

Why the 6G Golden Band Matters ?

23rd September, 2026

India Connectivity Metrics

Overall Connectivity

1,354 Mn

Total Subscribers

1,306 Mn wireless + 48 Mn wireline
Tele-density 94.7%

400 Mn+

5G Users

India ranks #2 in the world

Home Broadband

48.1 Mn

Fixed (Wired) Broadband

Fibre & wired home connections

18.8 Mn

FWA Subscribers

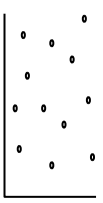
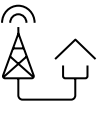
13.2 Mn 5G FWA + 5.1 Mn UBR

1,094 Mn

Total Broadband

wireless + wireline

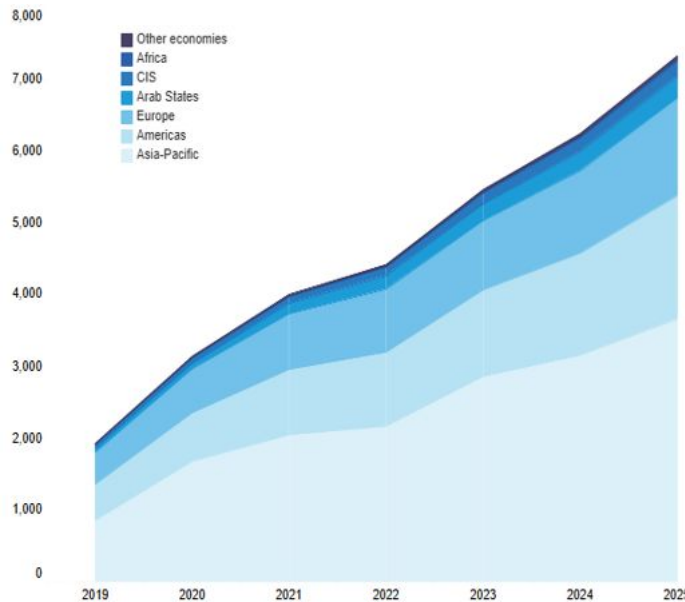
India's Unique Position w.r.t Allocation of Spectrum

Characteristic	India		China		United States	
 Population Density (Persons/Sq.Km)	481 persons/sq. km		150 persons/sq. km		40 persons/sq. km	
	Mumbai 27,000	Surat 15,000	Shenzhen 7,000	Shanghai 3,900	New York 10,600	Chicago 4,600
 Fixed Broadband Penetration	~15 households/100		~95 households/100		~93 households/100	
 Broadband Delivery	Very High dependency on Spectrum		Lesser dependency on Spectrum		Lesser dependency on Spectrum	

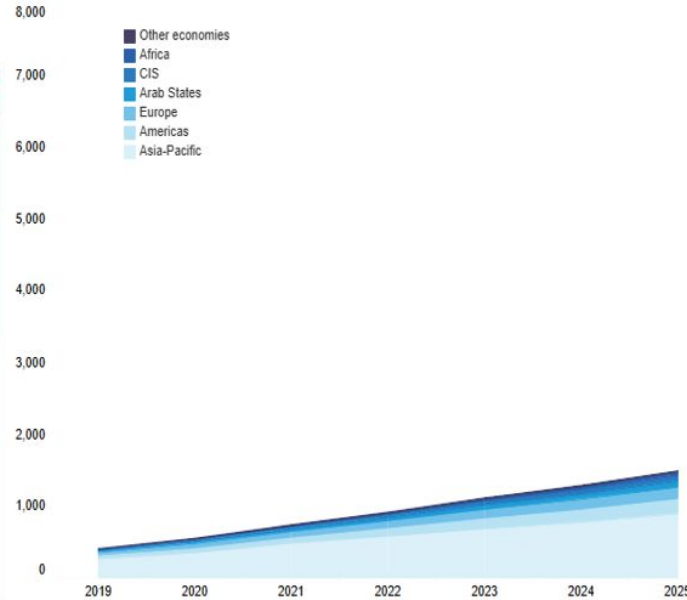
High dependency on wireless networks makes Spectrum Requirement very critical

Wireless Networks: Mainstay of Indian Telecom Landscape

Fixed Broadband , EB



Mobile Broadband , EB

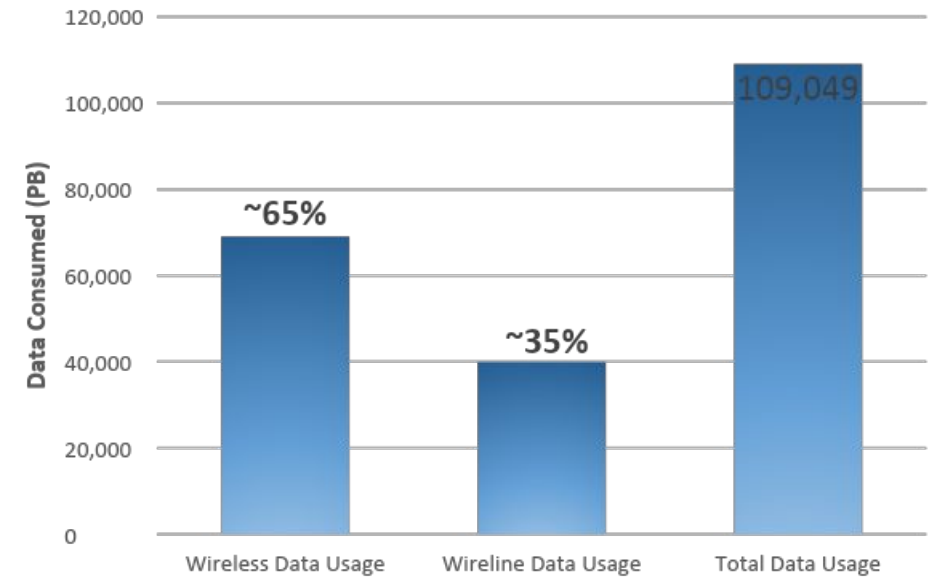


Source: <https://www.itu.int/itu-d/reports/statistics/2025/10/15/ff25-internet-traffic/>

Globally, Fixed broadband accounts for more than 80% of the Internet Traffic worldwide.

Only 20% of the internet traffic is carried on mobile

Indian Data Consumption
Quarterly Data Consumption in India (PB)



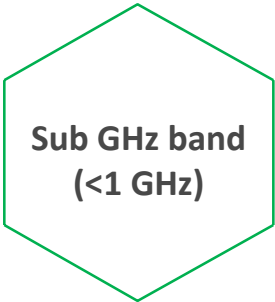
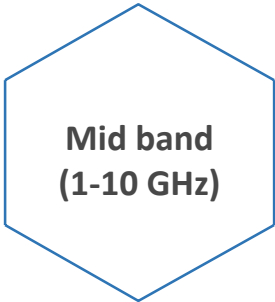
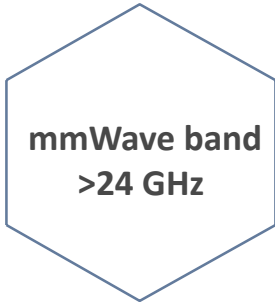
In India, around 65% of data is carried on wireless networks and only 35% on fixed networks

Data Source:

Wireless traffic as per TRAI PMR, Sept 2025 and wireline traffic has been calculated assuming 300 GB per month per connection and 44 million connections

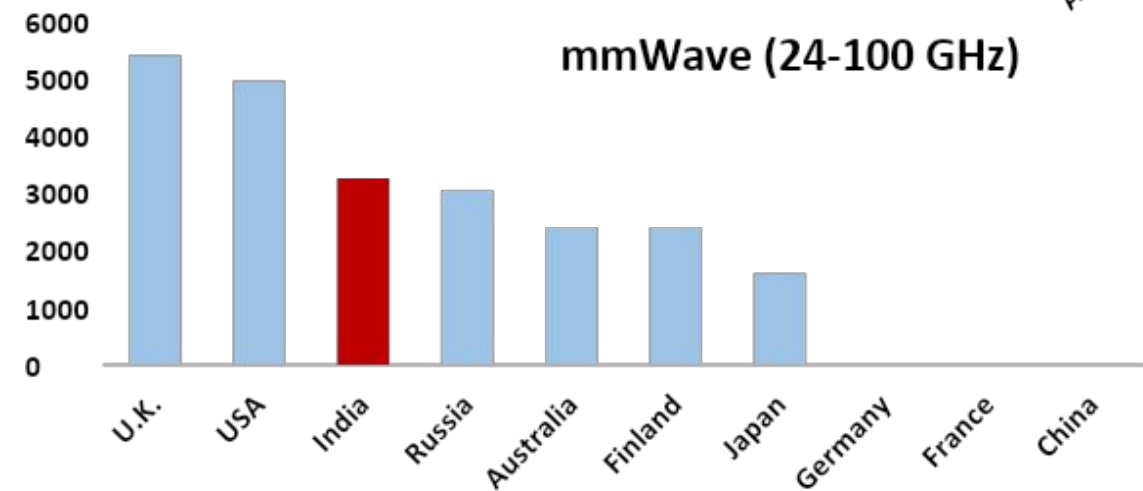
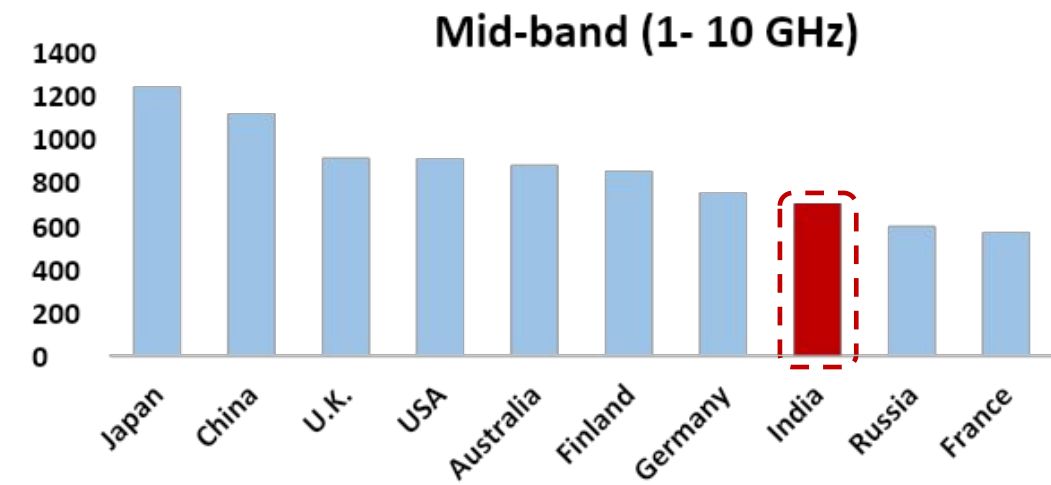
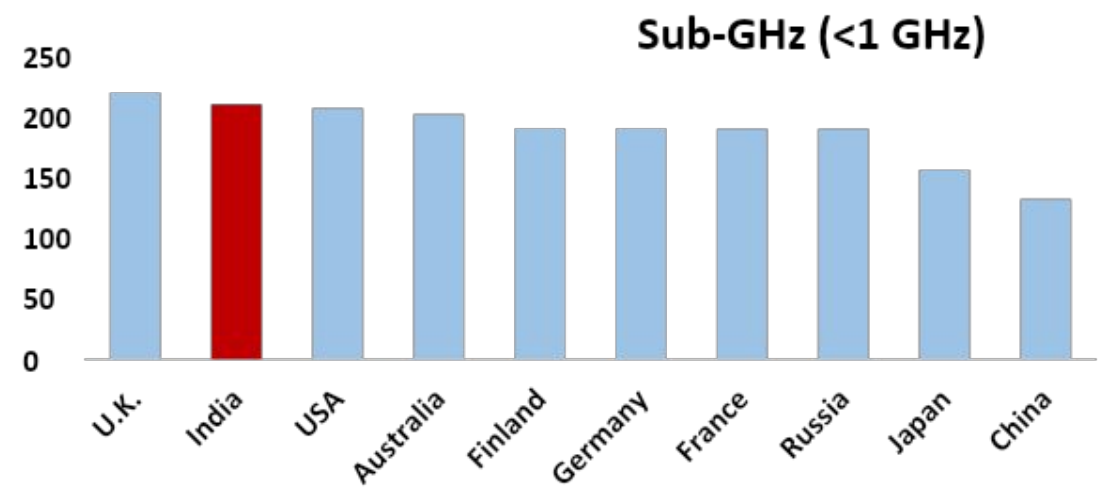
Spectrum Policy in India should always be aligned with this reality

Current Spectrum Earmarked for IMT services in India

 Sub GHz band (<1 GHz)	 Mid band (1-10 GHz)	 mmWave band >24 GHz
Band (Quantum)	Band (Quantum)	Band (Quantum)
600 MHz (40+40 MHz)	1710-1785 / 1805-1880 (55+55 MHz)	24250-27500 (3250 MHz)
700 MHz (20+20 MHz)	1920-1980 / 2110-2170 (40+40 MHz)	
800 MHz (20+20 MHz)	2300-2400 MHz (80 MHz)	
900 MHz (25+25 MHz)	2500-2690 MHz (60 MHz)	
	3300-3670 MHz (370 MHz)	
Total: 210 MHz (unpaired)	Total: 700 MHz (unpaired)	Total: 3250 MHz (unpaired)

Greater quantum of Mid-band spectrum is necessary for unlocking 6G potential

Global Spectrum Allocations across bands



Notes:
Bandwidth (in MHz unpaired)
Assignments as on April, 2026;
Excludes bands identified but not assigned.

Indian Industry at ~95 TB/Year/Sq Km carries 2x - 5x of the wireless data in the leading economies

High Traffic density underscores the urgent need for additional mid-band spectrum

Key Services & Applications that drive Spectrum Demand for 6G



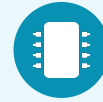
Ubiquitous Connectivity

- Ubiquitous & resilient networks
- Global mobile video
- Hybrid TN and NTN Positioning



Immersive Communication

- Immersive gaming & holographics
- Deterministic multimedia
- Digital healthcare



Massive Communication & IoT

- Wide-area IoT coverage
- Utility infrastructure monitoring
- Internet of Nano/Bio-Nano Things



Industry & Vertical Applications

- UAM aircraft communications
- Cooperating mobile robots
- Real-time digital twins



Integrated Sensing & Comm. (ISAC)

- Disaster search & rescue
- High-resolution mapping
- Low-altitude UAV supervision



AI-Enabled Applications & Agents

- Collaborative AI agents & LLMs
- AI for connected vehicles
- AI-driven network optimization

6G Applications Seamless mobility & Coverage demands for greater contiguous spectrum bandwidth

Mid-Band Spectrum Requirements for 6G



*“Wide-Area Use Cases Driving **Mid-Band Spectrum Demand** -The wide-area 6G use cases such as holographic communication, the Internet of Senses, immersive metaverse experiences, massive digital twins, and exponential mobile broadband growth necessitate at least 3 GHz of wide-area spectrum. These use cases depend on seamless indoor and outdoor mobility and cannot be supported through fragmented or narrow spectrum holdings.”*



*“Considering that most markets, including India, typically host three to four mobile operators, and assuming that the currently **available mid-band spectrum (~1 GHz)** will be primarily reused for existing IMT applications, an additional 500–750 MHz of new mid-band spectrum per network will be required to meet 6G demand.”*



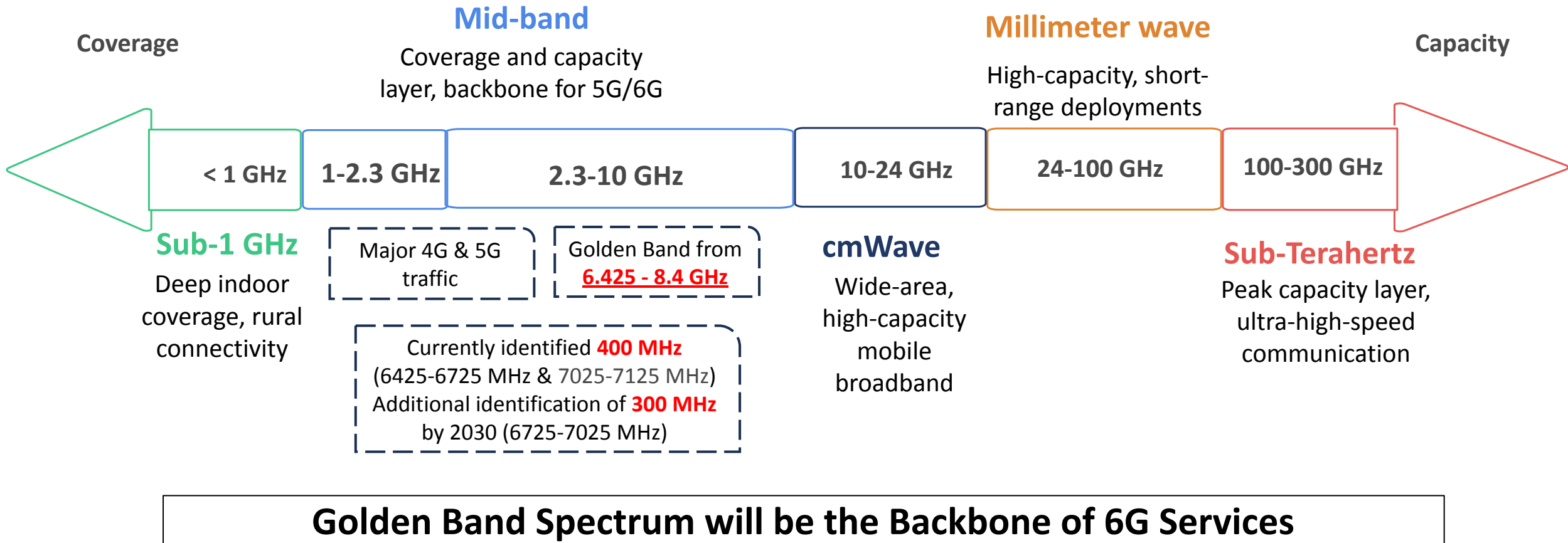
GSA estimates an additional 500-750 MHz of wide-area spectrum per network is needed to implement the anticipated 6G use cases. A smaller amount of spectrum, but at least 200 MHz of the needed additional wide-area spectrum per network, would be needed for the initial 6G deployments.



*The industry projects that 400-500 MHz of mid-band spectrum per mobile operator will be necessary for 6G. Assuming there are 3-4 operators in a given market, the **minimum spectrum need for a market will be 1.5-2 GHz.** Furthermore, this spectrum should be available in the lowest possible frequency range in order to achieve the desired user experience at a reasonable cost point.*

Availability of greater quantities of contiguous bandwidth key for 6G services

Importance of 6G “Golden Band”



6425–8400 MHz is the upper mid-band, pairs mid-band coverage with a wide, contiguous block of capacity — the ideal band for the 6G networks.

Why the Golden Band decides 6G economics ?



Coverage + capacity together

Mid-band propagation for wide-area reach, plus a large contiguous block for speed. Few bands offer both at once.



Deployable on today's grid

Propagation close enough to current mid-band that 6G can utilize existing infrastructure resulting in faster rollout



Room for every operator

~2 GHz of spectrum lets each operator secure 200–400 MHz channels — the width real 6G speeds require.



Harmonization = affordable 6G

One global band plan means one device ecosystem, economies of scale and lower cost. Fragmentation is the biggest cost risk to 6G.

COVERAGE, CAPACITY AND EFFICIENT ROLLOUT — IN ONE BAND

Thank You