

**ITU Regional Training Workshop on
"Spectrum Management: Strategic Planning and Policies for Wireless
Innovation"**

**Spectrum Management Policy Principles and
Objectives**

Place: Algiers

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Introduction to this session

The previous session included an overview of:

- spectrum policy elements,
- principles and objectives,
- the development framework,
- the roles and strategies of spectrum policy makers

Outline

- Spectrum Management Framework
- Spectrum Management Objectives
- Spectrum Management Functions
- Gaining Access to Spectrum and How
- Conditions for use of spectrum - terms of use
- Authorizations and methods for assignment
 - First-come first-served, auctions, spectrum commons
- Spectrum Pricing
 - Administrative or market-based
- Frequency Utilization Plans

Definitions- Policy and Strategy

Policy:

A statement of intent that guides and constrains subsequent decision making and action (choices) as well as delegating authority and tasks.

Strategy:

A plan or plans involving choices about deployment of resources – where, how, when. It is equally important to say what won't be done as will be done.

Definition - Regulation

1. A regulation (as a legal term) is a rule created by an administration or administrative agency or body that interprets the statute(s) setting out the agency's purpose and powers, or the circumstances of applying the statute.
2. A regulation is a form of secondary legislation which is used to implement a primary piece of legislation appropriately, or to take account of particular circumstances or factors emerging during the gradual implementation of, or during the period of, a primary piece of legislation.

Policy Development Framework

When developing spectrum management policy careful consideration should be given of various choices and options.

A general approach (a policy development framework) can help guide the development of spectrum management policy through consistent application when devising specific spectrum management policies such as:

- licensing and authorizations,
- spectrum user rights,
- revenues and fees,
- spectrum planning and the technical standards.

Framework Components

- A Spectrum Policy Framework consists of statement of Policy Objective (the Objective) and a set of Principles or Guidelines (the Guidelines) and Regulations which bring force to Policy while remaining faithful to principles.
- The sum of Policy Objectives provides the fundamental policy basis for the governments Spectrum Management Program, whereas the Principles provide the guidance for achieving the objectives through management of the nation's spectrum resource.
- Regulations provide the rules to be followed by those involved - the regulator and those authorized to use spectrum. Together, these Framework components provide the policy and spectrum management direction for wireless applications, services and uses, which range from national defence, security and public safety through to commercial, consumer, scientific and private radio.

Features of Good Policy

Fundamental features of good policy, in general, include the following:

- Integration with other dimensions of government goals, objectives and institutions;
- Founded on a realistic assessment of actual circumstances;
- Priorities are set (what comes first, what is most important);
- Establishes strategies and aims that will meet clear statements of objectives;
- Policy, planning and implementation steps are fully integrated and includes an accountability framework – who is responsible (Ministry, NRA, Private-sector);
- The full range of stakeholders (and expertise) are included in the development of policy;
- Consultation in some form and extent will be used;
- Tangible measures of performance goals and targets are based on outcomes not inputs.

General Policy Development Framework Model

Framework

Policy Maker & Legislator

Regulator

Service Providers

Consumers of Services

Guiding Principles

Policies

Strategies

Activities

Actors

Time Frame

Risk Factors

Performance Indicators

Policy Development – Roles and Strategies

- There are several entities involved in the development and formulation of Spectrum Policy and Plans. These include: Government Ministries and Agencies responsible for regulating spectrum.
- The simplest form involves a single ministry responsible for establishing policy and legislation governing the use of spectrum and a single regulator responsible for spectrum use in accordance with regulation. In some cases they are one entity responsible for both
- There is no general rule as to how the policy and regulatory functions are structured and there can be many variations. Often, there are several ministries responsible for policy governing commercial and military use. As well, there can be multiple agencies responsible for regulating the various sectors – broadcast and telecommunication, and separation of various functions – licensing and frequency management.
- The following charts illustrates the spectrum policy and planning roles of ministry and regulator in the simplest form.

Policy Development – Roles and Strategies

- **Role of the Ministry**
 - Establish policy framework, priorities, targets
 - Consult on implementation, planning
 - Coordinate with other Government agencies, stakeholders
- **Role of the National Regulatory Authority (NRA)**
 - Legislative basis - Terms, qualifications, legal authority, appeals
 - Regulation of Licenses and Spectrum Authorizations
 - Regulation of Competition
 - Regulation of Scarce Resources – Spectrum Allocations
 - Spectrum Policy for Spectrum Management
- **Strategies**
 - Accelerate strategies needed to meet market requirements: licences and authorizations, auctions, refarming.
 - Begin building rules, functions, structure, and timetable for action
 - Self-financing principles and processes, independent budget, management accountability

Institutional Framework

- The framework must ensure timely and effective decision-making;
- It must implement clear government policy – e.g. A National Broadband Plan, Digital Switch-over;
- It must allow a balancing of the claims of all radiocommunication users;
- It is best practice not to fragment spectrum management functions across a large number agencies/departments with conflicting interests and objectives.

Policy Principles

- Allocate Spectrum to the Highest Value Uses or Users (can be economic, social)
- Enable and Encourage Spectrum to Move to its Highest Value Use
- Use the Least Cost and Least Restrictive Approach to Achieving Policy Objectives
- Promote both Certainty and Flexibility
- Managing of Interferences by looking for a larger Spectrum Utilization
- Spectrum Allocation and Assignment should be transparent

Objectives for Spectrum Management (1)

- **Planning for future needs** and management and monitoring the utilization of the spectrum resource in accordance with legislative and public policy objectives and international agreements;
- **Ensuring spectrum availability** for vital public services such as safety and security services.
- **Improving the efficient and optimal use** of the spectrum resource through adoption of advanced spectrum allocation, management techniques and licensing processes based on operational requirements and technical and economic viability;
- **Maintaining and developing effective competition** by preventing ex ante, or remedying ex post, excessive accumulation of radio frequencies by certain economic operators which results in significant harm to competition;
- **Ensuring flexibility and adaptability and ease of access** to the spectrum resource in response to technological advances, and economic, social and market factors.

Objectives for Spectrum Management (2)

- **Protecting national interests** while striving for global harmonization of spectrum along with coordinated spectrum policies and utilization working with regional and international organizations and in compliance with treaty obligations, including those of the ITU.
- **Promoting innovation, research and development** in new radiocommunication techniques and spectrum-based services and applications
- Coordinating and establishing **well balanced national spectrum and radiocommunication policies and plans** by widely consulting with all interested parties and the general public.

Spectrum Policy Elements

- Spectrum management policy documents are the basis on which spectrum managers will take decisions concerning which uses of the radio spectrum to permit, which uses and users of the radio spectrum to give priority to over others and, very importantly, what mechanisms will be used in charging for access to radio spectrum.
- The core objective is to create a predictable environment for current and future use of the radio spectrum, and to enable spectrum to be used in a manner which will bring the greatest benefits to society. This can be achieved through policy elements which:
 - Encourage efficient spectrum use;
 - Equitable and affordable access
 - Encourage the introduction of more spectrally efficient technologies;
 - Support the development of rural communications;
 - Support the spectrum needs of the emergency and security services; and
 - Encourage technological innovation and competitiveness.

Spectrum Policy Framework

- A national Spectrum Policy framework facilitates the implementation of national objectives within socio-economic development goals and programs under the relevant Acts.
- The framework should be revised periodically to take into consideration evolving new technologies, demands for new services, and regional and international developments.
- The spectrum policy framework should promote and provide for greater regulatory certainty to promote and encourages private sector participation and investment (liberalization) and ensure that radio spectrum is efficiently, economically and rationally utilized while keeping pace with the rapid evolution of wireless technologies and services and international trends in spectrum use.

Developing Spectrum Policy

- Developing spectrum policies requires analysis of a number of key factors, notably:
 - The government's policies towards the different services which require access to radio spectrum,
 - Current spectrum policy and relevant analysis,
 - Existing relevant Regulations and restrictions,
 - The future demand for spectrum from the various potential users including civil and non-civil users,
 - Availability of radio spectrum overtime especially below 1GHz (e.g. by digital dividend)
 - International and regional agreements,
 - Economical situation and people wealth.
- Policymakers must also understand and take into account the views of many disparate (and often conflicting) users and, where appropriate in conjunction with international best practice.

Spectrum Policy Challenges

1. Limited financial and human resources for effective national spectrum management;
2. Inadequate institutional arrangements to deal with the evolving spectrum issues resulting from the proliferation of wireless technologies ;
3. Insufficient information and data on current users of spectrum;
4. Lack of knowledge on spectrum management best practices*;
5. Lack of central coordination of spectrum management;
6. Independently (disconnected) evolving regulatory practices ;
7. Varied legal and regulatory frameworks;
8. Lack of coordination in analyzing and solving problems of interference between operators, especially with neighboring countries;
9. Diversity and difficulties in the spectrum pricing regime;
10. Dissimilar spectrum assignments in several bands.
11. old dated (obsolete) IT Systems for Managing and Monitoring and poor connectivity between them

* See Handbook on National Spectrum Management, Annex 3

References for further reading:

- Ofcom, Spectrum Framework Review, available at http://stakeholders.ofcom.org.uk/binaries/consultations/sfr/statement/sfr_statement
- Establishing the First Radio Spectrum Policy Programme, European Commission, Articles 1-12, Pp. 13-20.
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0471:FIN:EN:PDF>
- A Policy Framework for Spectrum Allocation in Mobile Communications, Federal Communications Law Journal <http://www.repository.law.indiana.edu/cgi/viewcontent.cgi?article=1598&context=fclj>
- Various Handbooks , Reports and Recommendations (for links see Presentation 1)

A large, light blue watermark of the ITU logo is centered on the slide. It features a globe with latitude and longitude lines, and the letters 'ITU' in a bold, sans-serif font superimposed over it.

Thank you