

## Telcos Still Starved of Spectrum

*There is tremendous surge in data traffic but enough spectrum is not available at affordable prices, so the operators are struggling to manage quality and capacity.*

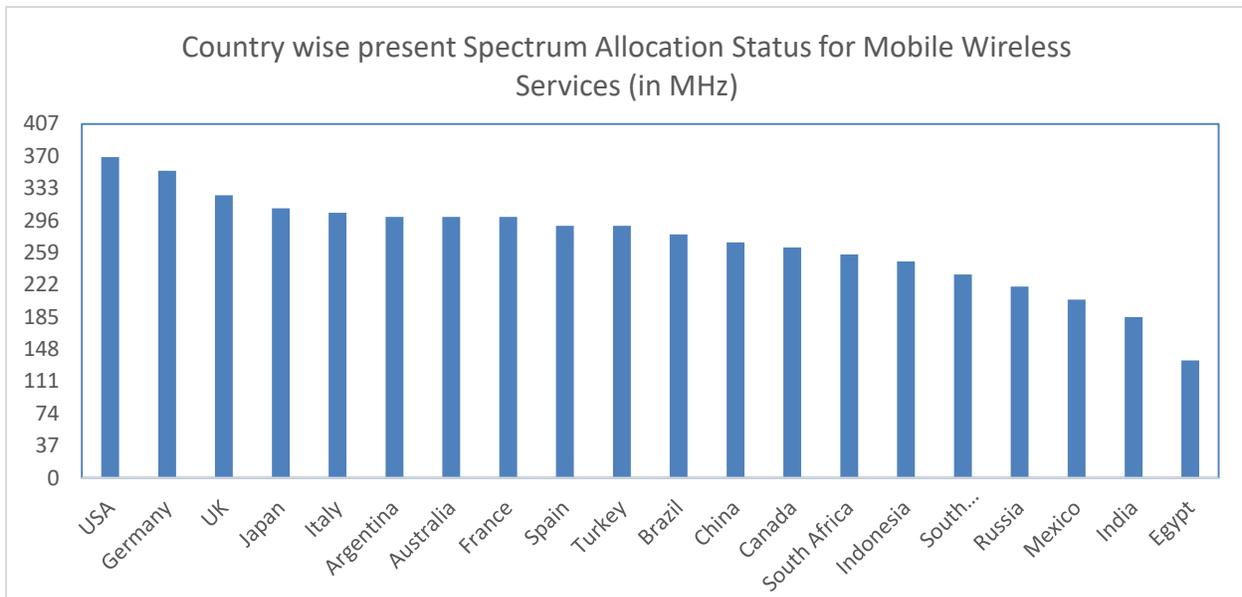
By TV Ramachandran

Thanks to the unfortunate spectrum experiences of around 2008, it is now well known in India, even to the common man, that radiofrequency spectrum is a precious but finite resource that can be a powerful engine of socio-economic growth and innovation in many spheres. Other nations have released large amounts of spectrum to their mobile operators but are continuously exploring ways and means of locating and releasing more spectrum for commercial use. Obviously, the rationale is that, with more and more new spectrum-based services coming into the market every day, one cannot ever have enough of this valuable resource for promoting economic good and public welfare.

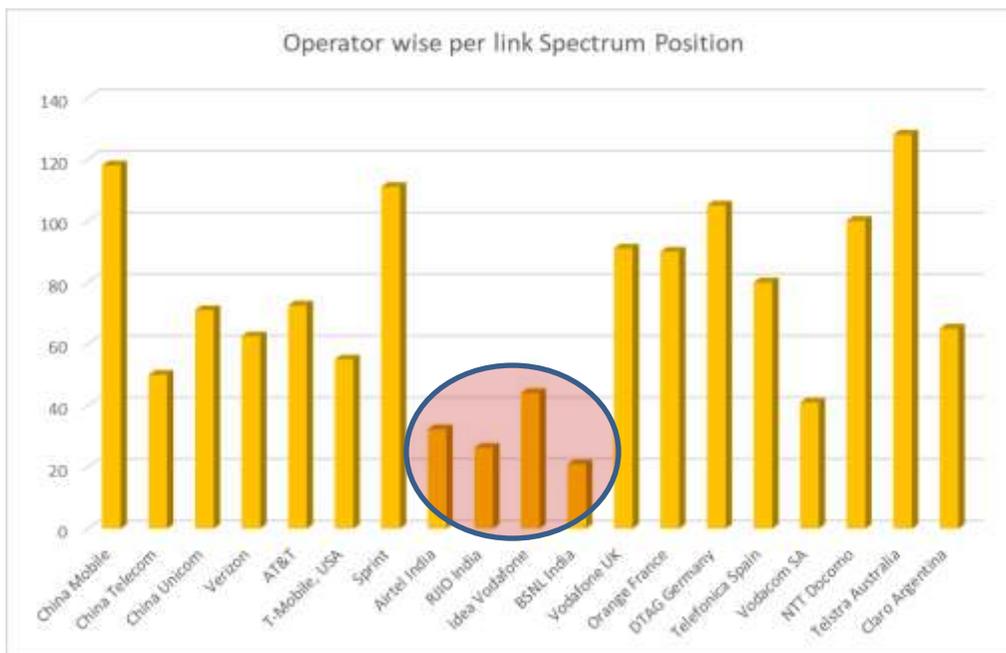
Against the above scenario, in India, however, we seem to be slipping into a dangerous state of complacency, with some stakeholders declaring publicly that they have enough spectrum and there is therefore little urgency for more spectrum allocations. Nothing could be further from the truth. In fact, such thinking is likely to only increase the digital divide between us and other comparable nations.

*Despite several several auctions over the last eight years, spectrum allocation for commercial services in India continues to be very low when compared to other nations.* For example, India has 185 MHz of spectrum allocated to industry for mobile use, far behind 369 MHz in the United States and 271 MHz in China. For a country with a large population and rapidly growing data usage (in fact, the highest in the world now!), this is indeed a very formidable constraint on country's ability to offer new innovative solutions and next generation technologies.

Operator-wise allocation is also amongst the lowest, so much so that the largest operator in India, Idea Vodafone Ltd., formed recently after the merger, has about 40% lower spectrum as compared to global average of about 70 MHz.



Source: Broadband India Forum Research; \*Spectrum quantum calculated on FDD basis; \*\*Spectrum bands in the range of 700 MHz to 3500 MHz considered. 5G bands (above 3500 MHz) not considered; \*\*\*Data above represents total spectrum allocated for Mobile use in the country to Service Providers.

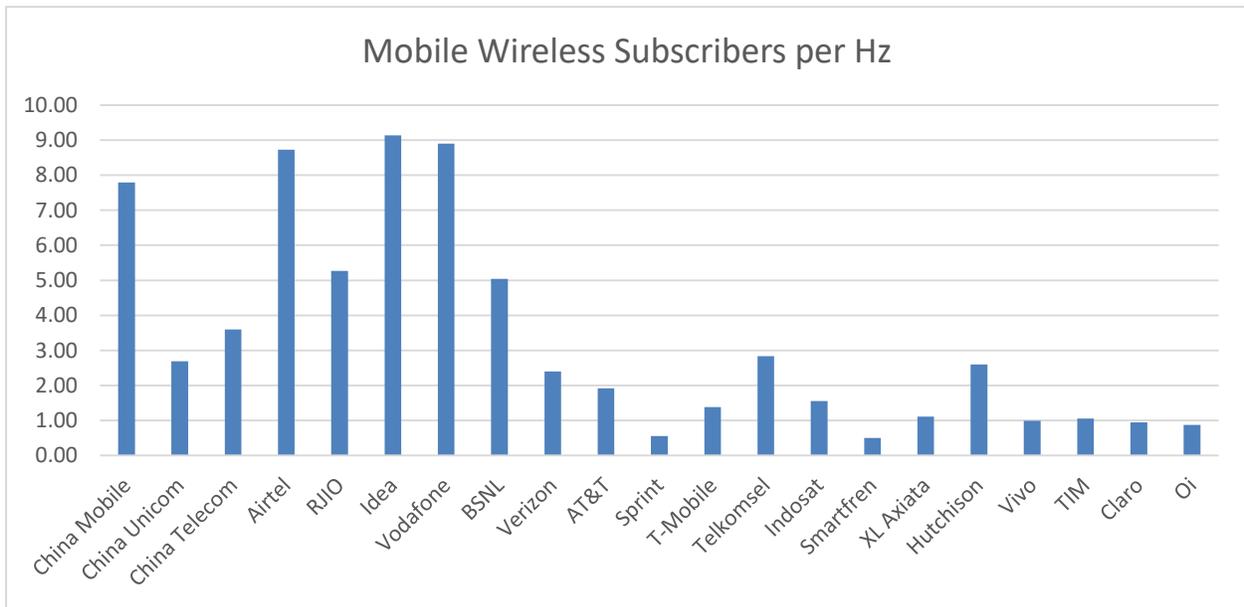


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The above situation of inadequate allocation leads to extremely intense spectrum utilisation in India, with subscribers per MHz of spectrum being one of the highest in the world. Indian

operators have one of the highest numbers of subscribers per Hz. One can well imagine the adverse impact on quality of service and all are aware of the state of our mobile call quality these days.

Moreover, while data is growing explosively, it is not that voice is diminishing or disappearing in India. The well-known strong propensity of Indians to talk generously is continuing to grow apace, spurred by free VoLTE calling. Thus, the spectrum demand due to this aspect has not reduced. This is only compounding the quality problem.



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Musey of Summit Bridge Capital points out that “global mobile data traffic, and thus spectrum demand, is growing at an explosive rate (63% up in 2016 and by a similar amount in 2017). Video downloading represented 69% of consumer internet traffic in 2017 and , over 78% of the world’s mobile data traffic will be video by 2021”, leading to a humungous spectrum crunch for operators. The situation would be intensified in India with its high mobile growth. As per Ericsson, 4G mobile handsets are expected to grow 4 times to ~700 million constituting ~80% of the handsets in use by 2020. High speed data is both becoming ubiquitous and mass affordable. As per Deloitte’s Global Analysis, India has crossed the inflexion point for hyper Data Usage which happens when smartphone penetration crosses 25–30 percent. There is tremendous growth in data traffic but enough spectrum is not available at affordable prices, so the operators are struggling to manage quality and capacity. This will surely not suffice for the Digital India of our dreams.

The above scenario would be exacerbated by the advent of 5G, to which India is fully committed. 5G needs a completely new mindset towards spectrum since it has the potential to enable fundamentally new bandwidth-critical applications and use cases in eHealth, autonomous vehicles, smart cities and IoT, etc. that require extremely high data rates, massive connectivity and ultra-reliable low-latency.

But, how are we preparing for 5G? TRAI has recommended spectrum quantum and reserve price for the next round of auctions across bands. The amount of 5G spectrum at 175 MHz is less than one-third of US. The reserve price has been fixed at Rs 492 crore per MHz. For a pan-India minimum block of 20 MHz, operators will have to shell out nearly Rs 10,000 crore, which is exorbitant considering both other countries' values as well as the low earnings per customer (ARPU) in India. It can be seen that India's TRAI-recommended 5G price is about 7 times that of other countries whereas India's mobile ARPU level is about 10 times lower! This will clearly not be a sustainable situation and needs to be urgently reviewed.

#### 5G Pricing in Various Countries

Country	Date	Cost		ARPU
		Crores/MHz	USD/MHz (Million)	USD
<b>India</b>	<b>TRAI Recommended Price</b>	<b>492.0</b>	<b>70.2</b>	<b>1.96</b>
UK	11.06.2018	71.6	10.6	17.44
South Korea	19.06.2018	73.2	11.0	27.51
Spain	26.07.2018	17.7	2.6	16.54
Finland	01.10.2018	2.0	0.3	17.78
Italy	03.10.2018	204.8	27.8	13.67

\*Source: 5G Auction Data - Country Regulator Websites; Price of highest bidder in each country; ARPU Data – Analysys Mason for CY2018e

Some stakeholders' argument that unsold spectrum means satiated demand and that Indian operators have adequate spectrum is a highly flawed understanding-optimum spectrum pricing is the need of the hour. If there is nil or inadequate price movement in an auction, then there has been no discovery of the market price and the set reserve price has obviously been too high. In the October 2016 auctions, barely 41% got sold. Even taking all the six e-auctions held since 2010 together, only about 60% has been sold. Even for the spectrum that was sold, the average sale price was hardly 5% above the reserve price. Considering, again, all the e-auctions since 2010, one notes that as much as 47% of the cases of sales happened at the reserve price. The inevitable conclusion therefore is that unreasonable spectrum pricing was the single biggest factor for past auctions' suboptimal results and for operators still having below-par spectrum holdings. Government appears to be fully cognisant of the situation as it has clearly stated, as one of its strategies in the new policy: "Making adequate spectrum available to be

equipped for the new broadband era.. by... optimal pricing of spectrum to ensure sustainable and affordable access to digital communications”.

Abundant spectrum at reasonable cost is fundamental for inclusive and affordable broadband for every Indian. India needs to set its sights high as regards to the allotment of this vital and strategic economic resource to operators. Exploding demand spurred by new technologies, innovative new applications and the resultant economic growth dictate the urgent need to enhance spectrum holding per operator to the best-in-class in the global digital arena. The time to act is now. Else, we might miss exploiting the rich potential of broadband and 5G.

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