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5G CONTROVERSY

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- India will allow foreign mobile carriers to carry out 5G trials with equipment makers but did not name China's Huawei among the participants.
- The **Department of Telecommunications** gave its go-ahead for 5G technology and spectrum trials to **telecom service providers (TSPs).**
- **This meant that TSPs – including Bharti Airtel, Reliance JioInfocomm, Vodafone Idea and MTNL –** could start 5G trials across the country which is to cover rural, semi-urban and urban areas but Chinese companies Huawei and ZTE are not allowed to participate in the trials.
- South Korea's Samsung, Finish firm Nokia and Swedish company Ericsson are the two other companies with 5G technology.
- India is the world's second-biggest market by number of phone users – one of the reasons why Chinese companies have been on India.

China's Reaction

- **China** said it was concerned that India had not allowed Chinese companies to conduct 5G trials in the country.
- Chinese companies have been operating in India for years, providing mass job opportunities and making contribution to **India's infrastructure construction in telecommunications.**
- To exclude Chinese telecommunications companies from the trials will not only harm their legitimate rights and interests, but also hinder the improvement of the Indian business environment
- **Recent Chinese exclusion**
- **29 June 2020- India banned 59 Chinese apps.**
- **28 July 2020- India banned another 47 Chinese apps.**
- **2 September 2020- India banned another 118 apps.**
- **24 November 2020- India banned another 43 apps.**
- **2 June 2020- India banned Chinese firms from participating in highway projects.**
- **4 May 2021- Exclusion of Chinese firms Huawei and ZTE from India's 5G trials.**

Critical Infrastructure

- Critical infrastructure comprises those sectors whose destruction would adversely impact a country's security, economy or safety.
- **It requires the government to identify risks and vulnerabilities** — natural (earthquakes or floods, for instance) or manmade (Chinese intrusion, for instance) — and be prepared for them.
- These policy initiatives will have a four-part drafting.
- **First, around physical critical infrastructure** — that is, No China in India's ports, energy, railways and defence sectors.
- **Second, around virtual critical infrastructure** — No China in India's information technology, internet, broadband sectors.
- **Third, around systemic critical infrastructure** — No China in India's banking and finance sectors.
- **And fourth, around other areas of critical infrastructure** — No China in India's space and nuclear sectors; and emanating from the "Wuhan Virus", the most important today:
- **No China in India's public health.**

Outcomes

- What makes Chinese companies entering India's critical infrastructure dangerous are two outcomes.
- First, the intrusive nature of 5G technology.
- And second, China's National Intelligence Law, Articles 7, 9, 12 and 14, of which turns every Chinese company and every Chinese citizen into a spy. This makes consumers, businesses and governments of all countries that use Chinese equipment vulnerable to intrusion by CCP and PLA.
- That's the reason why Australia banned Chinese firms from its critical infrastructure in August 2019, the UK banned Huawei in July 2020, the US in August 2020, and most ofEU including Poland, Estonia, Romania, Denmark, Latvia, and Greece last year. India excluding Huawei from its 5G trials is a step in the same direction. And though the decision is independent, the alignment is clearly with the West.

Background

- In the initial 5G applications for trials, which were first slated to be held in early 2019, both Airtel and Vodafone Idea had applied to partner with Huawei and ZTE in some geographies.
- Since then, India-China border tensions peaked.
- Mobile operators in a number of countries have warned that excluding Huawei from the network could increase the cost and slow the rollout.
- Huawei has long denied claims that it poses any threat to national security.
- The US says Huawei could be used by China for spying, via its 5G equipment and its **Federal Communications Commission (FCC)** has even ordered certain US telecommunications companies to remove Huawei equipment from their network

- The company is currently on the US Department of Commerce's Entity List, which restricts its access to items produced with US technology and software.

- Huawei has been locked out of the development of 5G in a number of other countries, including the UK. Then last September, the telcoswere again asked to submit a set of "priority vendors" for 5G trials. In response, Jio had named Samsung, Nokia and Ericsson besides applying to trial its own technology.

- Bharti Airtel and Vodafone Idea opted for Finland's Nokia and Sweden's Ericsson while MTNL applied to partner state-run Centre for Development of Telematics (C-DoT).

Why Is 5G Important?

- **5G or fifth generation is the latest upgrade in the long-term evolution mobile broadband networks.**

- 5G mainly works in 3 bands, namely low, mid and high-frequency spectrum — all of which have their uses and limitations.

- The telecom market in India is left with only three private telcos, with the rest having surrendered to the low returns on investments over the years.

- Apart from the private telecommunication companies, the two state-run companies, **MTNL and Bharat Sanchar Nigam Limited (BSNL) have also survived but are making losses.**

- In order to increase their average revenue per user, it is pertinent for telcos to start offering the new 5G technology as soon as possible.

- For that, however, they will have to conduct trials in a variety of circumstances, including in semi-urban and rural areas, which remains an untapped market for them.

- Apart from the telcos, it is also important that the government be ready to roll out the new technology as soon as possible.

- A standing committee of Lok Sabha on Information Technology has already flayed the government for delays in approvals, inadequate availability of spectrum, high spectrum prices, poor development of use cases and low status of fiberisation among others. It is due to these reasons, the panel had said, that India could miss the 5G bus.

What Are The Various Bands In The Spectrum?

- In the initial phase, these trials will be for 6 months, including a 2-month period for procurement and setting up of the equipment.

- In these 6 months, telcos will be required to test their set up in urban areas, semi-urban areas as well as rural areas.

- **During this period**, the telcoswill be provided with experimental spectrum in various bands, such as the mid-band of 3.2 GHz to 3.67 GHz, the millimeter wave band of 24.25 GHz to 28.5 GHz, and others.

- **Low band: This** spectrum has shown great promise in terms of coverage and speed of internet and data exchange and the maximum speed of this band is limited to 100 Mbps (Megabits per second).

- This means that telecoms can use and install it for commercial cell phone users who do not have specific demands for very high-speed internet.

- **Mid-band:** This spectrum offers higher speeds compared to the low band, but it has limitations in terms of coverage area and penetration of signals.

- Telecoms, which have taken the lead on **5G, have indicated that this band may be used by industries and specialised factory units.**

- This is used to the build captive networks that can be moulded according to the needs ofthat particular industry.

- **High-band:** This spectrum offers the highest speed of all the three bands, but it has extremely limited coverage and signal penetration strength.

- **The internet speeds is tested to be as high as 20 Gbps**, while, in most cases, the maximum internet data speed in 4G is recorded at 1Gbps.

Evolution from First Generation To Fifth Generation

- 1G was launched in the 1980s and worked on analog radio signals and supported only voice calls.

- 2G was launched in the 1990s which uses digital radio signals and supported both voice and data transmission with a bandwidth of 64 Kbps.

- 3G was launched in the 2000s with a speed of 1 Mbps to 2 Mbps and it has the ability to transmit telephone signals including digitised voice, video calls and conferencing.

- 4G was launched in 2009 with a peak speed of 100 Mbps to 1Gbps and it also enables 3D virtual reality.

Editorials

- The Indian telecom ministry on Tuesday said it has granted several telecom service providers permission to conduct a six-month trial for the use and application of 5G technology in the country. New Delhi has granted approval to over a dozen firms spanning multiple nationalities — excluding China.

- Among the telecom operators that have received the grant include Jio Platforms, Airtel, Vodafone Idea and MTNL. These firms, the ministry said, will work with original equipment manufacturers and tech providers Ericsson, Nokia, Samsung and C-Dot. Jio Platforms, additionally, has been granted permission to conduct trials using its own homegrowntechnology.

- In a press note, the Department of Telecommunications didn't specify anything about China, but a person familiar with the matter confirmed that Chinese giants Huawei and ZTE aren't among those who have received the approval. Last year, Airtel (India's second-largest telecom operator) had said that it was open to the idea of collaborating with global firms for components. "Huawei, over the last 10 or 12 years, has become extremely good with their products to a point where I can safely today say their products at least in 3G, 4G that we have experienced is significantly superior to Ericsson and Nokia without a doubt. And I use all three of them," Sunil Mittal, the founder of Airtel, said at a conference last year.

- In the same panel, then U.S. commerce secretary Wilbur Ross had urged India and other allies of the U.S. to avoid Huawei. The geo-political tension between India and China escalated last year with skirmishes at the shared border. India, which early last year amended a rule to make it difficult for Chinese firms to invest in Indian companies, has since banned over 200 apps including TikTok, UC Browser and PUBG Mobile that have affiliation with China over cybersecurity concerns.

- India's move on Tuesday follows similar decisions taken by the U.S., U.K. and Australia, all of which have expressed concerns about Huawei and ZTE and their ties with the Chinese government. The Indian

government branch said it gave permission to telecom service providers, who chose their own priorities and technology partners. The experimental spectrum is being given in various bands that include the midband (3.2 GHz to 3.67 GHz), millimeter wave band (24.25 GHz to 28.5 GHz) and in sub-gigahertz band (700GHz). Technology service providers will also be permitted to use their existing spectrum ownedby them (800 MHz, 900 MHz, 1800 MHz and 2500 MHz) to conduct 5G trials.

- "The permission letters specify that each TSP will have to conduct trials in rural and semi-urban settings also in addition to urban settings so that the benefit of 5G Technology proliferates across the country and is not confined only to urban areas. The TSPs are encouraged to conduct trials using 5Gi technology in addition to the already known 5G technology," the ministry said in a statement.

- "The objectives of conducting 5G trials include testing 5G spectrum propagation characteristics especially in the Indian context; model tuning and evaluation of chosen equipment and vendors; testing of indigenous technology; testing of applications (such as tele-medicine, tele- education, augmented/virtual reality, drone-based agricultural monitoring, etc.); and to test 5G phones and devices."

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