

# Regulating WiMAX to Life in the Middle East and North Africa

by Lara Aryani and Turgut Cankorel,  
Chadbourne & Parke LLP

Global telecommunications have become an integral part of any competitive national economy. The Middle East and North Africa ("MENA") has demonstrated consumer demand for advanced telecommunications services and eager investors willing to develop the requisite technological infrastructure.

The absence of proactive regulatory oversight, however, poses a significant challenge to the successful growth of this sector. This article focuses on wireless broadband as the most attractive technological vehicle for high-speed data access, and outlines the steps MENA regulators should take in order to promote the growth of wireless broadband in the region.<sup>1</sup>

## The appeal of Wireless broadband in MENA

Like many developing regions, the MENA telecom sector has struggled with an underdeveloped wired infrastructure, which has historically resulted in low penetration levels for fixed telephony services, particularly outside of densely populated urban centres.

Even for the (relatively) technologically well-connected urban population, establishing a new landline phone service required a long process of application and installation, usually rife with bureaucratic red tape. The telecom sector in MENA was permanently changed,

however, with the advent of mobile phone service. The wireless capability of mobile telephony introduced an efficiency and cost-effectiveness that traditional wired services could not afford.

The subsequent boom that followed resulted in the telecom industry being one of the fastest growing and most profitable industries in the region.

But today, MENA's telecom sector is again facing the risk of stagnated technology and penetration rates. While many MENA states are quickly approaching peak penetration levels in the mobile phone market, internet access is not yet widespread, partly because traditional DSL and dial-up internet services require the same wired infrastructure that inhibited landline phone service growth in the past.

For this reason, the development of a wireless broadband

internet technology called World Interoperability for Microwave Access ("WiMAX") has generated excitement in telecom industries across the world as a cheaper, less-labour intensive and more effective means of providing broadband internet service. In effect, WiMAX has the potential to be to the internet what mobile phones were to phones.

WiMAX is not unknown in the Middle East, and in fact, some countries such as Algeria<sup>2</sup> were among the earliest adopters of WiMAX in the developing world.

Investors in the region continue to be excited about the potential that WiMAX offers<sup>3</sup>. But a growth spurt in broadband service penetration cannot be achieved through the effectiveness of the technology or the enthusiasm of investors alone. Among other obstacles, a restrictive regulatory regime threatens to inhibit the potential for WiMAX growth in the region.

There is a wide range of regulatory tools available to states, including: spectrum allocation, network sharing, content regulation, tariff regulation, taxes and subsidies, frequency regulations, technical certifications, and so-called lawful interception. This article focuses on the threshold issue of spectrum access.

## Spectrum allocation: bandwidth and frequency

The future success of WiMAX is contingent upon the availability of sufficient spectrum. Regulators' unwillingness to allocate sufficient spectrum has been the death knell for WiMAX throughout the global market.

Regulators who support the growth of WiMAX should first and foremost secure sufficient bandwidth for wireless broadband. In its nascent stage, WiMAX services may not require a great deal of bandwidth, but if its growth is expected to spike, then states must ensure that either enough spectrum is allocated at the beginning, or that there is an efficient way to allocate additional spectrum when the time comes.

The allocation of low-frequency bandwidth is the second prerequisite for the growth of WiMAX.

Lower frequencies are especially valuable because of their ability to transmit higher volumes of information more efficiently. In turn, what distinguishes WiMAX from other internet services is the ability to make their services available to a greater number of users more quickly and at a lower cost.

Thus, while WiMAX service does not technically require more

1. A longer version of this article was previously published in the October 2009 issue of *Convergence*, a publication of the International Bar Association.

2. Algeria launched a commercial WiMAX service in 2005.

3. Tunisia, Turkey, Libya and Egypt all have WiMAX services, and Jordan launched its own WiMAX service in March 2009.

bandwidth than wired broadband, if regulators achieve their goals of higher broadband penetration rates, then the additional subscriber traffic will require WiMAX providers to have more efficient and larger allocations of spectrum.

For example, according to the Egyptian Telecommunication Regulatory Authority, several bands of the 30 GHz spectrum are currently allocated for WiMAX services. This band of spectrum comes under the extremely high frequency ("EHF") category of frequencies, and unlike lower bands, EHF frequencies are prone to atmospheric attenuation. This means that the signal fades over long distances and is often vulnerable to interferences.

While low frequencies of spectrum such as this one may be sufficient as states begin to experiment with WiMAX, only higher frequency allocations would be able to support the commercial viability of WiMAX services.

Prime spectrum at lower frequencies such as ultra high frequencies ("UHF") and super high frequencies ("SHF") are not yet widely available for licencing to wireless broadband because they continue to be used for other applications such as television broadcasting.

For example, one of the main obstacles to the growth of WiMAX in Western Europe has been the lack of low frequency spectrum access. Throughout most of Western Europe, WiMAX operates in the 3.5 GHz band, which does not support commonly available mobile services.

By contrast, regulators in Eastern Europe, and parts of Scandinavia were the earliest to allocate 2.5 GHz spectrum to WiMAX, and the technology has enjoyed substantially more success in these countries as a result.

## Licencing terms: Neutrality, Duration, Exclusivity, Assignment Restrictions

By focusing on several discrete licencing terms, regulators can effectively negotiate telecom licenses that promote WiMAX and other advanced technologies in their markets.

More specifically, regulators should focus on creating licences that strike an economically viable combination of licence duration, technology-neutrality, licence exclusivity and assignment/buyback restrictions.

**Neutrality:** Historically, regulatory authorities in MENA began liberalization by issuing technology-specific licences, requiring a licence holder to use a specifically mandated technology when operating within that allocated spectrum, thus also restricting the corresponding services.

For example, earlier mobile licences granted by Egypt were specific to 2G technology. However, the third mobile licence granted more recently in 2007 was technology-neutral (it was open to 2G, 3G and CDMA), which put the initial licence holders under a competitive disadvantage and forced them to acquire separate 3G licences<sup>4</sup>.

One of the problems with a technology-specific structure

is that the licences can only accommodate the technological realities of the present.

When the application of the technologies surpass the boundaries that regulatory authorities establish, licenced companies are stuck with obsolete licences; licences for obsolete uses clutter the spectrum, leaving less spectrum for the state to allocate to new uses; and consumers are stuck with technologically outdated and inferior service. When only new licences are allowed to accommodate new technologies, veteran telecom actors also find themselves at a disadvantage vis-à-vis new technologies and services.

Thus, technology-specificity can be bad both for the consumers and the industry.

**Duration:** While a few MENA countries have been willing to experiment with technology-neutral licences<sup>5</sup>, other MENA regulators remain wary of this licence structure likely because it forces them to relinquish control over the industry. Regulators that are concerned about relinquishing control can still leverage influence by reducing the length of the licences, which can currently run up to 35 years.

The mobile licences in Saudi Arabia, for example, were granted for terms as long as 25-years (contrast with the early mobile licences in continental Europe, which were usually no longer than 15 years).

In the past, such long periods may have been economically and technologically efficient, considering the infrastructure required to deliver services under a telecom licence. Today, the growing use of wireless technologies and the ability to update hardware wirelessly means that the use of new technology will not require the expensive and overarching infrastructural updates of the past.

With technologies such as WiMAX, service providers have fewer and cheaper physical hubs that require updating, as well as the ability to update the end-user's consumer device.

**Assignment Restrictions:** The lack of an option to sell back the licence to the government or the option to sell spectrum in secondary markets to third parties (for example via "spectrum trading") can be another obstacle to the growth of WiMAX, especially if regulators continue to issue exclusive technology-specific extended term licences.

Without such options, large portions of unused spectrum (also known as "white space") can be a burden on a sector that requires significant spectrum to satisfy service demands. Moreover, as a result of changes in technology or business priorities, some licencees may hold spectrum they no longer need, and might want the flexibility to sell or sublet their surplus spectrum.

Regulators can facilitate this by allowing licence holders to sell their spectrum licence back to the government before the licence term expires, or even go a step further and allow "spectrum trading" among parties.

**Exclusivity:** Exclusive licences mean that the licence holder is entitled to the exclusive use of the allocated spectrum (rather

4. Likewise, many European mobile licences, such as the German WiMAX licence granted in 2007, have been technology neutral.

5. Egypt awarded a technology-neutral licence to Etisalat Egypt in 2006, and Tunisia awarded its first technology-neutral licence to Tunisia-based Divona Telecom and France Telecom in July 2009.

than having to share the network with other telecom operators). As broadband internet access becomes more popular and bandwidth becomes more congested, regulators will have to consider ways to accommodate heavier traffic.

In the past, it may have been important for regulators to guarantee the “exclusive use” rights for a spectrum because most technologies transmitted bulky and inaccurate signals, meaning that if more than one entity attempted to use a spectrum to transmit information, the two transmissions could interfere with each other. But today, many of the available technologies are far more precise and occupy less space, meaning that a telecom provider’s quality of service would not be affected if required to share the spectrum space with others (for certain uses).

Regulators should also begin contemplating the possibility of an “open spectrum,” also known as “spectrum commons.” Under this regime, regulators would not assign licences for the exclusive use of spectrum to anyone, but instead would approve particular devices that could then be used by all to access these allocated bands.

There already are some frequencies that are “unlicensed” or “licence-exempt” such as those used by cordless phones, microwaves or routers that provide wireless internet transmission.

However, the frequencies required by these devices are generally high level frequencies, which were previously referred to as “garbage frequencies” before consumer devices were developed for their use.

The open spectrum regime would require regulators to “open” lower, more superior frequencies for unlicensed use. The recent development of more precise, smaller transmission

signals alleviates most of the prior concerns about interference that served as the initial impetus behind the “exclusivity” of licence allocations.

MENA regulators mindful of the fact that spectrum congestion will progressively worsen as wireless technologies become more popular should consider this type of spectrum sharing in order to increase the productivity of spectrum bands.

## Conclusion

While the success of the mobile phone industry has provided many MENA consumers with a mobile phone service that is on par with that in European markets, it remains to be seen whether the telecom giants of the region will fall behind the great advances they made in connectivity when it comes to broadband internet access.

Though fixed broadband services posed serious obstacles that could not be overcome by fixed phone service providers, the advent of wireless broadband internet service—WiMAX—provides the regional telecom industry with the opportunity to grow and again produce the high penetration levels it enjoyed among mobile phone subscribers. But the great potential of the technology and the enthusiasm of investors is not enough to guarantee the success of WiMAX in the region. Without the help of regulators and a new regulatory regime that can accommodate this technology, WiMAX may be stifled for far longer than consumers in MENA would expect.

■ *Chadbourne & Parke LLP has offices in New York, Washington, DC, LA, Mexico City, London, Moscow, St. Petersburg, Warsaw, Kyiv, Almaty, Dubai and Beijing. For more information, visit [www.chadbourne.com](http://www.chadbourne.com)*