



**Government of Pakistan
Ministry of Information Technology and Telecommunication**

DIGITAL PAKISTAN

Draft Framework for Frequency Spectrum Re-Farming

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FRAMEWORK FOR FREQUENCY SPECTRUM RE-FARMING

1. Background

Ever increasing demand for radio frequency spectrum makes it vital for the regulator to formulate a strategy for efficient utilization of this scarce resource. In view of increasing worldwide demand for radio communication services, spectrum re-farming is considered a powerful and innovative approach to manage the spectrum dynamically so as to make it available for newer applications such as 4G, 5G, broadband wireless access, digital broadcasting, etc. These new applications have a tremendous socio-economic impact on the development of the countries. As per the Telecom Policy 2015 section 8.5.1, Spectrum will be re-farmed where its current use is not in the best social and economic interests of Pakistan, it is underutilized, used inefficiently or its use is inconsistent with international allocations. Incumbent users/licensees, as per the details of this framework, will vacate their spectrum assignments in a particular band either partially or completely so that the band may be allocated to other users.

Spectrum re-farming was implemented for various use cases in Pakistan in the past. However, since there is no formal framework on spectrum re-farming, Telecom Policy 2015 section 8.5.2 entrusts PTA/PEMRA to prepare a framework for “Spectrum Refarming” in consultation with FAB to be approved by Federal Government (MOIT&T). The said Framework, as per section 8.5.3 of Telecom Policy 2015, needs to be in-line with the best practices.

The Pakistan Telecommunication (Re-organization) Act, 1996 is the main legislation under which frequency spectrum is managed. Under section 42 of the Act, Frequency Allocation Board was constituted. The Act under section 43 provides powers and functions of the Board as follows:

"The Board shall have exclusive authority to allocate and assign portions of the radio frequency spectrum to the Government, providers of telecommunication services and telecommunication systems, radio and television broadcasting operations, public and private wireless operators and others".

The Act, under section 8 (2) gives powers to the Federal Government to issue policy directives on framework for telecommunication sector development and scarce resources. Whereas, according to section 2(qc) of the Act, “Scarce Resource” means Radio Frequency Spectrum, Right of Way and Numbering.

In the light of the Telecom Policy 2015, this framework for spectrum re-farming is prepared to ensure timely introduction of new technologies and services for the greater benefit of all stakeholders including consumers and GoP.

2. Definition

As per ITU, spectrum refarming¹ is a combination of administrative, financial and technical measures aimed at removing equipment of the existing frequency assignments either completely or partially from a particular frequency band. The frequency band may then be allocated to the same or different services.

ITU Spectrum Regulation Toolkit defines Spectrum Re-farming as:

- i. Change of technical conditions for frequency assignments;
- ii. Change of application (particular radio communication system using the frequency band); and
- iii. Change of allocation to a different radio communication service.

The above ITU definition will be applicable for this spectrum re-farming framework.

3. Refarming Process

- i. Based on international developments, including but not limited to, technological trends, the vendor reports, Telecom operators' feedback, R&D landscape, survey reports and most importantly the recommendations from ITU, IEEE, ETSI, 3GPP, 3GPP2, GSMA and other standard framing bodies, PTA/PEMRA and FAB will recommend to MOIT&T the requirement to refarm any given frequency band.
- ii. MOIT&T, PTA/PEMRA and FAB may discuss the subject spectrum refarming with the incumbent user.
- iii. As per Telecom Policy 2015 section 8.5.4, Federal Government, through MoIT&T, will decide to re-farm any spectrum and such decision will be affected through a policy directive.
- iv. The policy directive shall include:
 - a. Spectrum to be re-farmed e.g. 700 MHz
 - b. Constitution of "Spectrum Refarming Committee" (as per TP 2015 section 8.5.5) comprising of MOIT&T, FAB, PTA/PEMRA and incumbent user. Federal Government may opt for any other member which it considers appropriate at that time.
 - c. Authorization to PTA/PEMRA for hiring an independent reputed expert/consultant (if required) to carry out a detailed subject analysis and present recommendations to the Committee.
- vii. The main ToRs of the Committee/Consultant may include the following:
 - a. Estimate the value of the re-farmed spectrum using the valuation method to be adopted (for government users only).

¹ ITU RECOMMENDATION ITU-R SM.1603-2

- b. To estimate the compensation cost of refarming (for government users only).
 - c. Quantum of spectrum to be re-farmed in the approved band e.g. 700 MHz.
 - d. To determine timeline for re-farming.
 - e. Seek the input from relevant stakeholders.
- viii. Committee shall submit its final recommendations to the Federal Government through the MOIT&T within three (3) months (if 3rd party consultation is not required). If 3rd party consultation is required, then appropriate time will be added to engage the consultant.
- ix. The Committee will regularly monitor the implementation status of the spectrum refarming process as per the approved timelines.
- x. The recommendations of the Committee as approved by the Federal Government shall be binding for the incumbent user.
4. The recommendations of Spectrum Refarming Committee may be based on the following procedure for Government and Private/Semi-Government incumbent users/licensees and the recommendations of the consultant (if applicable)

Common Procedural Steps for Government and Private/Semi-Government Licensees/Users	
i) Hiring of the consultant, if required, as per the Authorization of the Federal Government in the above mentioned policy directive followed by the submission of recommendations	
ii) While making the recommendations for spectrum refarming, the Committee may consider the factors that include: <ul style="list-style-type: none"> a) Identification of spectrum (to be refarmed) for a different (new) use case (e.g. a spectrum used earlier for broadcast or point to point links may be identified for cellular service) by 3GPP/3GPP2/ITU etc. b) Availability and development of particular new use case ecosystem (device, equipment, infrastructure, network etc.) in that band c) Global adoption for that band for a particular new use case d) Alternate spectrum is practical and available for the use case of the incumbent user e) Existing spectrum assignment is resulting in in-efficient utilization of spectrum (decided by concerned regulator and FAB) based on updated licensee/user's frequency utilization record (places of frequency use, type of service etc) 	
Procedural Steps for Government Licensees/Users	Procedural Steps for Private/Semi-Government Licensees/Users
f) In case of natural migration i.e. in addition to the above factors, the	f) If Section 4 (ii) (a to e) is applicable, the incumbent may apply for new frequency

<p>equipment has become obsolete/life cycle of equipment has expired/OEM support is discontinued</p> <p>If Section 4 (ii) (a to f) is applicable, the incumbent user may be offered compensation in terms of alternate spectrum only.</p>	<p>assignment to FAB through PTA/PEMRA. Based on its own analysis and mandate under the Telecom Act, FAB will decide about the new request.</p>
<p>iii) If Section 4 (ii) (a, b, c, d) is applicable but 4 (ii) (e, f) is not applicable, the Committee may decide for reduced bandwidth within same band or new (alternate) spectrum or monetary compensation or as the case may be. The Committee may request the Government licensees /users to provide their estimated cost for refarming for review.</p>	<p>-</p>
<p>iv) If the incumbent qualifies for monetary compensation, then on refarming, the compensation costs will be recovered from the license fees paid through the regulatory authority that collects the fees. PTA/PEMRA will create Spectrum Refarming Fund (SRF) for its users/licensees and allocate an amount to be determined by the Refarming Committee as approved by the Federal Government. Payment of compensation to the government users from whom the spectrum is refarmed, if required, will be made as approved by the Committee on the basis of predefined criteria for the purpose.</p>	<p>-</p>
<p>v) For all the users/licensees, the Committee's recommendations as approved by the Federal Government shall be final.</p> <p>vi) Auction process for the refarmed spectrum will be held before the compensation is provided to the incumbent user.</p>	

5. Guidelines for Spectrum Re-farming

- i) PTA/FAB shall implement the re-farming process for the users and PTA licensees.
- ii) PEMRA/FAB shall implement the re-farming process for the users and PEMRA licensees.
- iii) The licensees may opt for new advanced services in the assigned band. However, any change of technology by a licensee will be evaluated/allowed by concerned regulator with intimation to FAB. In case of any concern of Member of the Board with respect to the frequency spectrum, FAB will share with the concerned regulator within 15 working days and inform the Members of the Board accordingly.
- iv) Spectrum Rationalization cases, i.e. relocation of licensees within the same frequency range, will be implemented through joint working between concerned regulatory body and FAB.
- v) For all the re-farming cases (except iii above), an advance notice of the proposed changes shall be issued to the existing users/licensees by the concerned regulator enabling them to plan and implement any consequent changes.
- vi) The use of frequency spectrum can be revoked through the mutual consent between the user/licensee and the concerned regulator, i.e. PTA or PEMRA. PTA/PEMRA will finalize the modalities and regulatory measures for the remaining period of the license.
- vii) After FAB approval, PTA/PEMRA may grant a new license to any other operator in the already assigned frequency spectrum to the incumbent (which may include the Satellite operator, broadcasting operator etc.), prior to the expiry of the existing use/license/authorization on co-existence basis. Incumbent user will be consulted during this process. However, PTA/PEMRA shall restrict the new licensees by requiring them not to cause harmful interference to incumbents.
- viii) The Committee will regularly monitor the implementation status of the spectrum re-farming process as per the approved timelines.
- ix) If a specific frequency band which is announced by the Federal Government for re-farming; is sub-judice in court of law, then Federal Government will make all efforts for timely resolution of such cases.