



**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 Re-farming” 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, “**Act**” 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 Re-farming**¹ 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. Re-farming Process

- i. Reference Telecom Policy 2015 Section 8.5.1, 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 reform any given frequency band.
- ii. MoIT&T, PTA/PEMRA and FAB may discuss the subject spectrum re-farming 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 effected through a policy directive.
- iv. The policy directive shall include:
 - a. Spectrum to be re-farmed
 - b. Constitution of "Spectrum Re-farming Committee", "**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 that 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.

¹ ITU RECOMMENDATION ITU-R SM.1603-2

- v. The main ToRs of the Committee may include the following:
 - a. Estimate the value of the re-farmed spectrum using the valuation method to be adopted.
 - b. To estimate the compensation cost of re-farming (for government users only).
 - c. Quantum of the spectrum to be re-farmed in the approved band.
 - d. To determine a timeline for Re-farming (Shut down of telecom equipment/system that is using the spectrum (which is to be re-farmed), Availability of re-farmed spectrum for new use case/service, etc.).
 - e. To determine the timelines, payment terms, etc. of the compensation cost (if applicable) to the incumbent user
 - f. May seek input from relevant stakeholders for consideration of the Committee.
 - g. Any other related deliverable as per deemed necessary.
 - vi. The 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. Federal Government to approve the submitted recommendations within three (03) months.
 - vii. The Committee will regularly monitor the implementation status of the spectrum re-farming process as per the approved Recommendations.
 - viii. The recommendations of the Committee as approved and duly notified by the Federal Government shall be binding for the incumbent user.
4. The **Recommendations** of the Spectrum Re-farming Committee may be based on the following procedure for Government and Private/Semi-Government incumbent users/licensees taking into consideration the recommendations of the consultant (if applicable)

Common Procedural Steps for Government and Private/Semi-Government Licensees/Users

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| <ul style="list-style-type: none">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 |
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<p>ii) While making the recommendations for spectrum re-farming, the Committee may consider the factors that include:</p> <ul style="list-style-type: none"> a) Identification of spectrum (to be refarmed) for a different (new) use case/service (e.g. a spectrum used earlier for broadcast or point-to-point links may be identified for mobile service) by 3GPP/3GPP2/ITU etc. b) Availability and development of particular new use case/service ecosystem (device, equipment, infrastructure, network etc.) in that band c) Global adoption for that band for a particular new use case/service d) Alternate spectrum is practical and available for the use case/service 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
<p>f) In case of natural migration i.e. in addition to the above factors, the equipment has become obsolete/the life cycle of the 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>f) If Section 4 (ii) (a to e) is applicable, the incumbent may apply for new frequency assignment to FAB through PTA/PEMRA. Based on its 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 re-farming for Committee review.</p>	---
<p>iv) If the incumbent qualifies for monetary compensation, then on re-farming, the compensation costs will be recovered from the license fees paid through the regulatory authority that collects the fees. PTA/PEMRA</p>	---

<p>will create a Spectrum Re-farming Fund (SRF) for its users/licensees and allocate an amount to be determined by the Re-farming Committee as approved by the Federal Government, from the fees it collects for this fund. Payment of compensation to the government users from whom the spectrum is refarmed, if required, will be made from SRF, as approved by the Committee on the basis of predefined criteria for the purpose.</p>	
<p>v) For all the users/licensees, the Committee's recommendations as approved by the Federal Government shall be final.</p> <p>vi) An auction process or Administrative assignment whichever is applicable for refarmed spectrum (part of which will also be allocated to SRF to meet compensation demand as in 4 (iv) above) will be held before the compensation is provided to the incumbent user (for government users only).</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 /technologies in the assigned band. However, any change of technology by a licensee will be evaluated/allowed by the concerned regulator as per the existing process with intimation to FAB. In case of any concern of a 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' frequency block(s) within the same frequency range/band, will be implemented through joint working between the concerned regulatory body and FAB in consultation with the concerned licensee(s).
- 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 mutual consent between the user/licensee and the concerned regulator, i.e. PTA or PEMRA in accordance with respective license(s) terms and conditions. PTA/PEMRA will finalize the modalities and regulatory measures for the remaining period of the license.



- vii) For co-existence of radio services, 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.) after FAB approval, prior to the expiry of the existing use/license/authorization. Incumbent user/licensee 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) 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.

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