



# MINISTRY OF TRANSPORT AND COMMUNICATIONS POSTS AND TELECOMMUNICATIONS DEPARTMENT

## CONSULTATION PAPER 1800 MHz Spectrum Allocation Process

### 1. Introduction

Following the licensing of two new national telecommunications operators in early 2014, the Union of Myanmar's liberalised telecommunications sector has seen significant growth in the past three years. Citizens and businesses of Myanmar have high levels of demand for mobile cellular services and wireless broadband services in particular. It is understood that the number of cellular subscribers in Myanmar now exceeds 50 million.

On 12 January 2017, a fourth operator (Myanmar National Tele & Communications Co., Ltd (MNTC)) was licensed and new regional licences for TDD 2600 MHz spectrum were also allocated by the Ministry in late 2016.

As part of the Union of Myanmar's telecommunications reform process, two new private operators plus the fourth operator were allocated nationwide spectrum of only 5MHz of paired spectrum in the 900 MHz band, and 10 MHz of paired spectrum in the 2100MHz band. They were also granted a spectrum option for a further 2 x 5 MHz of 2100 MHz which both Ooredoo and Telenor the two original licensees have exercised.

Given:

- the rapidly growing Myanmar economy (expanding at more than 7 percent per annum according to the World Bank<sup>1</sup>);
- limited fixed telecommunications networks (which will take time and significant investment to address following the licensing of new network facilities service individual licensees by the Ministry in 2015); and
- continued increasing demand for services, which sees customer demand for wireless data services in downtown Yangon reportedly at levels higher than certain European cities;

there is an urgent need to provide additional International Mobile Telecommunications (IMT) spectrum to the nationwide mobile operators. Such spectrum is also needed in order to provide more spectrally efficient Long Term Evolution (LTE)/4G services in Myanmar. Importantly there is a need to (i) get in front of the demand curve by allocating sufficient additional IMT spectrum to meet both immediate needs (ie over the next 12 months) and (ii) to provide an option for licensed operators to acquire further spectrum to meet medium term demand. Increased spectrum availability should facilitate faster LTE broadband speeds in Myanmar similar to that are being offered in global and ASEAN regional markets.

<sup>1</sup> See [www.worldbank.org/en/country/myanmar/publication/myanmar-economic-monitor-may-2016](http://www.worldbank.org/en/country/myanmar/publication/myanmar-economic-monitor-may-2016)

On 8 April 2016, the Ministry issued a document entitled *Spectrum Roadmap: Meet the Needs Over Next 5 Years* which outlined our plans for the release of spectrum especially IMT spectrum. While there are a number of references to the 1800 MHz spectrum band in this Roadmap, the key provision states that there is a plan for the Ministry to issue such spectrum in Q1, 2017. This key provision is extracted in Exhibit 1 below.

**Exhibit 1: Extract from the Myanmar Spectrum Roadmap dealing with 1800 MHz**

The 1800 MHz (1710-1785/1805-1880 MHz) band is widely used for LTE deployments around the world. Ministry proposes to release this band following the release of 2600 MHz. Currently MPT is authorized to temporarily use 1730 . 1750 / 1825 . 1845 MHz for special events. If it is necessary to assign around MPT's temporary assignment of 1710-1730 MHz and 1750-1785 MHz for Uplink, then bands 1805-1825 MHz and 1845-1880 MHz could be assigned for Downlink. This will provide 55+55 MHz of spectrum for FDD.

**Action Planned by PTD / Ministry:**

Develop Policy and process for the release of 1800 MHz band with the intention of auctioning this spectrum.

Source: MCIT, *Spectrum Roadmap: Meet the Needs Over Next 5 Years*, page 55

Given the above considerations and after preliminary consultations with the nationwide mobile operators in late 2016 and early 2017, a decision has been taken in the public interest to move forward with the allocation of 1800 MHz band spectrum by the end of March 2017, if possible.

## 2. Allocation process for the 1800 MHz spectrum band

Spectrum allocation is one of the most important factors influencing the performance of the mobile sector. Allocation has a direct impact on the value of mobile businesses, the level of competition, consumer satisfaction and the long-run sustainability of the sector as a whole.

Traditionally, the “*command and control*” or direct allocation approach to spectrum management has been the model of choice. This model has been supplanted by market mechanisms for in-demand bands in most markets, due to technological advances and market liberalisation in the past decade, which have dramatically increased the pace of spectrum consumption.

The so-called “*spectrum crunch*” has placed great pressure on regulators to efficiently manage demand for frequencies across an increasingly diverse set of competing users. Having said that, there remains a need to allocate spectrum in different ways depending on band and harmonised use.

In Myanmar in accordance with Article 11(a) of the *Spectrum Rules 2013*: “*The procedure for authorizing the right to use Radio Spectrum, the conditions for participation in the authorization of spectrum rights and the charges payable for spectrum rights are identified for each Radiocommunication Service below, and, without limiting the methods which may be used, may include any one or a combination of the following methods:*

- i. *by auction;*
- ii. *by tender; or*

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<sup>2</sup>The term “*spectrum crunch*” refers to the pressure placed on available and allocable spectrum resources due to the rapid growth in the demand for spectrum use, especially as a result of data-rich mobile applications.

iii. by fixed price.”

From the Ministry’s perspective, there are advantages and disadvantages in all methods which could be used to allocate the 1800 MHz spectrum in Myanmar. A direct allocation, assuming there is agreement on the price to be paid would be faster but spectrum auctions are more transparent. There are also strong arguments that this particular spectrum band should be allocated directly given inter alia the urgent need for additional IMT spectrum, the need to maintain a competitive market with a level playing field, and the need to facilitate technological innovation including the deployment of LTE and LTE-A services. The Ministry also acknowledges the significant quantum of investment made by the major operators in their networks since 2013 and that the sector has created the most jobs in the country since 2014.<sup>3</sup>

Taking into account (i) the priorities below (see Exhibit 2), and (ii) that spectrum auctions should only be used when demand exceeds supply, the Ministry supports a direct allocation or tender of spectrum for the 1800 MHz spectrum band to the nationwide mobile operators.<sup>4</sup>

**Exhibit 2: Ministry Priorities for the allocation of the 1800 MHz spectrum band**

Priority	Objectives
1	An efficient and transparent spectrum allocation process
2	Promoting competition in the market with the aim to improve quality of service and reduce costs of services thereby benefiting Myanmar consumers
3	Development of telecommunications industry in Myanmar including infrastructure and higher speed 4G/LTE (and LTE-A) services thereby increasing capacity to serve increasing consumer demands
4	Revenue to the State

The Ministry also considers that a direction allocation or tender will be supported by Myanmar’s mobile subscribers . especially those located in urban areas - who have invested in smartphones and who will quickly see the benefits of the allocation of additional IMT spectrum in faster broadband speeds and an improved quality of service.

**2. Proposed pricing of 1800 MHz spectrum in Myanmar**

What determines the value of spectrum? The value or price of spectrum is determined by a range of factors, including the spectrum’s highest value use, changes in technology and its availability across spectrum users, Ministry’s spectrum allocation plans, etc. In short, value of spectrum may be summed up as:

$$V = f\{\text{physical characteristics, geographic coverage, licence regulations and conditions, technological change, underlying demand, policy certainty, etc.}\}$$

There are two general methods used for calculating spectrum price (i) direct calculation method (using some form of net present value (NPV) or cost reduction approach), and (ii) market-based relative benchmarking method (which incorporates current/recent market information).

In the case of Myanmar a decision has been taken by the Ministry to use benchmarking to determine the price which 1800 MHz spectrum licences will be offered to the major operators.

<sup>3</sup> See [www.elevenmyanmar.com/business/7334](http://www.elevenmyanmar.com/business/7334)

<sup>4</sup>This decision does not, it must be highlighted, set any precedents for the future allocations of IMT or other spectrum bands in the country.

Benchmarking involves using data from spectrum awards in both Myanmar<sup>5</sup> and in other comparable jurisdictions to determine the likely price range of spectrum. Benchmarking derives estimates of spectrum value from revealed willingness to pay for spectrum in other spectrum awards. The benchmarks are therefore based on prices that have been paid by specific buyers in Myanmar and other countries. It is important to ensure comparison countries are properly selected. Awards must be as comparable as possible in all respects:

- Country should have similar income, level of economic development, political development;
- Spectrum should have similar physical characteristics;
- Licences should have similar duration;
- Market should have similar structure, level of competition, existing spectrum holdings, access to technology; and
- Recent, that is within a few years, to ensure that changes in forex to a common currency, GDP/capita and population changes have not varied to greatly and because the nature and use of the 1800 MHz band has significantly changed for use for LTE/4G services.

Therefore, to determine benchmark prices several factors must be taken into account, and to rebase the source numbers to a benchmark number. This is a simple yet complex process, with a number of steps to be taken and methodologies to be adopted.

To assist the Ministry in this process, independent consultants who have significant spectrum management and valuation expertise as well as experience of the Myanmar market have been engaged.

The final offered price for 1800 MHz band spectrum will be consistent with the domestic and international pricing benchmarks considered by the independent consultants plus standard annual Spectrum Management Fees.

### **3. Other key issues relating to the offering of 1800 MHz spectrum licences**

There are also a number of other key issues which relating to the offering of 1800 MHz spectrum which need to be addressed including but not limited to allocations, coverage requirements, licence terms, proposed payment terms and possible concessions to MNTC given its recent licensing. A summary of the proposed approach to other spectrum licensing issues is contained in [Exhibit 3](#) below.

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<sup>5</sup> Putting aside the initial licence award which was determined by a two-part assessment process, there are two major spectrum pricing benchmarks in Myanmar. The first is the spectrum options for 2 x 5 MHz (10 MHz) of 2100 MHz to the major operators in their spectrum licences granted in 2014 and 2017 respectively and the second is the auction of 2600 MHz spectrum in late 2016.

**Exhibit 3: Summary of Proposed Approach to other Spectrum Licensing Issues**

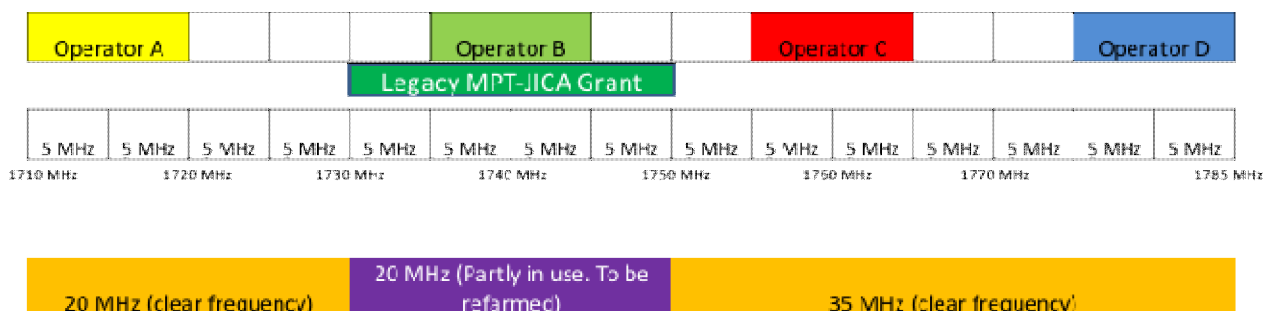
Spectrum Framework Issues	Licence Condition if applicable	Proposed Approach
<b>Allocation of Spectrum</b>	n.a	<p>75 MHz of paired 1800 MHz spectrum is allocated on a basis where:</p> <ul style="list-style-type: none"> <li>• Telenor, Ooredoo, MPT and Mytel will each have the ability to secure 2 x 10 MHz of 1800 MHz spectrum (the initial 1800 MHz spectrum allocation) as the first allocation; and</li> <li>• Each of the operators will have an option to acquire up to 2 x 10 MHz of additional 1800 MHz each on a first come, first served basis (minimum of 2 x 5 MHz) until all the spectrum in the harmonized 1800 MHz IMT band is allocated (the 1800 MHz option spectrum). All such options, if not exercised, will expire on 3 years after the effective date of each licence.</li> </ul> <p>The precise allocations of option 1800 MHz spectrum allocations will depend on the resolution of the MPT-JICA LTE network issue but this will not affect the initial spectrum allocations above. Further, all 1800 MHz spectrum allocations will be subject to a condition that reconfiguration may be required to ensure contiguous spectrum allocations in this band.</p>
<b>Coverage Requirements</b>	n.a	No specific coverage commitment will be included in the 1800 MHz Spectrum licence band given coverage requirements already contained in the Operation and earlier Spectrum Licences.
<b>Term of Spectrum Licence</b>	1.2	12 years . co-terminus with the operating and spectrum licence for 900/2100 MHz spectrum granted to Telenor//Ooredoo.A shorter licence period reflects that the 1800 MHz spectrum is being allocated rather than auctioned.
<b>Licence Renewal Terms</b>	5.1	The 1800 MHz spectrum licence expires on its end date. There is no expectation of renewal. The PTD or its successor organization can decide at a later time whether to <i>inter alia</i> extend the licences, auction the spectrum and/or a combination thereof in accordance with the applicable Law and Spectrum Rules.
<b>Proposed Payment Terms</b>	10.1	<p>The payment schedule for the initial 1800 MHz spectrum allocation will be as follows:</p> <ol style="list-style-type: none"> <li>i) A First Spectrum Licence Fees Payment, in an amount equal to forty (40) percent of the Spectrum Licence Fee on the effective date of its Licence</li> <li>ii) A Second Spectrum Licence Fee Payment, in an amount equal to an additional twenty (20) percent of the Spectrum Licence Fee within one (1) year after the effective date of its Spectrum Licence; and</li> <li>iii) A Third Spectrum Licence Fee Payment, in an amount equal to the remaining twenty (20) percent of the Spectrum Licence Fee within two (2) years after the effective date of its Spectrum Licence;</li> <li>iv) A Fourth and Final Spectrum Licence Fee Payment, in an amount equal to the remaining twenty (20) percent of the Spectrum Licence Fee within three (3) years after the effective date of its Spectrum Licence.</li> </ol> <p>The payment schedule for the 1800 MHz option spectrum will be as follows:</p>

Spectrum Framework Issues	Licence Condition if applicable	Proposed Approach
		i) A First Spectrum Licence Fees Payment, in an amount equal to fifty (50) percent of the Spectrum Licence Fee on the effective date of the granting of the additional Spectrum option; and  ii) A Second Spectrum Licence Fee Payment, in an amount equal to the remaining (50) percent of the Spectrum Licence Fee within one (1) year after the effective date of the granting of the additional Spectrum option.
<b>MNTC (fourth operator) specific issues</b>	10.3	In a variation to the above rules, the operator will be provided, subject to the payment of an option fee of USD 1 million by 31 March 2017 (which will be offset against the first year 1800 MHz spectrum fees): <ul style="list-style-type: none"> <li>• An additional year, until 31 March 2018, to acquire the initial 2 x 10 MHz of 1800 MHz spectrum.</li> <li>• Until 1 April 2020, on the same terms as the other licensees to exercise an option to acquire additional 1800 MHz spectrum.</li> </ul>

#### 4. Proposed Band Plan for the 1800 MHz Spectrum Band

The proposed band plan for the 1800 MHz spectrum band is set out in Exhibit 4 below.

**Exhibit 4: Proposed Draft 1800 MHz Spectrum Band Plan**



#### 5. Request for Comments

Consistent with the Law, and the *Spectrum Rules 2013*, the Ministry is pleased to provide the major operators with an opportunity to comment on any aspect of this Consultation Paper and the attached draft Spectrum Licence.

Comments must be received in writing via email to [ptdspectrum@ptd.gov.mm](mailto:ptdspectrum@ptd.gov.mm) by **5pm on 10 March 2017**.

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