price gains as measured by the Consumer Price Index (CPI) eased almost imperceptibly to 7.01% in June, from May's 7.04%, with food price inflation slowing by a distinct 22 basis points to 7.75%. Of the 12 items comprising the food and beverages basket – almost half the weight of the CPI – the prices of pulses and edible oils both shrank from a month earlier. Prices of the key cooking medium, which had been on a boil amid a supply shock (from Ukraine and Indonesia), have cooled, helped by import duty reductions. Year-on-year inflation in oils and fats decelerated last month by a whopping 390 basis points to 9.4%, with the index shrinking 0.7% on a sequential basis. And prices of pulses contracted both from a year earlier and the preceding month. The other major positive sign of a policy measure translating to softer prices was with transportation fuels. The Centre's reduction of excise duty on petrol and diesel in May manifested in a significant easing in inflation in the transport and communication index: year-on-year, the rate slowed by 260 basis points to 6.9%, while sequentially it shrank by 120 basis points.

Still, it would be way too premature for policymakers to drop their guard. With nine of the 12 items in the food and beverages basket, representing almost 80% of the sub index and spanning cereals, milk and meat to vegetables, sugar and spices, experiencing sequential price gains, the Government would need to maintain vigil to ward off any build-up of inflationary pressures in consumers' kitchens. Year-on-year inflation in cereals, meat and milk all accelerated in June from May's pace, and price gains in vegetables still remained in double digits at 17.4%. The progress of monsoon rains give hope that the prices of farm produce may moderate in the coming months, provided the extreme rainfall and flooding seen in some States does not adversely hit crop growing regions. And while an appreciable softening in global crude oil prices in recent sessions offers some respite, the rupee's sharp depreciation against the dollar means India will continue to face the spectre of 'imported inflation' as the bill for imports, including crude, keeps rising. The decision of the GST Council to raise tariffs on a range of goods including some items of mass consumption is also bound to add upward pressure on prices. Finance Minister Nirmala Sitharaman's remarks on Tuesday reflect authorities' recognition that any let up in the fight against inflation risks undermining growth and broader macroeconomic stability.

'Q1 new investment projects fall 20.5%'

Manufacturing, infra outlays fall sharply: survey

VIKAS DHOOT
NEW DELHI

Following a revival through 2021-22, new investment projects in India declined 20.5% sequentially in the first quarter of 2022-23, as slowing growth and increasing uncertainty caused by global headwinds sapped enthusiasm for fresh investments among private investors, according to a survey.

Manufacturing and infrastructure sectors, which had led the revival in fresh capital investments last year, recorded sharp falls in new investments in the April-June quarter, investment monitoring firm Projects Today's quarterly survey shows.

Private investments fell 31% quarter-on-quarter, with foreign investments seeing a

Investments drop

The table lists the change in new project investments in Q1FY23 over Q4FY22. New investments fell by 20.5% with foreign investments recording the steepest drop



Ownership	Change (%)	Sectors	Change (%)
Government	-3.6	Manufacturing	-26.4
Central govt.	1.6	Mining	46.4
State govt.	-6.9	Electricity	83.9
Private sector	-30.7	Services	-32.4
Private (Indian)	-19.9	Irrigation	208.4
Private (Foreign)	-58.9	Total	-20.5
Total	-20.5		

SOURCE: PROJECTS TODAY

much steeper drop of 59%. Central government and public sector investments recorded a marginal rise of 1.62% over the preceding quarter, but States' new capex plans fell by almost 7%.

A total investment commitment of ₹4,34,664.86 crore in 2,506 new projects was announced in the first quarter, as against 2,467 pro-

jects worth ₹5,46,673.78 crore in January-March.

"Fresh capital spending lost steam in the first quarter... after four quarters of growth, with investment announcements slowing in the private as well as public sectors," Shashikant Hegde, director and CEO of Projects Today told *The Hindu*. Mr. Hegde attributed this to the

dip in economic growth to 4.1% in the January to March 2022 quarter.

"The prevailing uncertainties in the global business and economic environment made fresh investment plans tentative, with many in the private sector opting to wait and watch. However, we believe this will be reversed soon and the growth seen last year will continue in the second half," he said.

Fresh investment in manufacturing dipped 26.4% in Q1 with noticeable falls in sectors such as textiles, basic chemicals, cement, and metals. Investments in electronics and automobiles continued to grow at last year's pace.

Mining and electricity investments grew at a robust 46.4% and 84%, respectively, but fresh outlays for infrastructure services and utilities fell 32.4%. Investments in transport sectors saw a sharp fall too.

EXPLAINER

In high-res: unfolding mysteries of the night sky

With the release of its first five stunning images, the James Webb Space Telescope has demonstrated an acute observational capacity and revealed aspects of the cosmos hitherto hidden from other telescopes

THE GIST

■ As light travels with a velocity of about 3,00,000 km per second, light from a distant object will take time to reach us on Earth. Hence, when we see a distant stellar object, we see it as if it were far back in time. To collect more light we need giant infrared telescopes. JWST is the biggest infrared telescope ever built.

■ The first five images released are – the deep field image of the SMACS 0723 cluster of galaxies which date back to times when the first stars were born, the Carina Nebula vividly showing the birth of new stars, the Southern Ring Nebula which details a dying star, the Stephan's quintet where we can see the cataclysmic cosmic collision of galaxies and finally the WASP-96 b, an exoplanet (a planet orbiting a distant star).

■ The spectroscopic observation of JWST reveals that there is a considerable amount of water vapour in the WASP-96 b's atmosphere. However due to the blistering heat, WASP-96 is unlikely to host life.

TV.VENKATESWARAN

On November 30, 1609, Galileo turned his telescope towards the night sky. This singular act revolutionised astronomy. Until then, scholars held that celestial objects were without any kind of blemish. Galileo showed that the Moon had craters and mountains. All celestial objects, including stars, were thought to go around the Earth. The telescope, by observing phases of Venus firmly established that planets go around the Sun and not the Earth. The Milky Way, a haze in the dark night teemed with hundreds of stars, established that the cosmos is immense and beyond our imagination. Galileo revolutionised astronomy using a crude telescope which by today's standards is merely a toy.

The first five images released by NASA (National Aeronautics and Space Administration) on July 11, captured by the James Webb Space Telescope (JWST) is no less momentous in the history of astronomy than the day Galileo turned his telescope toward the heavens.

The deep field image of the SMACS 0723 cluster of galaxies has images that date back to times when the first stars were born. The images from Carina Nebula vividly show the birth of new stars. In contrast, the Southern Ring Nebula image details a dying star. In Stephan's quintet, the JWST has captured the cataclysmic cosmic collision of galaxies. By analysing the spectrum of the radiation from WASP-96 b, an exoplanet (a planet orbiting a distant star), the telescope has shown conclusively the presence of water vapour in the atmosphere of this hot, puffy gas giant planet orbiting a distant Sun-like star. With its sharp vision, more light-collecting area and ability to see in the invisible infrared regions, the JWST is sure to expand our understanding of the cosmos.

Peering back in time

About 13.8 billion years ago, through the Big Bang, our Universe emerged. The first stars and galaxies were born around 300 million years after the Big Bang. To know more about the formation of these stars and galaxies, we do not need a time machine or time travel. As light travels with a velocity of about 3,00,000 km per second, light from a distant object will take time to reach us on Earth. Hence, when we see a distant stellar object, we see it as if it were far back in time. Powerful telescopes are therefore, like time machines.

However since objects far away are dim, we need giant telescopes to collect more light. Further, light from distant objects is stretched out by the expansion of our Universe, driving the radiation from the visible range into the infrared. Therefore, to look deep back into the early phases of the Universe, we need a giant infrared telescope. JWST is the biggest infrared telescope ever built. With a 6.5-metre primary mirror, the JWST infrared telescope collects more photons than Hubble. It can see even the faintest flicker from the most distant regions of the cosmos.

Cluster of galaxies

The SMACS 0723 is a noted cluster of galaxies around 5.12 billion light-years away. Situated in the direction of the southern constellation of Volans, the image is as it appeared 4.6 billion years ago, about the same time when the Sun and the Earth evolved. The cluster has been previously studied by Hubble, Planck and Chandra space telescopes. But the rich details and features of the JWST's Near-Infrared Camera (NIRCam) are unmatched.

With a sharper vision than Hubble, many of the galaxies seen clearly in this image appear as mere blobs in Hubble's telescope. SMACS 0723 galaxy cluster is massive, which, as Einstein's general relativity theory predicts, distorts the fabric of spacetime. Like the refraction of a ray of light passing through a lens, the light from behind bends through the massive cluster. Due to this "gravitational lensing" effect, we notice that some galaxies appear distorted in an arc

shape, some are split into multiple images, and some are magnified.

The kaleidoscope of colours in the image captured by the JWST's Mid-Infrared Instrument (MIRI) are false colours (false colour refers to colour rendering methods used to display images which were recorded in the visible or non-visible parts of the electromagnetic spectrum, in colour) corresponding to a radiation wavelength. Galaxies that appear blue in this image contain stars but very little dust. The cosmic objects enveloped by dust appear red. Objects rich in hydrocarbons and other chemical compounds are green.

"A couple of galaxies are found to be at a redshift of eight, corresponding to a lookback time of - 13.0 billion years, a mere -800 million years after the Big Bang. These are some of the oldest galaxies ever known" says Manoj Puravankara, Dept. of Astronomy and Astrophysics, Tata Institute of Fundamental Research, Mumbai.

Where stars are born

Stars and star clusters are formed inside giant gas clouds. Typically the massive interstellar clouds where new stars are formed are huge with diameters of about 100 light-years and holding nearly six million solar masses. There is enough material for making hundreds of stars out of this. Nonetheless, the density of these clouds is just 100 atoms per cubic centimetre. Stars typically have about 10^{22} (one followed by 22 zeros) atoms per cubic centimetre. While various theories explain how the dispersed mass aggregate and stars evolve, hard evidence is still lacking. The visible light is obscured by the thick dust that goes into the making of these stars and render it opaque. Shrouded in thick dust clouds, these star forming regions remained hidden to even powerful telescopes, until now.

One such stellar nursery booming with new stars is a giant interstellar gas cloud in our galaxy called NGC 3324, located in the direction of the Carina Nebula. The stunning image of an edge of the NGC 3324, dubbed Cosmic Cliff, located approximately 7,600 light-years from Earth, is home to many massive and young stars than our Sun. With the giant gas cloud condensing into new stars, this is an active star-forming region. Hot gas and dust emit infrared light. By steering its NIRCam and MIRI instruments into the highly-dense dust clouds, the JWST has revealed rich details of this star formation region.

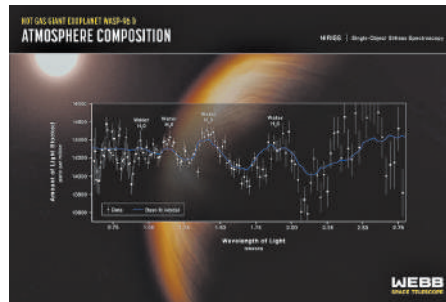
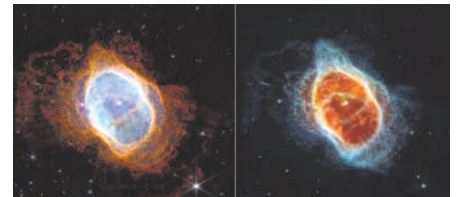
The striking image shows many exciting features in the inwards of the star-forming regions. Hundreds of baby stars, previously invisible to telescopes, shine through the dust cloud. Thin gas pervades the space between the stars called the interstellar medium. When the infant stars begin to shine, they blow away the interstellar matter. The region devoid of gas appears in the image in the shape of bubbles and cavities. The mountains and valleys in the interstellar medium shaped by the radiation from the budding stars are visible, while the stars located in the centre of the bubble are off the frame. Other phenomena that one sees in the image include ionised gas and hot dust wafting away due to radiation from young stars, causing turbulence and eddies and dust swirling in the surrounding gas. What appears as a golden comet in this image are actually jet outflows from the newborn stars.

Two Indian astronomers are slated to use the JWST data to study star formation. Manoj Puravankara will be using the data obtained from Near Infrared Spectrograph (NIRSpec) and MIRI instruments to study the earliest phases of star formation, that is the protoplanetary disks – the birthplaces of planetary systems. "JWST's unprecedented sensitivity, angular resolution, and spectral resolution allow us to study various mass flows that shape and regulate the formation of stars and planetary systems" he says.

Jessy Jose, Assistant Professor from the Department of Physics, IISER Tirupati will be part of an international collaboration to study the very massive, dense molecular cloud within the central molecule zone of



Clockwise:
SMACS 0723 galaxy cluster
The Carina Nebula
The Southern Ring Nebula
Stephan's Quintet
WASP-96 b • NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, EUROPEAN SPACE AGENCY, CANADIAN SPACE AGENCY, SPACE TELESCOPE SCIENCE INSTITUTE AND THE ERO PRODUCTION TEAM



our Milky Way in order to understand the young stellar objects within it. "The NIRCam and MIRI instruments of JWST which broadly covers the wavelength range from 0.6 to 28-micron meter will enable us to characterise the very early phase of star formation" she says.

A star on its deathbed

The Eight-Burst Nebula, also known as the Southern Ring Nebula or NGC 3132, is a well-known planetary nebula in the constellation Vela, located approximately 2,500 light-years from Earth.

Despite their name, planetary nebulae have nothing to do with planets. They are gas shells formed from the cast-off outer layers of a dying star. Intermediate mass stars with a mass of 0.8 to eight times the mass of the Sun end their lives with drama. They do not die in one big explosion but go through a cycle of fits and starts. The dying star will expel its outer layer and expand, while simultaneously, its core will contract. The contracting centre will once again start to emit energy, and the star will have a lease of life. The expelled shell is pushed by this radiation and expands in space like a ring around the central star. After some time, the central star again sheds its outer layer while the remaining core contracts. Over time successive waves of expelled outer shells surround the central star-like concentric rings. The remaining core of the star ultimately becomes a faint glowing white dwarf. After trillions of years, they cool down and no longer shine, ultimately becoming black dwarfs. The near-infrared light is false coloured blue, and the mid-infrared light is red in this impressive image by the JWST. The consecutive waves of expelled shells can be clearly seen. If you look closely at the central region, a redder star shining next to a bright blue one can be seen. Astronomers knew that the Southern Ring Nebula was a binary star system. For the first time, we can clearly see the second

star hidden behind the dust clouds.

Out Sun, an intermediate-mass star, will undergo a similar fate.

Cosmic waltz

Situated in the direction of the constellation Pegasus, around 290 million light-years away from Earth, is the clutch of five galaxies, each bound with the other called the Stephan's Quintet. Four of these close-knit galaxies are in a sort of dangerous waltz dance. Two of them are currently in the process of merging into one another. Studying such cataclysmic galactic interactions will help us understand how these lead to star formation, evolution, and central black holes in galaxies.

Hunt for the extra-terrestrial

Located around 1,150 light-years from Earth, WASP-96b is an exoplanet (a planet that orbits another star) orbiting a star named WASP-96. The planet has a mass half that of Jupiter and goes around the central star every 3.4 days. The light from the central star will pass through the planet's atmosphere when its edge is in the line of sight of the Earth. The molecules present in the atmosphere will first absorb the light entering the atmosphere. Then it would be re-emitted. By comparing the star's spectrum and the starlight passing through the planet's atmosphere, astronomers can discern the molecular composition. The spectroscopic observation of JWST reveals, for example, that there is a considerable amount of water vapour in the WASP-96 b's atmosphere.

With blistering heat, WASP-96 is unlikely to host life; However, astronomers will use the same technique to examine other exo-planets, particularly those in the habitable zone of the central star. Finding water vapour, hydrocarbons, methane, and other atmospheric elements could indirectly indicate life.

T.V. Venkateswaran is Scientist at Vignyan Prasara, Dept of Science and Technology

India ranks 135 out of 146 in Gender Gap Index

Country is worst performer in the world in 'health and survival' sub-index: report

SPECIAL CORRESPONDENT
NEW DELHI

India ranks 135 among a total of 146 countries in the Global Gender Gap Index, 2022, released by the World Economic Forum on Wednesday. The country is the worst performer in the world in the "health and survival" sub-index in which it is ranked 146.

The Global Gender Report, 2022, which includes the index, says it will now take 132 years to reach gender parity, with the gap reducing only by four years since 2021 and the gender gap closed by 68.1%. But this does not compensate for the generational loss between 2020 and 2021 as the trends leading up to 2020 showed that the gender gap was set to close within 100 years.

The gender score | India ranked 135 in gender parity out of 146 countries, according to the Global Gender Gap Report 2022 released by the World Economic Forum. A look at India's ranking in the four sub-indexes based on which the overall ranking was determined

India	Rank 2022*
Global gender gap index	135
Economic participation and opportunity	143
Educational attainment	107
Health and survival	146
Political empowerment	48

*out of 146 countries



ment. It measures scores on a 0-to-100 scale, which can be interpreted as the distance covered towards parity or the percentage of the gender gap that has been closed.

Other scores

India ranks 146 in health and survival, 143 in economic participation and opportunity, 107 in educational attainment and 48 in political empowerment. The report notes that India's score of 0.629 was its seventh-highest score in the past 16 years.

India also "recovered" ground since 2021 in economic participation and opportunity, though the report goes on to add that the labour force participation shrunk for both men (by -9.5 percentage points) and women (-3 percentage points).

India ranks poorly among its neighbours and is behind Bangladesh (71), Nepal (96), Sri Lanka (110), Maldives (117) and Bhutan (126). Only the performance of Iran (143), Pakistan (145) and Afghanistan (146) was worse than India in South Asia. In 2021, India

ranked 140 out of 156 nations.

The Global Gender Gap Index benchmarks gender parity across four key dimensions or sub-indices – economic participation and opportunity, educational attainment, health and survival, and political empower-

‘India has achieved clean energy targets 9 years before deadline’

We have installed 162 GW of renewable energy capacity, says Power Minister

SPECIAL CORRESPONDENT
NEW DELHI

India has achieved clean energy targets nine years ahead of schedule, Union Power Minister R.K. Singh said at the Sydney Energy Forum in Sydney on Wednesday.

India has installed 162 GW (1 GW is 1,000 MW) of renewable energy capacity, which is 41% of the 402 GW of electricity installed.

“We reached this target on November 2021 and what our Prime Minister did was ask us to raise our ambition and so in Glasgow (at the UN COP-21) our Prime Minister committed to installing 500 GW of renewable energy by 2030, which would then be 50% of the installed capacity. Despite having among the lowest per capita emissions



In 2015, India committed to ensuring that 40% of its energy would be from renewable sources by 2030. ■ FILE PHOTO

in the world, we have invested in this energy transition because our traditions teach us to respect and care for our environment. We are not doing this for economic reasons,” Mr. Singh said.

In 2015, India committed to ensuring that 40% of its energy would be from renewable sources by 2030 as

part of its Nationally Determined Contributions (NDC).

Ministers from the United States, Japan, India, Indonesia, and the Pacific Island nation of Samoa are attending the forum along with leaders of major companies that are committed to low emissions technologies.

The forum, said a state-

ment from the Australian government, will “foster connections between investors, business and government with a focus on innovations in key clean energy technologies such as solar, hydrogen, critical minerals and batteries”.

The energy crisis that has gripped the world has been “some time in the making” and not only due to the Russia-Ukraine war but because of the “cartelisation in the fossil fuel industry.”

He said that renewable energy promised to break these cartels though it was possible that there would be newer such cartels forming in manufacturing and equipment and the world would have to take steps to ensure that these do not coalesce.

India, China talks to be held on July 17

Corps Commander-level meeting is part of efforts to take forward stalled process of disengagement

DINAKAR PERI
NEW DELHI

India and China are scheduled to hold the 16th round of Corps Commander talks on July 17 on the Chinese side at Moldo as part of efforts to take forward the stalled process of disengagement and de-escalation in eastern Ladakh. The talks are scheduled on Sunday around 10 a.m. on the Chinese side, an official source said.

In addition to the focus on disengagement at Patrolling Point 15 in the Gogra-Hot Springs area, the effort would also be to discuss disengagement from Demchok and Depsang, which have been the sticking points in the last few rounds of talks.

15 rounds of talks

Since the stand-off began in May 2020, the two sides have so far held 15 rounds of talks with disengagement under-



Firm stand: India is insisting on comprehensive disengagement and de-escalation of the situation in eastern Ladakh. ■AP

taken from both sides of Pangong Tso in February 2021, and from PP 17 in the Gogra-Hot Springs area in August, in addition to Galwan in 2020 after the violent clash. The 15th round of Corps Commander talks took place on March 11, 2022. In addition,

the two sides held talks at the political and diplomatic levels.

Since the last round of talks, Chinese Foreign Minister Wang Yi has visited India in March while he and Foreign Minister S. Jaishankar met last week on the side-

lines of the G-20 Foreign Ministers' meeting in Bali, where they discussed the situation with regard to the Line of Actual Control (LAC).

India has been insisting on comprehensive disengagement and de-escalation of the situation in eastern Ladakh, while China has been reluctant to discuss Depsang and Demchok, maintaining that they are not a part of the current stand-off, officials have stated. Due to this, the 13th round of talks ended acrimoniously with both sides issuing strong statements and accusing the other.

Troops deployed

Over 50,000 troops and heavy equipment continue to be deployed on both sides close to the LAC for the second winter in very high altitude areas.

China has also undertaken

massive construction of infrastructure, habitat and support structures to maintain the troops close to the LAC, altering the ground status.

In May, the General Officer Commanding-in-Chief of Northern Command, Lt. Gen. Upendra Dwivedi, said the situation on the LAC is stable but in a state of "heightened alert", and to ensure that irritants do not turn into violent situations the two sides have opened up various channels of communication at the lower level. He added, "We have regular hotline exchanges and we have stopped the system of body push, etc., that was there earlier and no physical contact is being ensured. Wherever there is an irritant, we call for talks at the battalion and brigade level, sit down together and come to an amicable solution."

General Studies Paper I	
A	History of Indian culture will cover the salient aspects of art forms, literature and architecture from ancient to modern times;
B	Modern Indian history from about the middle of the eighteenth century until the present-significant events, personalities, issues;
C	Freedom struggle-its various stages and important contributors / contributions from different parts of the country;
D	Post-independence consolidation and reorganization within the country;
E	History of the world will include events from 18 th century such as industrial revolution, world wars, re-drawing of national boundaries, colonization, decolonization,
F	Political philosophies like communism, capitalism, socialism etc.-their forms and effect on the society
G	Salient features of Indian Society, Diversity of India;
H	Effects of globalization on Indian society;
I	Role of women and women's organization;
J	Social empowerment, communalism, regionalism & secularism
K	Salient features of world's physical geography;
L	Geographical features and their location- changes in critical geographical features (including water bodies and ice-caps) and in flora and fauna and the effects of such changes;
M	Important Geophysical phenomena such as earthquakes, Tsunami, Volcanic activity, cyclone etc.
N	Distribution of key natural resources across the world (including South Asia and the Indian subcontinent);
O	Factors responsible for the location of primary, secondary, and tertiary sector industries in various parts of the world (including India);
P	Population and associated issues;
Q	Urbanization, their problems and their remedies
General Studies Paper II	
A	India and its neighbourhood- relations;
B	Important International institutions, agencies and fora- their structure, mandate;
C	Effect of policies and politics of developed and developing countries on India's interests;
D	Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests.
E	Indian Constitution, historical underpinnings, evolution, features, amendments, significant provisions and basic structure;
F	Comparison of the Indian Constitutional scheme with other countries;
G	Functions and responsibilities of the Union and the States, issues and challenges pertaining to the federal structure, devolution of powers and finances up to local levels and challenges therein; Inclusive growth and issues arising from it;
H	Parliament and State Legislatures - structure, functioning, conduct of business, powers & privileges and issues arising out of these;
I	Structure, organization and functioning of the executive and the judiciary, Ministries and Departments;

J	Separation of powers between various organs dispute redressal mechanisms and institutions;
K	Appointment to various Constitutional posts, powers, functions and responsibilities of various Constitutional bodies;
L	Statutory, regulatory and various quasi-judicial bodies;
M	Mechanisms, laws, institutions and bodies constituted for the protection and betterment of these vulnerable sections;
N	Salient features of the Representation of People's Act;
O	Important aspects of governance, transparency and accountability, e-governance- applications, models, successes, limitations, and potential;
P	Citizens charters, transparency & accountability and institutional and other measures;
Q	Issues relating to poverty and hunger,
R	Welfare schemes for vulnerable sections of the population by the Centre and States, Performance of these schemes;
S	Issues relating to development and management of social sector / services relating to education and human resources;
T	Issues relating to development and management of social sector / services relating to health
General Studies Paper III	
A	Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment;
B	Effects of liberalization on the economy, changes in industrial policy and their effects on industrial growth;
C	Inclusive growth and issues arising from it;
D	Infrastructure Energy, Ports, Roads, Airports, Railways etc. Government budgeting;
E	Land reforms in India
F	Major crops, cropping patterns in various parts of the country, different types of irrigation and irrigation systems;
G	Storage, transport and marketing of agricultural produce and issues and related constraints;
H	e-technology in the aid of farmers; Technology Missions; Economics of Animal-Rearing.
I	Issues of buffer stocks and food security, Public Distribution System- objectives, functioning, limitations, revamping;
J	Food processing and related industries in India – scope and significance, location, upstream and downstream requirements, supply chain management;
K	Issues related to direct and indirect farm subsidies and minimum support prices
L	Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology;
M	Indigenization of technology and developing new technology;
N	Developments and their applications and effects in everyday life;
O	Issues relating to intellectual property rights
P	Conservation, environmental pollution and degradation, environmental impact assessment
Q	Disaster and disaster management
R	Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges, basics of cyber security;
S	Money-laundering and its prevention;

T	Various forces and their mandate;
U	Security challenges and their management in border areas;
V	Linkages of organized crime with terrorism;
W	Role of external state and non-state actors in creating challenges to internal security;
X	Linkages between development and spread of extremism.
General Studies Paper IV	
A	Ethics and Human Interface: Essence, determinants and consequences of Ethics in human actions;
B	Dimensions of ethics;
C	Ethics in private and public relationships. Human Values - lessons from the lives and teachings of great leaders, reformers and administrators;
D	Role of family, society and educational institutions in inculcating values.
E	Attitude: Content, structure, function; its influence and relation with thought and behaviour;
F	Moral and political attitudes;
G	Social influence and persuasion.
H	Aptitude and foundational values for Civil Service , integrity, impartiality and non-partisanship, objectivity, dedication to public service, empathy, tolerance and compassion towards the weaker sections.
I	Emotional intelligence-concepts, and their utilities and application in administration and governance.
J	Contributions of moral thinkers and philosophers from India and world.
K	Public/Civil service values and Ethics in Public administration: Status and problems;
L	Ethical concerns and dilemmas in government and private institutions;
M	Laws, rules, regulations and conscience as
N	sources of ethical guidance;
O	Accountability and ethical governance; strengthening of ethical and moral values in governance; ethical issues in international relations and funding;
P	Corporate governance.
Q	Probity in Governance: Concept of public service;
R	Philosophical basis of governance and probity;
S	Information sharing and transparency in government, Right to Information, Codes of Ethics, Codes of Conduct, Citizen's Charters, Work culture, Quality of service delivery, Utilization of public funds, challenges of corruption.
T	Case Studies on above issues.