

# India: economic benefits of UHT satellite broadband

Session: **Balanced Approach towards spectrum Allocation** at Conference on “**Satellite Enabled 5G Applications and Services**”

**Satcom Industry Association**

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# India: the emerging digital giant

Expanding digital connectivity through next-gen satellite broadband: bridging the digital divide

Indicators India	Value	Source
Population (million)	1,380.0	ITU
Households (million)	273.4	ITU
Proportion of rural population (%)	65%	World Bank
Labour force participation (% of total 15+ population, 2019)	48.1%	World Bank
GNI per capita (current USD)	1,900	World Bank
Broadband indicators		
4G mobile broadband coverage (% population)	97.9%	ITU
Mobile broadband subscriptions (% population)	52.5%	ITU
Mobile broadband adoption, unique subs (% population)	36.1%	GSMA
Mobile broadband data usage per subscription (GB per month, 2019)	9.9	ITU
Mobile spectrum supply, all sub-6 GHz and sub-1 GHz (MHz)	391 (81)	Plum analysis
Fixed broadband adoption (% households)	8.2%	ITU
Fixed broadband ≥ 10Mbps (% households)	6.5%	ITU
FTTH coverage (% homes passed, end-2019)	3.0%	FTTH Council Asia Pacific



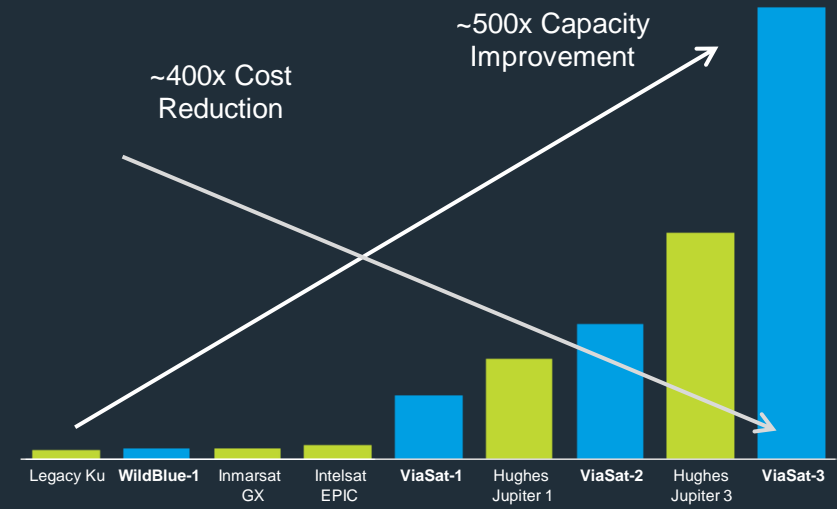
Viasat is a global communications company that believes everyone and everything can be connected

# How is Viasat going to help bridge the digital divide?

**ViaSat-3**



Launch: 2022+  
Capacity: 1+ Tbps each  
Coverage: 1<sup>st</sup> Global ISP

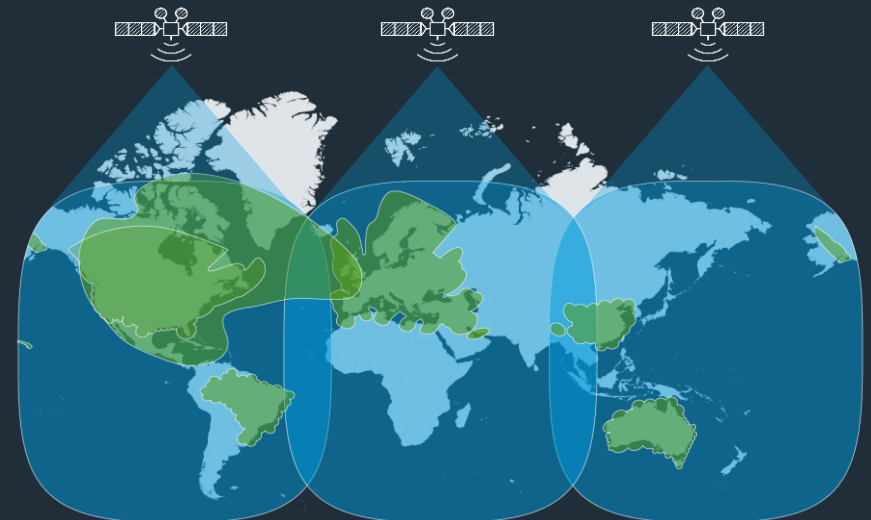


**1000Gbps**

100Gbps

10Gbps

1 Gbps



## 28 GHz: IMT is technically incompatible for use in the same band: ITU-R TG 5/1 studies

There were four studies that addressed the case of IMT receivers and FSS earth stations, but not with ESIM. It was concluded that “The results of studies showed separation distances of less than 100 m up to about 10 km between the FSS earth station and IMT stations” would be necessary.

In addition it was also noted that: “in case of deployment of small FSS earth stations at unspecified locations and IMT stations in the same geographical area the separation distance between FSS and IMT stations cannot be ensured. Therefore, sharing may not be feasible and could be dealt with on a case-by-case basis.

## Status from other APAC Countries

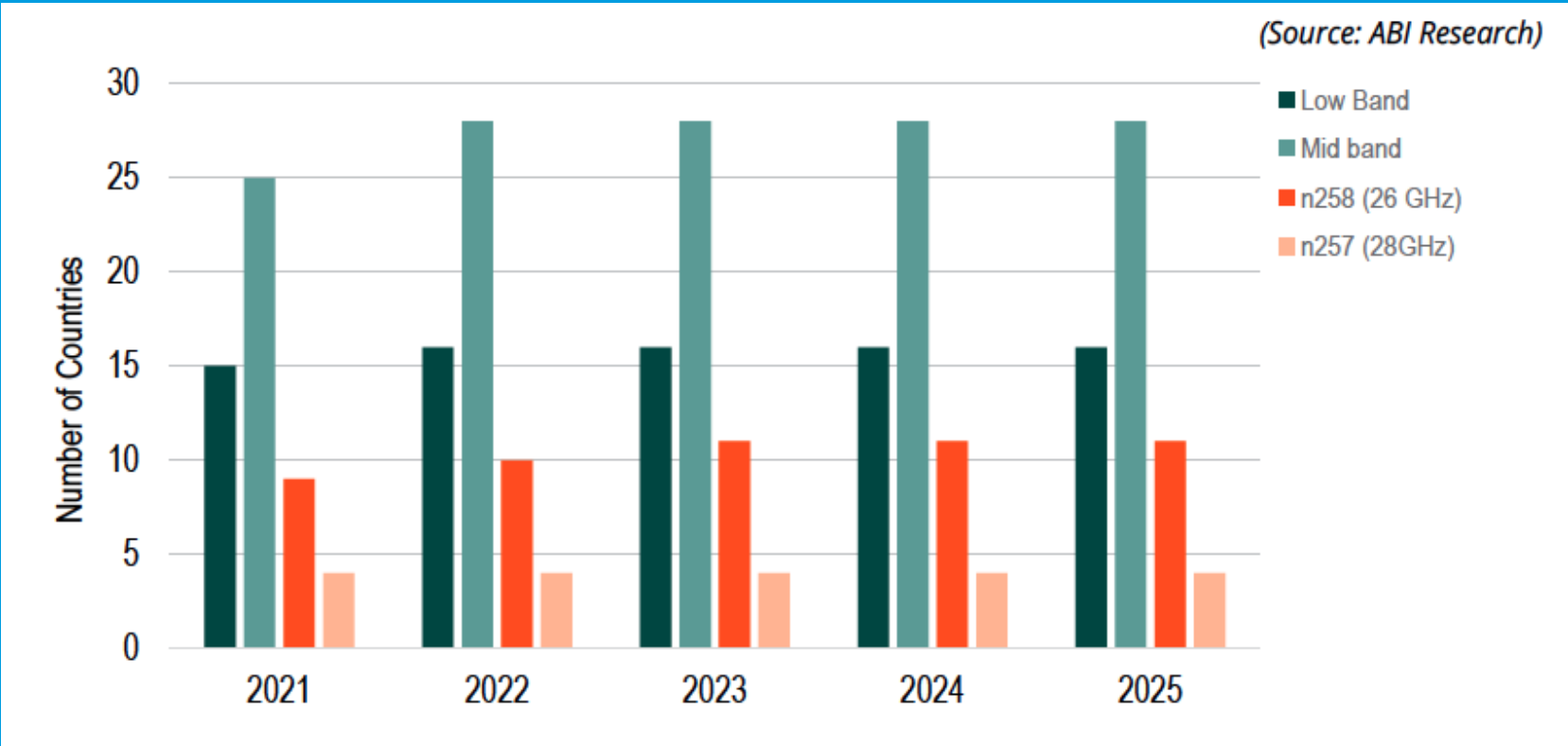
**Japan** : The regulator of Japan (MIC) has begun a review of their 28 GHz use for 5G . They are now considering satellite uses in the band 27.5-29.5 GHz, for which MIC has engaged industry to seek some form of solution because Japan has now realised, they need ESIM.

**South Korea** : has begun considerations for satellite ESIM in the band. Korea mobile operators failed to deploy the rollout condition for 5G in mmWave spectrum. They were required to deploy 45 thousand 5G towers in mmWave nationwide in 3 years, but they only installed 161 towers so failing to meet the government rollout condition.

**Singapore** : IMDA, the regulator of Singapore, has also initiated a similar process to roll back 5G uses in 28 GHz (27.5-29.5 GHz), as they also want to have satellite ESIM. The consultation is ongoing.

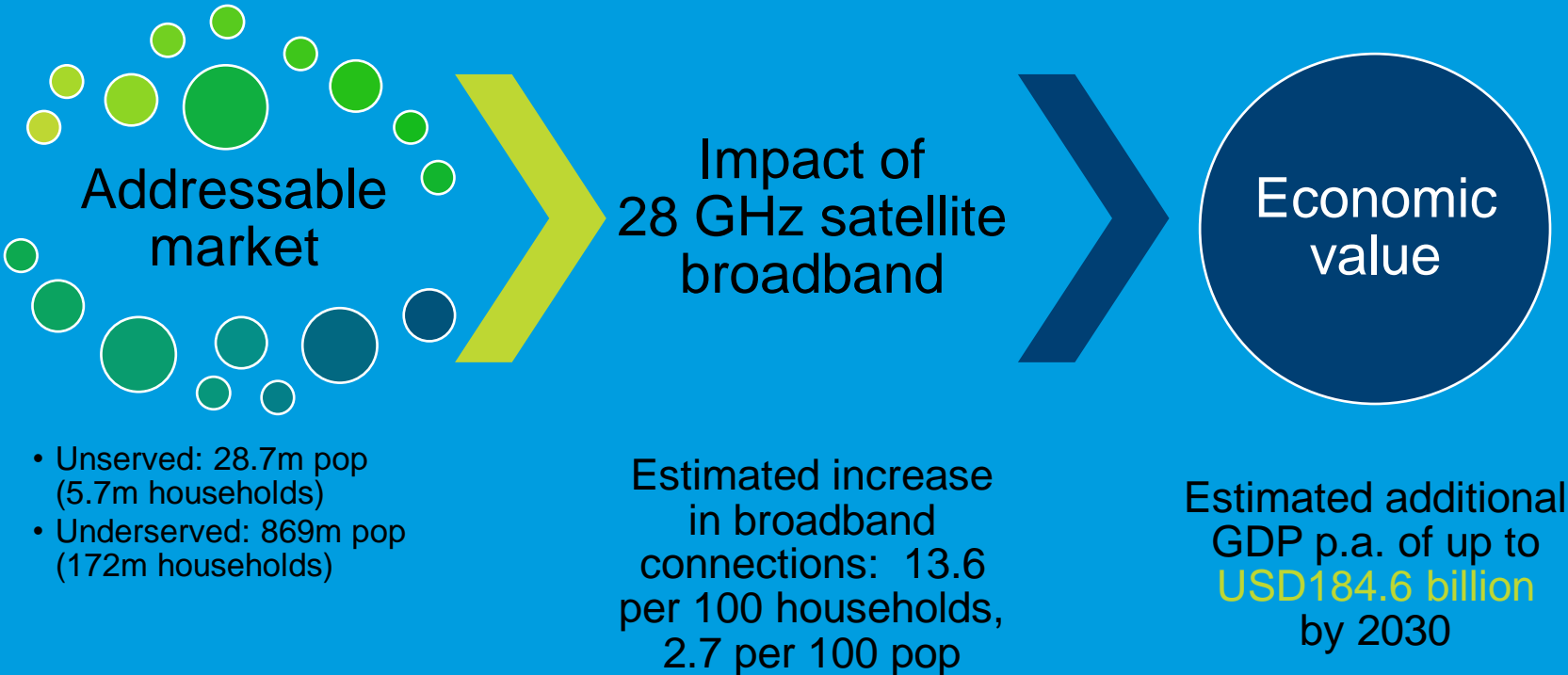
**IATA (Aviation Industry) response to IMDA, Singapore** : We believe a more appropriate and economically supported approach for all industries involved is for the 28 GHz band to remain identified for satellite services and we respectfully request that IMDA considers other appropriate frequency bands for 5G in line with the WRC decision

# Spectrum for broadband: Ecosystem developments and economics



Current and expected spectrum allocation for terrestrial 5G in emerging markets, 2021-2025 (Source: ABI research, 2021)

# Economic impact of 28 GHz UHT satellite broadband in India



Estimated **economic benefits** of allocating the **full 28 GHz band (27.5 – 29.5 GHz)** for satellite broadband in India (Source: Plum Consulting research, 2021)

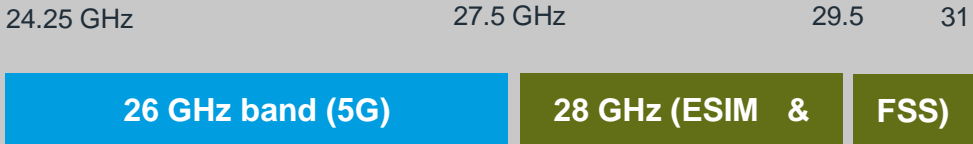


# Government policy enablers to bridge the digital divide: Spectrum access for satellite broadband

## Recommendations:

- India can accommodate the 5G mobile in a separate spectrum in 26 GHz (right spectrum, harmonized by ITU WRC-19)
- Allow advanced satellite systems to use the 28 GHz band (right amount, 27.5 – 29.5 GHz). Spectrum globally used by FSS and ESIM
- Avoid costly and complex arrangements in the 28 GHz band. IMT systems are incompatible, particularly considering 28 GHz global use by ubiquitous land, sea and air ESIM (right conditions)

• We propose:



## Good outcome would be: '3Rs'

- ✓ Right spectrum
- ✓ Right amount
- ✓ Right conditions of use



# How to achieve coverage, speed & capacity? Mix of technologies

## Regulatory/Policy Requirements

Authorize globally available satellite capacity to serve **India**

Market is opening, promising discussions

**India** is set to be one of the largest digital economies in **the world**. Will require a mix of technologies

Satellite broadband in 28 GHz band will accelerate digital policy goals

The licensing of **NGSO LEO** mega-constellations needs to be carefully considered for India to have **future-proof access** to LEO

## Spectrum Requirements

Ultra-High Throughput Satellites for both Fixed Satellite and ESIM (mobile) require the full 28 GHz band (27.5 – 29.5 GHz)

Terrestrial **5G in mmWave is nascent** - investment risk in 26 GHz IMT will depend on global uptake

**28 GHz high-speed satellite broadband already a global investment**

Maximum benefit for the use of 28 GHz: ensuring full use by satellite; **IMT in the 26 GHz band is supported**

## Way Forward in mmWave

**26 GHz:** IMT 5G use, outcome of WRC-19 (17+ GHz of identified spectrum including 26 GHz)

**28 GHz:** sole satellite use, Ka UHTS **Fixed Satellite & ESIM** (pier-to-pier; gate-to-gate)

IMT 5G is incompatible with satellite use of 28 GHz - best use for 28 GHz is national coverage with satellite high-speed broadband

