

● POLITY

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## SCIENCE AND TECHNOLOGY

## DOT LAUNCHES BHARAT 6G ALLIANCE TO DRIVE INNOVATION AND COLLABORATION IN NEXT-GENERATION WIRELESS TECHNOLOGY

**NEWS in GIST:** The Bharat 6G Alliance (B6GA) has been formed, aiming to develop indigenous technology, promote universal connectivity, and lead in 6G technology. The alliance will collaborate with global counterparts, while two projects receive funding: a 6G THz Testbed and an Advanced Optical Communication Test Bed involving various academic and industry partners.

**BACKGROUND:** The Bharat 6G Alliance (B6GA) aims to understand the business and societal needs of 6G, foster consensus, and promote open R&D initiatives. It seeks to bring together Indian startups, companies, and the manufacturing ecosystem to drive the design, development, and deployment of 6G technologies in India. B6GA aims to position India as a global leader in 6G innovation by accelerating standards-related patent creation, contributing to international standardization organizations, facilitating market access for Indian telecom technology products and services, promoting indigenous manufacturing and technology co-innovation, reducing imports, boosting exports, and encouraging the creation of Intellectual Property.

**DEVELOPMENTS:** In the past 9 years, significant advancements have been made in the Indian telecom sector. Data costs have reduced from Rs.300/GB to Rs.10/GB, Right of Way permission time has decreased to 9 days, BTS sites have increased to 25 lakh, FDI in the sector has reached \$24 billion, and substantial investments have been made in 5G. BSNL is now profitable, India exports technology to 12 countries, and there has been progress in 4G coverage, 5G tower installations, broadband in rural areas, and telecom manufacturing under PLI.

## TELECOM TECHNOLOGY DEVELOPMENT FUND (TTDF):



**1** Launched in 2022 to fund research and development in telecom.

**2** 5% of annual USOF collections allocated for TTDF scheme.

**3** Aims to bridge the digital divide and promote indigenous technologies.

**4** Facilitates the development of standards and testing in telecom.

**5** Encourages collaboration between academia, startups, and research institutes.

## MAIDEN EMBARKATION OF SCIENTISTS ONBOARD INDIA'S RESEARCH VESSEL 'SAGAR NIDHI' – COLOMBO SECURITY CONCLAVE

### OCEAN RESEARCH VESSEL - SAGAR NIDHI



**01** Commissioned in 2008 for marine research program in India.

**02** Third research vessel after Sagar Purvi and Sagar Paschimi.

**03** Capable of geo-scientific, meteorological, and oceanographic research.

**04** Designed with blue-water capability for long voyages.

**05** First Indian flagged ship to reach Antarctic waters.

**06** MoES has 6 ships for ocean studies and applications.

**07** Essential for Blue Economy, search and rescue, deep ocean missions.

**08** Used for tsunami monitoring, gas hydrate identification, and scientific research.

**NEWS in GIST:** Scientists from Bangladesh and Mauritius joined India's research vessel 'Sagar Nidhi' for a 35-day joint ocean expedition. The expedition, organized by INCOIS, aims to conduct collaborative research on ocean data to predict and manage changes in the marine environment. The initiative stems from the Colombo Security Conclave and conferences held in 2022.



## SOCIAL JUSTICE

### CLEARING THE WATER

**NEWS in GIST:** Access to piped, potable water remains limited in rural India. Prime Minister Narendra Modi aimed to connect all rural households by 2024, but currently, only 64% have access. The Jal Shakti Ministry has made progress, with approximately nine crore households having their own water connections. However, it is unlikely that the target will be met by April 2023 due to the pandemic and supply chain disruptions. Achieving even 75% connectivity poses a challenge, and the reliability of these numbers is a concern.

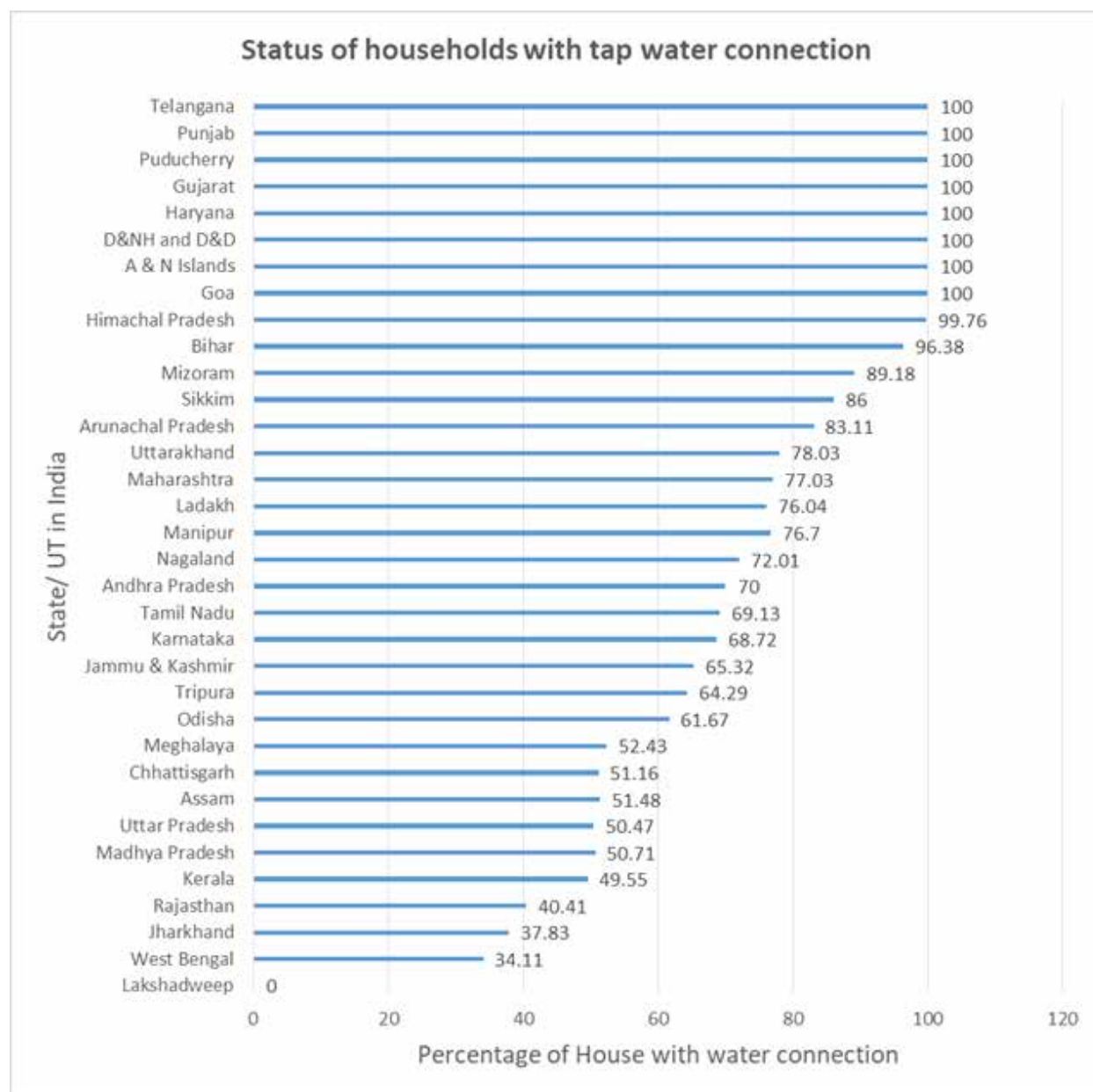
**CURRENT STATUS:** The reported figures of the 'Har Ghar Jal' mission by the Jal Shakti Ministry are based on state-reported data, which may not present an accurate picture. Only a small fraction of villages have been certified as fully connected, with most having only half or three-fourths of households connected. An independent assessment found that about 62% of households were connected, but the sample size was limited. Transparency and a mechanism to disclose the scheme's performance on the ground are needed.

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## GEOGRAPHY

### TRENDS IN HEATWAVES IN INDIA

When maximum temperature reaches <b>40°C in plains</b> and at least <b>30°C in hilly Regions</b> .
i) Based on Departure from Normal
➤ <b>Heat Wave:</b> Departure from normal is <b>4.5°C to 6.4°C</b> .
➤ <b>Severe Heat Wave:</b> Departure from normal is <b>&gt;6.4°C or more</b> .
ii) Based on Actual Maximum Temperature
➤ <b>Heat Wave:</b> When actual maximum temperature <b>≥ 45°C</b> .
➤ <b>Severe Heat Wave:</b> When actual maximum temperature <b>≥ 47°C</b> .
iii) Criteria for describing Heat Wave for coastal stations
When maximum temperature departure is <b>4.5°C or more</b> from normal, Heat Wave may be described provided actual maximum temperature is <b>37°C or more</b> .

**Context:** A recent report from the India Meteorological Department (IMD) indicated an **increasing trend in the number and duration of heatwaves**, based on data from March to June from 1961 to 2020.

- This year, heatwaves started as early as on March 3, and many areas reported temperatures that were higher than average.
- The number of days with temperatures exceeding 30 degrees Celsius has also increased.
  - While a temperature of 33 degrees Celsius was recorded between 1961 and 1990 for around 70 days every year, from 1991 to 2022, this temperature was recorded for 89 days a year. It thus became the new normal.
  - The concept of the 'new normal' vis-à-vis climate change refers to long-term changes in weather patterns and climatic conditions that are expected to, or have, become more frequent because of climate change.

#### What is heat wave?

Qualitatively, heat wave is a condition of air temperature which becomes fatal to human body when exposed.

Quantitatively, it is defined based on the temperature thresholds over a region in terms of actual temperature or its departure from normal.

As per India Meteorological Department (IMD) for heat wave to be declared,

following criteria to be met:

### Changing Weather Patterns and Heatwave Conditions

- Climate change is increasing both the frequency and the intensity of extreme weather events.
- An October 2017 study conducted by the Indian Institute of Tropical Meteorology (IITM), Pune, reported that there was a three-fold increase in widespread extreme events from 1950 to 2015.
- From June to September 2022, there were variations in rainfall in different parts of India:
  - A significant increase was recorded in central and south India whereas parts of Kerala, Karnataka, and Madhya Pradesh flooded many times.
  - A significant shortfall was also recorded in many parts of Uttar Pradesh, Bihar, Odisha, and the northeast.
- High monsoon rainfall variability and continuous warming raise the probability of dry and hot extremes, with profound implications for agriculture, water resources, and India's overall economy.

### Role of marine heatwaves

- Marine heatwaves are periods of temperature much higher than the average seasonal temperature in that region.
- The Indian Ocean recorded six marine heatwaves over a period of 52 days in 2021. They used to be rare in this water-body but today are an annual occurrence.
- A low pressure develops over the Indian subcontinent when the land heats up during the summer. The moisture for monsoon rains is thus carried by the winds as they blow in from the Indian Ocean.
- However, rainfall over the land decreases when ocean heatwaves occur, as the winds are drawn to areas over the ocean instead of land. This affects the delay in monsoon arrival thus prolongs the drier heatwaves conditions over India.

There is also a **strong connection between land and ocean heatwaves**, driven by atmospheric circulation, increase in sea-surface temperature, and **feedback mechanisms** that exacerbate the intensity and duration of extreme temperatures.

For example, when a land-based heatwave occurs, it can enhance evaporation rates and reduce soil moisture, leading to drier conditions. This drier surface, in turn, absorbs more solar radiation, amplifying the heatwave. This feedback can also influence the persistence of heatwaves over both land and ocean environments.

- In 2022, IITM found that from 1982 to 2018, the western Indian Ocean region had a four-fold increase in marine heatwaves (an increase of 1.2 to 1.5 events per decade); the northern Bay of Bengal region followed with a two- or three-fold rise (an increase of 0.4 to 0.5 events per decade).

**Conclusion:** Such conditions of heatwaves affect water availability, soil moisture, and crop output while increasing food prices and lowering incomes. The co-occurrence of heatwaves and droughts can also lead to wildfires, tree mortality, and a higher risk of thermal power-plant failures. Ultimately, the risks can push sensitive and vulnerable systems over a tipping point, ultimately avalanching into drastic consequences for socio-ecological systems.

## ECONOMICS AND DEVELOPMENT

### CHINA TO STAY OUT OF SRI LANKA'S CREDITORS' PLATFORM

China "will not join" the official creditors' platform negotiating a common debt treatment plan with Sri Lanka. In May this year, 17 countries mostly western creditor nations that have extended loans to Sri Lanka formed an "official creditor committee" - the Paris Club, co-chaired by India, Japan, and France, to discuss Sri Lanka's request for debt treatment, after last year's debilitating financial crisis pushed the country to a sovereign default. China has attended the committee's meetings as an observer, but decided to stay out of the official creditors'

committee repeatedly underscoring creditor equitability.

The private creditors holding International Sovereign Bonds (ISBs) have the largest share of Sri Lanka's foreign debt, China is the island's biggest bilateral lender, followed by Japan, and India. Sri Lanka is racing against time to restructure both its foreign and domestic debt, ahead of the September deadline set by the International Monetary Fund (IMF), for its first review after the Fund extended a nearly \$3 billion package to the debt-distressed island.

### 'MANUFACTURING GROWTH EASED IN JUNE'

**NEWS IN GIST:** *S&P Global's survey-based manufacturing PMI hints at slight moderation in momentum even as new orders stay strong*

The survey-based S&P Global India Manufacturing Purchasing Managers' Index (PMI) eased from 58.7 in May to 57.8 in June. The firms however hired more workers with a strong demand and the uptick in output, as overall business confidence rose to a six-month high. The increase in factory orders for May was among the strongest since February 2021. The positive

demand dynamics and greater labour costs pushed inflation to a 13-month high. However, the growth in export orders, slowed from May's levels. The input costs increasing at the lowest rate in three years and strong demand forecast prompted manufacturers to purchase fresh raw materials at the second-strongest pace in more than 12 years.

### RBI REPORTS 76% OF ₹2,000 NOTES RETURN

The Reserve Bank of India (RBI) noted that 76 % of the ₹ 2,000 banknotes in circulation as on May 19, 2023 had since been returned. The total value of ₹2,000 banknotes in circulation, which had amounted to ₹ 3.62 lakh Cr. on March 31, 2023, had declined to ₹3.56 lakh Cr. as on May 19, 2023. The total value of ₹ 2,000 banknotes received back from circulation up to June 30 after the

announcement on May 19 was ₹2.72 lakh Cr. At present, ₹2,000 banknotes amounting to ₹0.84 lakh Cr. is in circulation. About 87 % of the total banknotes in ₹2,000 denomination received back from circulation is in the form of deposits and the remaining has been exchanged into other denomination banknotes.



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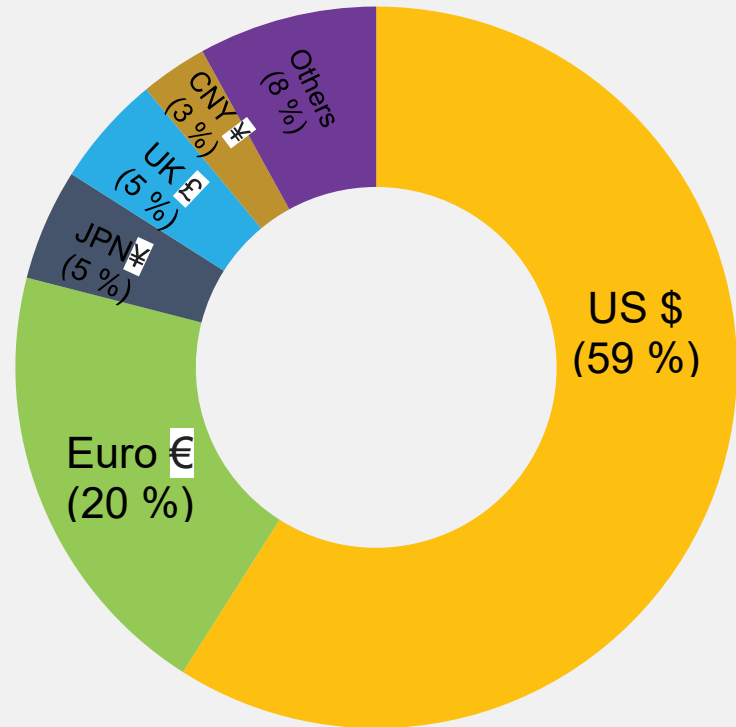
## INDIAN REFINERS SAID TO START PAYING IN YUAN FOR RUSSIAN OIL

**NEWS IN GIST:** *De-Dollarisation of global trade*

India emerged as the largest buyer of seaborne Russian oil as the West imposed sanctions over Russia. The international sanctions have frozen Russia to access the dollar and euro financial networks. The Chinese Yuan is slowly replacing the U.S. Dollar, long been the main global oil currency, including for purchases by India. Indian refiners have begun paying for some oil imports from Russia in Chinese yuan as Western sanctions force Russia and its customers to find alternatives to the dollar for settling payments. Indian Oil Corporation in June became the first to pay for some Russian purchases in Chinese Yuan.

The rise in Chinese Yuan payments has given a boost to Beijing's efforts to internationalise its currency, with Chinese banks promoting its use specifically for Russian oil trade. Since the imposition of sanctions on Moscow, Indian refiners have mostly bought Russian crude from Dubai-based traders and Russian oil companies. Indian refiners have also settled some non-dollar payments for Russian oil in the United Arab Emirates' Dirham.

### SHARE OF CURRENCIES IN GLOBAL TRADE (%)



## INTERNATIONAL RELATION

### PM TO HOST SCO SUMMIT

**NEWS IN GIST:** *PM to host Xi, Putin, Sharif virtually for SCO summit*

- Prime Minister Narendra Modi will "virtually host" Russian President Vladimir Putin, Chinese President Xi Jinping, Pakistan Prime Minister Shehbaz Sharif and Central Asian Presidents.
- India chairs the Shanghai Cooperation Organisation's Council of Heads of State (SCO-CHS) on Tuesday, for the first time.

"New Delhi Declaration", and two joint statements on countering radicalism and on digital transformation is expected in the summit.

An agreement on an economic cooperation initiatives is being negotiated, though it is unclear whether all countries, especially India, will sign it, given past differences with China over the Belt and Road Initiative (BRI).

Iran is expected to be inducted as a member of the SCO, while the process for

Belarus — a key ally of Russia — is under way and expected to be completed next year.

#### Background

The Shanghai Cooperation Organisation (SCO) is a Eurasian political, economic, international security and defence organization.

It is the world's largest regional organization in terms of geographic scope and population, covering approximately 60% of the area of Eurasia, 40% of the world population. Its combined GDP is around 20% of global GDP.

The SCO is the successor to the Shanghai Five, formed in 1996 between China, Kazakhstan, Kyrgyzstan, Russia, and Tajikistan.

In 2001, the leaders of these nations and Uzbekistan met in Shanghai to announce a new organization with deeper political and economic cooperation. Its membership has since expanded to eight states, with India and Pakistan joining in 2017.

#### Analysis

SCO is often dubbed as Asian NATO to counter USA and other western powers.

With Iran and Belarus are likely to be the two newest additions to SCO. China and Russia are looking to frame the grouping as a counter to the West — particularly after Russia's invasion of Ukraine.

The expansion of NATO is totally different as the SCO is a cooperative organization based on non-alignment and not targeting a third party. NATO is based on Cold War thinking. The logic of NATO is creating new enemies to sustain its own existence.

#### India's advantage from SCO

- Access to Central Asian Energy
- Opportunity to improve ties with Pakistan and China
- Through Regional Anti-Terrorist Structure (RATS) Indian would be in good position to counter terrorism
- Being part of both QUAD and SCO, India reassures that its not an ally of any superpower but continue to be Non Aligned country

### SCO Members

- China
- Kazakhstan
- Kyrgyzstan
- Russia
- Tajikistan
- Uzbekistan
- India
- Pakistan



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## POLITY AND GOVERNANCE

## SC TO TAKE UP PLEAS AGAINST ARTICLE 370

A Constitution Bench, led by Chief Justice D.Y. Chandrachud, will take up on July 11 a series of petitions challenging the dilution of Article 370 of the Constitution, which deprived Jammu and Kashmir of its special privileges and led to the bifurcation of the then State in 2019.

The five judges are the senior-most in the court and also members of the Supreme Court Collegium.

The case was last mentioned by the petitioners on February 17 for early listing and the CJI had agreed to give a specific date for the hearing.

The Article 370 case has been pending in the Supreme Court for over two years. The case had not come up after a five-judge Bench refused to refer the petitions to a larger Bench in March 2020.

The petitions have challenged a Presidential Order of August 5, 2019, which took away special status under Article 370 of J&K.

**What is Article 370 ?**

The Article 370 had accorded special rights and privileges to the people of J&K since 1954 in accordance with the Instrument of Accession.

Article 370 conferred on J&K the power to have a separate constitution, a state flag, and autonomy of internal administration.

The special status was bestowed on J&K by incorporating Article 35A in the Constitution.

**Peculiar case of Article 35A**

Article 35A was incorporated by an order of President Rajendra Prasad in 1954 on the advice of the Jawaharlal Nehru Cabinet. Parliament was not consulted when the President incorporated Article 35A into the Constitution through a Presidential Order issued under Article 370.

Article 35A, which provides special rights and privileges to the citizens of

Jammu & Kashmir.

It gives the J&K legislature full discretionary powers to decide who 'permanent residents' of the state are.

It also gives them special rights and privileges in employment with the state government, acquisition of property in the state, settling in the state, and the right to scholarships and other forms of aid that the state government provides.

It also allows the state legislature to impose any restrictions upon persons other than the permanent residents regarding the above.

**The Protest**

The move had been preceded by a state of lockdown in the Valley. The various petitions have challenged the Centre's "unilateral" move to impose curfew and unravel the unique federal structure of India by dividing J&K "without taking consent from the people".

They have questioned the Centre's move, under cover of President's Rule, to "undermine crucial elements of due process and the rule of law".

Separate petitions have contended that the August 5 order and the Jammu and Kashmir (Reorganisation) Act of 2019 were arbitrary. They have also challenged the proclamation of President's Rule in the State in 2018. The petitions have said what happened to J&K "goes to the heart of Indian federalism".

They said the Presidential Order took cover of a temporary situation, meant to hold the field until the return of the elected government, to accomplish a fundamental, permanent and irreversible alteration of the status of the State of J&K without the concurrence, consultation or recommendation of the people of that State.

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