

# Building Digital Pakistan through effective spectrum policy



Mobile network infrastructure is crucial for Pakistan's digital transformation, serving as the backbone for wide-reaching connectivity and socioeconomic growth. Digital Pakistan, the government's flagship initiative launched in 2018, aims to enhance digital infrastructure to enable the rapid delivery of innovative digital services and applications, expand the knowledge-based economy and spur growth across all sectors of the economy.

Over the last decade, Pakistan has seen significant progress, with mobile broadband networks expanding rapidly. Today, 83% of the adult population resides in areas covered by 3G or 4G networks, compared to just 15% in 2010. However, Pakistan faces several challenges that threaten the sustainability and growth of its mobile infrastructure. The country has been affected by high inflation rates, currency depreciation, and rising energy costs, all of which negatively impacted consumer spending and increased operating costs for the telecom industry.



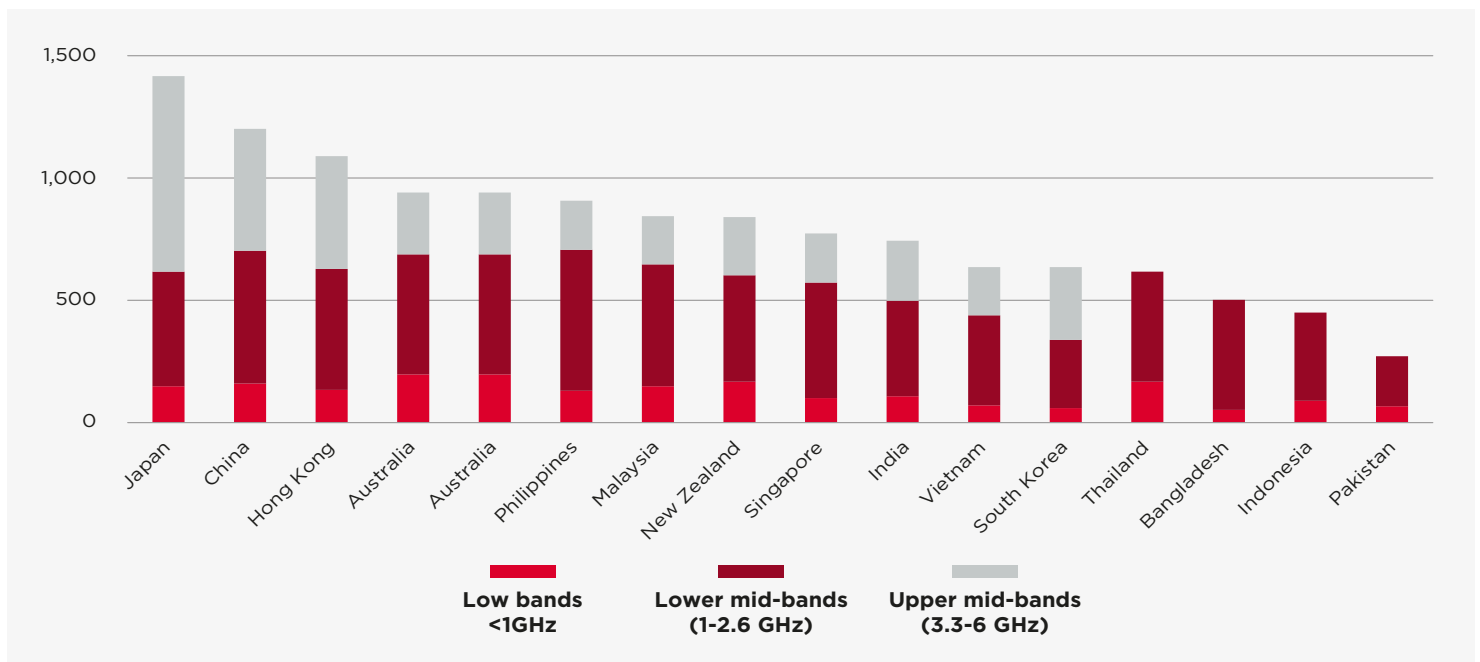
## The spectrum opportunity

Currently, Pakistan has among the lowest amount of assigned spectrum for mobile in the Asia Pacific region at around 270 MHz, compared to the APAC average of more than 700 MHz in low and mid-bands.

However, the government and the Pakistan Telecommunication Authority (PTA) have made good progress on streamlining spectrum planning and expediting the spectrum supply for mobile.

In a positive development, the PTA will be making available close to 600 MHz of spectrum in key harmonised bands, including 700 MHz, 1800 MHz, 2.1 GHz, 2.3 GHz, 2.6 GHz and 3.5 GHz, in an upcoming auction scheduled in early 2025. This spectrum will be essential to address the spectrum shortfall, support mobile industry development and accelerate the growth of Pakistan's digital economy.

Figure 1:  
Spectrum assigned to mobile operators (MHz, 2024)



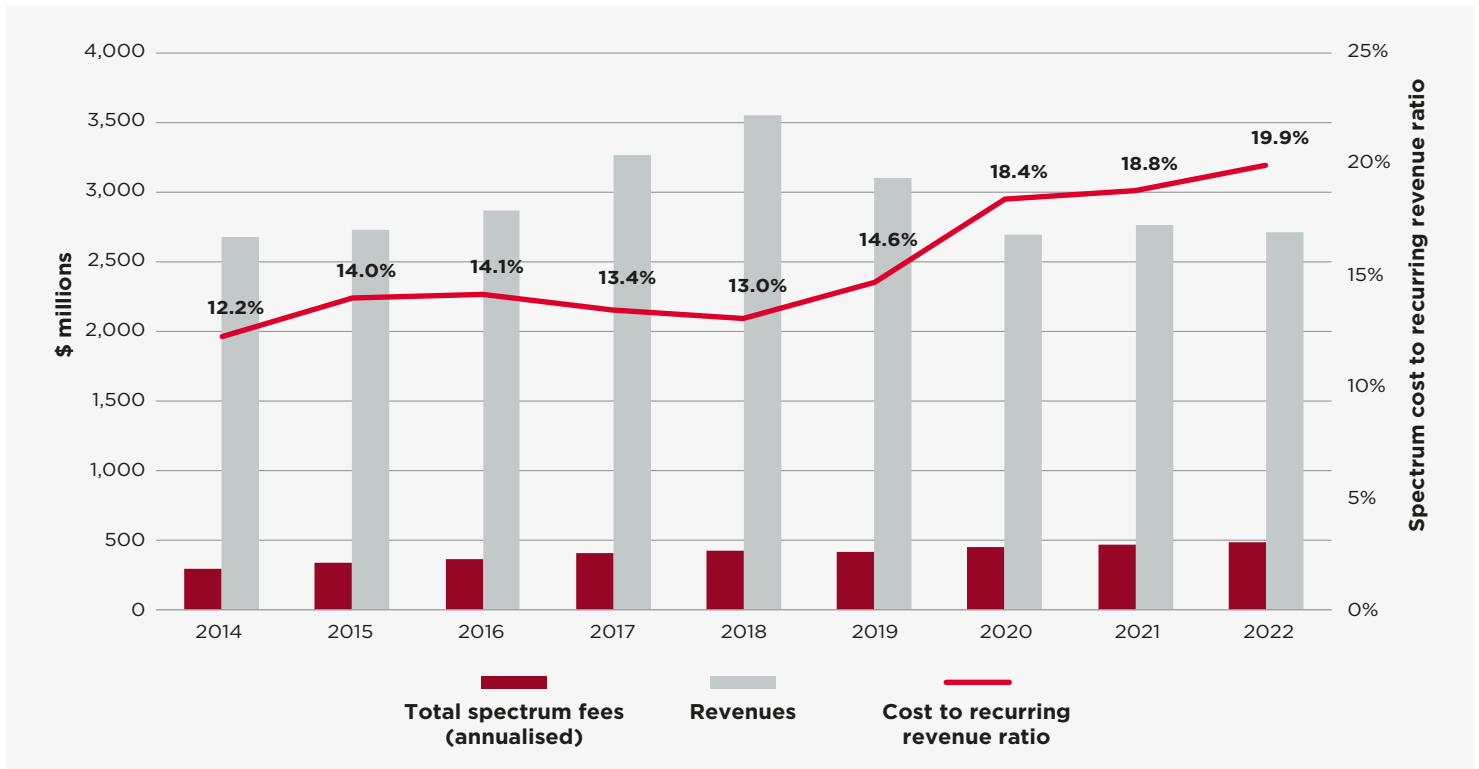
Source: GSMA Intelligence

## Threat of rising spectrum costs

Spectrum costs for mobile operators in Pakistan have risen significantly over the past decade. As highlighted below, total spectrum cost as a proportion of recurring revenue has risen from 11% in 2014 to 20% in 2022. Though there are several reasons for this increase, one main factor is the

depreciation of the Pakistani Rupee against the US dollar since 2017. Unlike in most countries globally where spectrum fees are paid in local currency, spectrum charges are in US dollars, putting operators at risk of fluctuations in financial markets.

Figure 2:  
**Growth in spectrum cost in Pakistan**



Source: GSMA Intelligence

The rising cost of spectrum is unsustainable and poses a major threat to the future development of mobile services. Operator revenue per MHz of spectrum is falling while the bandwidth needed to meet user demand is rising. With the total supply of

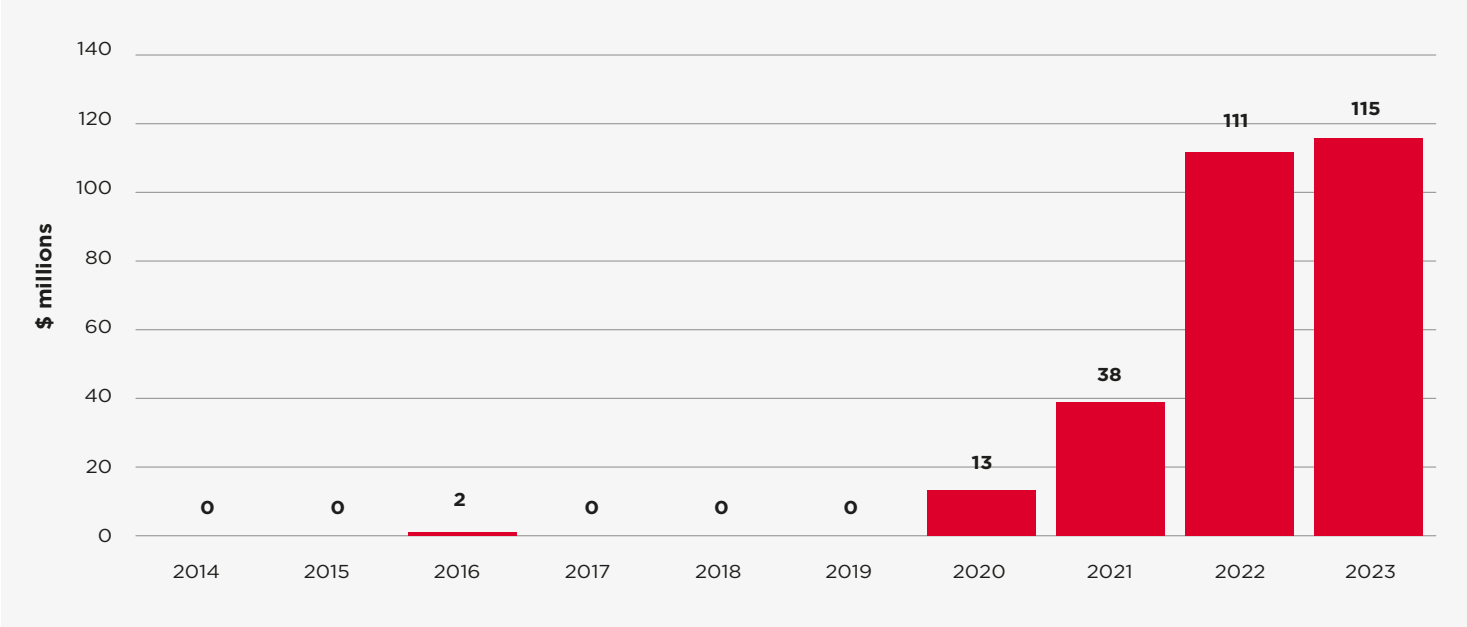
mobile spectrum set to increase potentially by three-fold, the trend of rising spectrum costs is simply not sustainable. For operators to be able to fund sufficient investment in future spectrum and networks change is needed.

# High reserve prices have deterred bidders on multiple occasions

Auctions are a common mechanism for assigning spectrum, particularly where this is excess demand. Good auction design enables bidders to discover information about market value based on what other operators are willing to pay. The auction format can also help promote efficient spectrum assignment. However, auctions can be undermined by high reserve prices which increases the risks of unsold spectrum or results in less funds available for investment.

Past auctions in Pakistan have often resulted in unsold spectrum, for example in 2014 (850 MHz, 1800 MHz) and in 2021 (1800 MHz, 2.1 GHz), leading to reduced spectrum supply for mobile operators. This has contributed to slower 4G rollout and adoption. Analysis by GSMA Intelligence shows that if spectrum had been fully assigned in previous auctions, additional benefits of some \$300 million (PKR 80 bn) would have been realised.

Figure 3:  
**Estimated GDP Impact from full assignment of spectrum**



# The economic risk of unsold spectrum is substantial

Pakistan's upcoming spectrum auction should focus on enhancing the country's digital infrastructure rather than maximising government revenue. The 600 MHz set to be made available in the upcoming auction, including over 500 MHz in the core mid-bands such as 2.3 GHz, 2.6 GHz and 3.5 GHz, which will be essential to addressing the country's current shortfall. Excessive spectrum pricing has serious consequences for industry and consumers. Studies by GSMA Intelligence and others have found a causal link between high spectrum prices and slower mobile data speeds, worse coverage and slower rollout.<sup>1</sup>

Unsold spectrum in previous auctions has already led to lost economic growth. For the upcoming auction, the impact of unsold spectrum because of excessive reserve prices will be even more substantial. A two-year delay to the availability of new spectrum is projected to result in a loss of USD1.8 bn (PKR 500 bn) in GDP over the 2025-2030 period compared to a baseline scenario in which all bands are sold. This increases to USD4.3 bn (PKR 1,168 bn) in the case of a five-year delay.

Figure 4:  
Cumulative GDP impact breakdown (\$ billions), 2025-2030



<sup>1</sup> [https://www.gsma.com/connectivity-for-good/spectrum/gsma\\_resources/effective-spectrum-pricing/](https://www.gsma.com/connectivity-for-good/spectrum/gsma_resources/effective-spectrum-pricing/)



## Balanced approach optimises economic benefits

Thus, it is crucial that a balanced approach to reserve prices is taken to allow the market to determine a fair price and to reduce the risk of leaving spectrum unassigned. Alongside this, it is also important for policymakers to take the right steps to alleviate the cost burden and create an environment that provides the right incentives for sustainable network investment and prioritises the development of Pakistan's digital economy.

To this end, we recommend the following actions:

- Set reserve prices for all bands conservatively, and lower than in previous auctions, to allow the market to determine a fair price and to reduce the risk of leaving spectrum unassigned.
- Denominate all spectrum fees in local PKR, instead of USD, to mitigate the impact of currency fluctuations.
- Provide payment flexibility with options of instalments over the duration of the licence. Any upfront fees will need to be set as affordably as possible.
- Carefully consider any licence obligations, in particular, the costs of meeting any obligations should be deducted from spectrum fees.
- Commit to a spectrum roadmap to reduce uncertainty about future spectrum availability and aid network planning.

