

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

**Framework for Strategic Planning and
Policy Development**

Place: Algiers

Date: 1-5 December 2019

Presenter : Jan Verduijn



Introduction to this Session

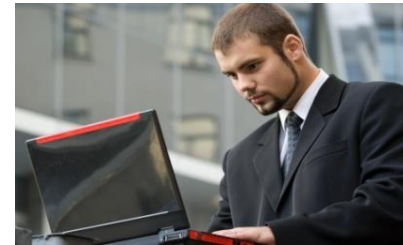
- We will discuss the **international and national frameworks** in which policy formulation takes place, the **trends and reform initiatives** which have **influenced** policy and the **principles and the objectives** that **guide** policy decisions as well as the **tools used to capture and evaluate information** which goes into the development of spectrum policies.
- One of main products of putting spectrum policy into action are Spectrum Strategic Plans, in various forms.

Session Objectives

- Distinguishing between spectrum policy and strategic planning for spectrum;
- Learning about Spectrum policies development, in general and within spectrum management;
- Learning what are the main influences on policy development and its implementation.



STUDENTS



Workshop Topics

- Spectrum Policies and Strategic Plans
- Spectrum Policy Formulation Framework and Processes, Components and Constituents
- Policy influences - cultural, legal, government traditions).
- Introduction to Planning at the International level
- Introduction to Spectrum Policy and Planning at the national level - who is responsible for Spectrum Policy?
- Key Policy Questions and Planning Examples.

Definition – What is Policy?

- Policy can be defined as a set of ideas and proposals for action culminating in a government decision.
- To study policy, therefore, is to study how decisions are made.
 - Burch (1979, p108) distinguishes between two main types of government decisions:
 - Rules, regulations and public pronouncements (e.g. Acts of Parliament, Orders in Council)
 - Public expenditure and its distribution

Policy differs from Strategic Planning

Policy Statement:

A clear statement of intent which guides and constrains subsequent decision-making and actions (choices), as well as can delegate authority and tasks.

Strategic Plan:

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.

Policy Aspirations

- Beyond the “clinical” definition of policy, there also desirable aspects and expectations in terms of outcomes when formulating policy. That is, good policy is preferable to bad policy.
- And so policy is sometimes referred to in terms of its effectiveness and efficiency which generally mean:
 - An effective policy provides benefits to one segment of the population while not reducing the benefits currently enjoyed by other segments of society, i.e. There are no (or very limited) negative consequences;
 - An efficient policy manages to keep costs down, i.e. benefits exceed costs, and better policies maximize the difference in comparison to other options.

Source: S. Nagel, Efficiency, Effectiveness and Equity in Public Policy Evaluation, Policy Studies Review, Vol.6 #1, 1986.

Regulations: practical application of policy

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.

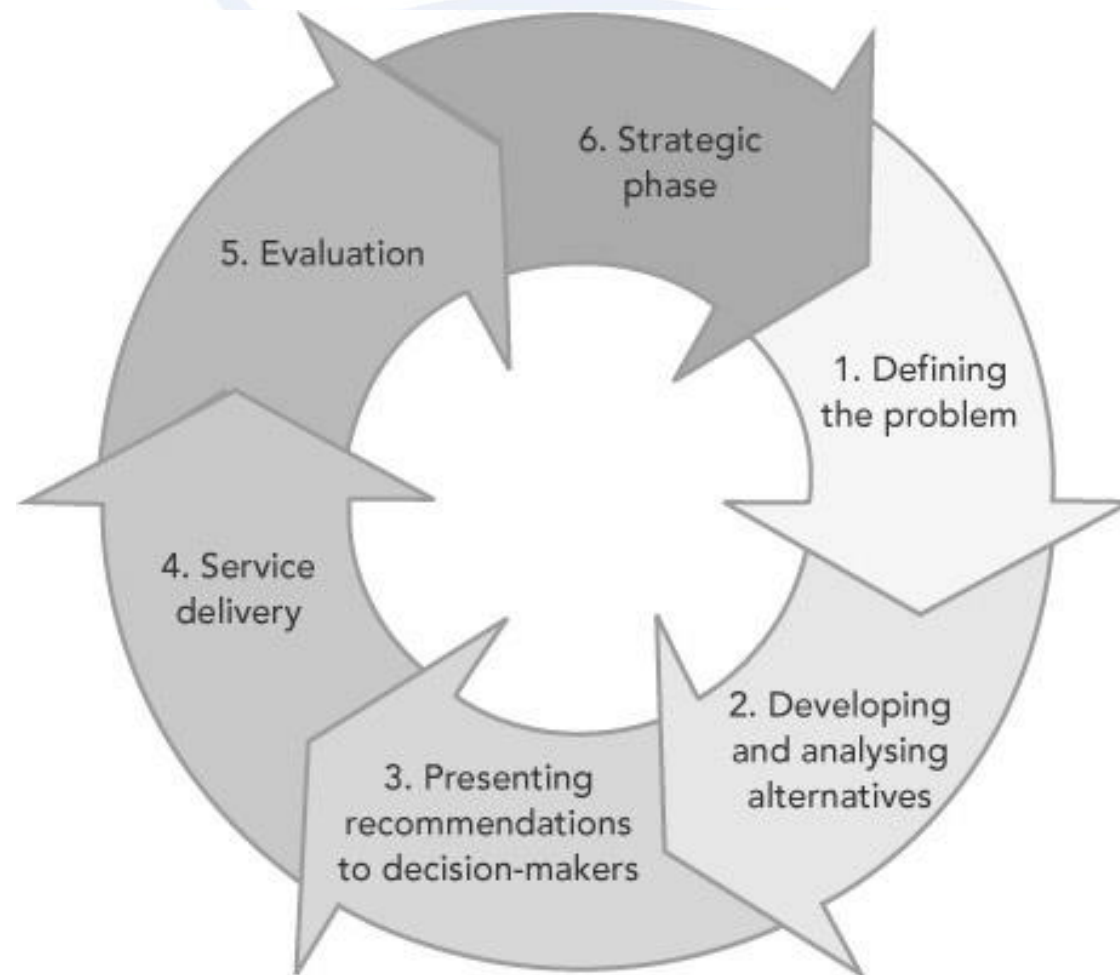
Policy Examples

- Policy refers to those plans, positions and guidelines of government which influence decisions by government.
- Examples include:
 - Policies in support of sustainable employment, economic development and investment;
 - Policies to generate government revenues such as progressive taxation and user fees;
 - Policies to promote health and education;
 - Policies to enhance disabled person access to government services

Policy Examples

- There are various types and forms of policy. Among the range of policy types are:
 - Broad policies which enunciates a government-wide direction such as public health and poverty reduction;
 - Specific policies developed for a particular sector (of the economy) or issue-area (child welfare);
 - Operational policies which may guide decisions on programs and project selection (government procurement and tendering).
- With respect to the forms that government policy can take, it is reflected most typically in legislation, regulations, and programs. These are often referred to as policy instruments

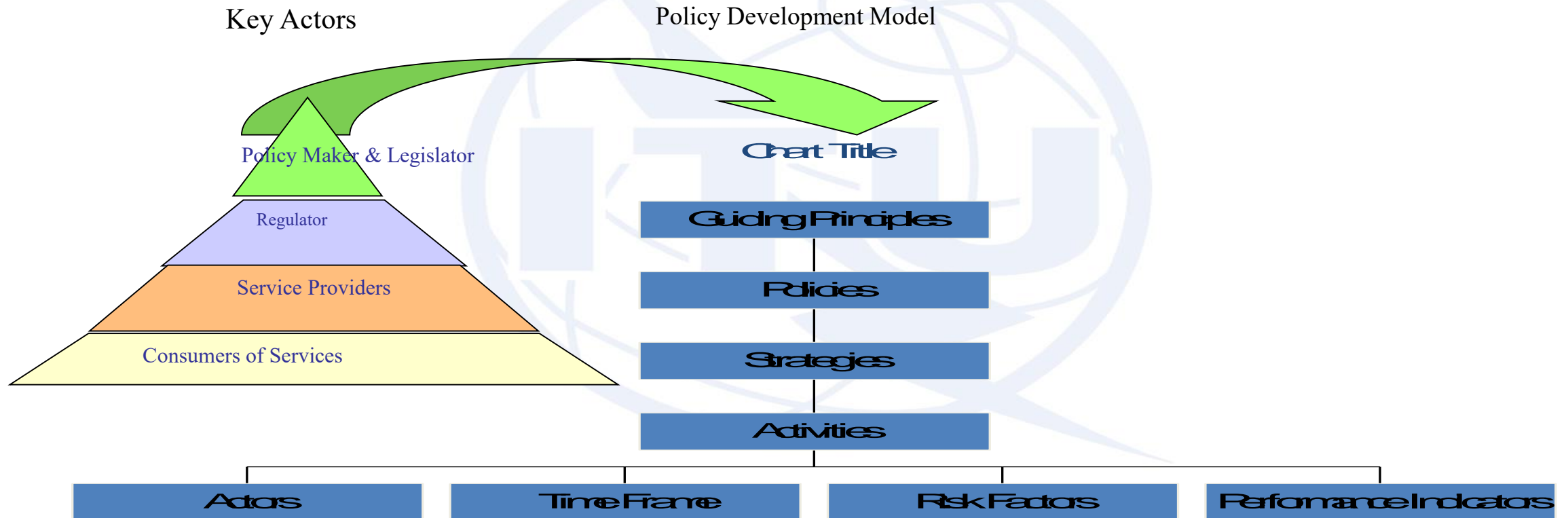
The Policy Cycle



Policy Development as a 5 Stage Decision-making Process

- Lasswell – 1956
 1. Intelligence Gathering
 2. Option Analysis
 3. Decision-making
 4. Compliance
 5. Evaluation
- Howlett and Ramesh – 2003
 1. Agenda Setting
 2. Option Development
 3. Decision-making
 4. Implementation
 5. Policy Evaluation

A General Policy Development Model



Diversity in Policies and Plans

- There are widely divergent approaches and outcomes to policy and plans due to differences in legal systems and the resulting legal framework and regulatory design, cultural and social factors Spectrum Policy and Plans, are no different.
 - We see this with different spectrum identifications/reservations for IMT spectrum, the size and use of the digital dividend and timing for digital switchover, uses of auctions, spectrum prices and refarming practices.
 - We will review the underlying reasons which are ultimately important when it comes to developing and implementing policy.

Differences in Legal Systems

- One the main reasons why policies and plans differ is because the concept of law and legal systems differs amongst countries and these differences are often rooted in perceptions based on customs, culture, religion, and politics.
 - There numerous types of legal systems based on civil, economic, religious, and African concepts of law
- The legal tradition of each country influences the process for formulating policy, legislation and regulation that support best practices such liberalization and globalization:
 - For example, in certain countries, law is viewed as a “model code of behavior,” while in others it is considered an “instrument of compulsion.”

Differences in Legal Systems

It is also difficult to point to one country that has a pure legal tradition without influence from other systems. For historical reasons, as well as political and economic influences, the legal systems of countries are often an amalgamation of various legal systems, incorporating elements of different legal traditions.

Types of Legal Systems



Why are Spectrum Policy and Strategic Plans Needed?

- National Regulatory Authorities create spectrum policy and do spectrum planning. The reasons why can be readily seen embedded in the preamble to regional or national spectrum policy statements.
- A good example is given by the European Commission proposal on an EU spectrum policy programme* :

Spectrum use has an **increasing influence** on sustainable growth, competitiveness and productivity in the internal market in relation to important EU sectoral policies. Since spectrum is **scarce**, priorities are needed to ensure that spectrum is allocated and used **efficiently and effectively**, taking into account EU policy objectives for electronic communications and broadband for all and for transport, research, Earth observation, Galileo, environmental protection and (even) the fight against global warming.

* <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32012D0243&from=EN>

Spectrum Policy

A spectrum policy underlines the basis on which spectrum managers will make choices and decisions concerning permitting various uses of radio spectrum, who use radio spectrum and sometimes giving priority to over others and, very importantly, what mechanisms will be used to assign and pay for radio spectrum use and under what conditions.

The core objective for spectrum policy should be 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.

Spectrum Policy

Policy elements which may help to achieve this include (Handbook National Spectrum Management section 1.2 Goals and Objectives):

- to make available efficient nationwide and worldwide telecommunications services for personal and business use;
- to foster innovation in the development of infrastructures and provision of radiocommunication services;
- to serve national interests, including security and defence;
- to safeguard life and property;
- to support crime prevention and law enforcement;
- to support national and international systems for transportation;
- to foster conservation of natural resources;
- to provide for dissemination of educational, general, and public interest information and entertainment;
- to promote scientific research, resource development, and exploration;
- to promote the dissemination of the cultural heritage and protection of the national and regional folklore;
- to promote the reduction of the digital divide.

Spectrum Planning – Report ITU-R SM.2015*

- Four Phases are described managed by group within the Spectrum Management Organization responsible for planning:
 - Determining spectrum requirement
 - Determining spectrum availability
 - Considering spectrum planning options – band planning
 - Spectrum planning implementation
- Spectrum planning is an iterative and consultative process

* *Report ITU-R M.2015-1 (06/2019): Methods for determining national long-term strategies for spectrum utilization* <https://www.itu.int/pub/R-REP-SM.2015>



Types of Plans

- Types of plans
 - ITU Radio Regulations Art 5. International Table of Frequency Allocations for Regions I, II, III
 - RR Volume 2 including appendices which mostly are Planned Bands (allotments and in some cases assignments)
 - Regional Table of Frequency Allocations
 - e.g. ECA Table of frequency allocations for CEPT National Table of Frequency Allocations (NTFA)
 - National Frequency Assignment Register and Database
 - Specific Band Spectrum Use Plans, Sub-allocation plans, Channel Plans
 - Radio Equipment and System Specification Standards

International Framework

- ITU Radio Regulations, RR (revised and updated during World Radio Conferences)
- Regional Treaties (as CRASA agreements, in consistency with ITU RR)
- Bilateral Agreements governing management, using as reference higher level treaties (as those above)

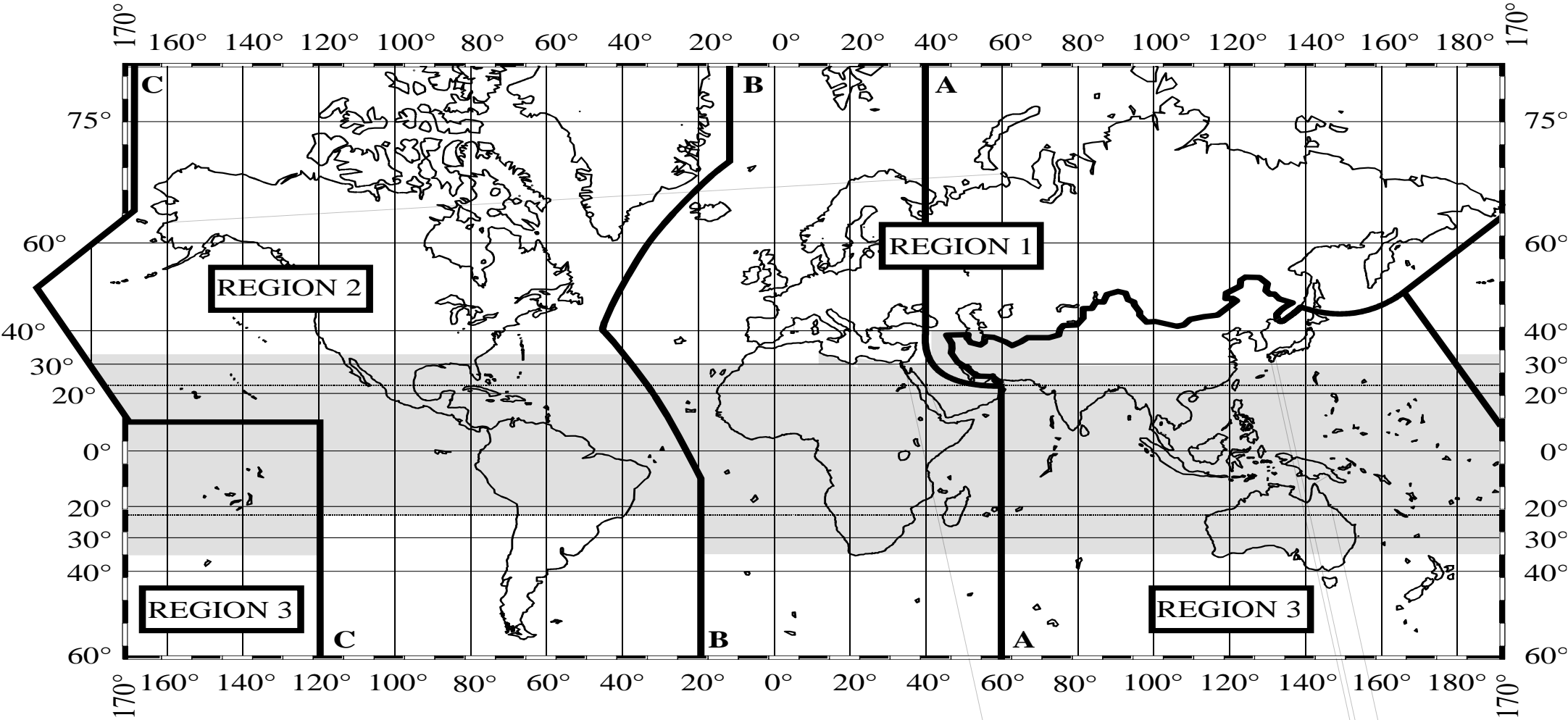
International Telecommunication Union

- Internationally, the radioelectric spectrum was allocated by member countries of the International Telecommunication Union (ITU: a specialized United Nations agency) through its Radio Regulations*, and revised/updated every 4 years during the World Radiocommunication Conferences (WRCs)
- The allocations are made to various radiocommunication services on each of the three different geographic regions of the world. Technical aspects of radiofrequency use as well as preparation for WRCs are addressed by ITU member countries through the ITU's Radiocommunication Sector (ITU-R).
- The ITU-R develops recommendations on coordination between radiocommunication systems and for other technical aspects of radiofrequency operations.
- The ITU-R evaluates technical aspects, including interference, of revising the allocation tables to support new services.
- In particular, the ITU-R's role with respect to evaluating whether and under what technical criteria new services can be introduced to operate co-frequency with other allocated services is increasingly important as new demands are made on the radiofrequency spectrum

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Regions defined in the RR



The shaded part represents the Tropical Zones as defined in Nos. 5.16 to 5.20 and 5.21.

5-01



ITU Radio Regulations

- Based on agreements reached at WRCs, the ITU revises the Radio Regulations which include allocations and technical rules for radio services for each region. These conferences take place every three to four years to address needed changes in the Radio Regulations to accommodate new services and technologies.
- WRCs follow agendas established by the ITU Council*, on the basis of the recommendations of the prior WRC! (see ITU CV No. 118)
- However agenda items can be added at the actual conferences to address compelling new requirements.

* ITU Council is composed by 48 state members, elected during PP, geographically distributed'

ITU Radio Regulations

- The Radio Regulations set out to:
 - facilitate equitable access to and rational use of spectrum and orbit resources;
 - ensure the availability and protection from harmful interference of frequencies provided for distress and safety purposes;
 - assist in the prevention and resolution of cases of harmful interference between the radio services of different administrations;
 - facilitate the efficient and effective operation of all radiocommunication services;
 - to provide for, and where necessary, regulate new applications of radiocommunication technologies.

ITU-R recommendations

- ITU-R recommendations also play an important role in the standardization and harmonization of radiocommunication equipment.
- Although voluntary, many countries incorporate within their legal frameworks some of those recommendations (more than 1.100 in force)
- While voluntary, such “standards” offer many advantages including allowing economies of scale in the production of radio equipment, facilitating roaming, facilitating interoperability, etc.
- The commercial value to manufacturers of being able to say that their radio equipment meets relevant ITU-R recommendations is significant as it instils confidence on the part of purchasers of such equipment.

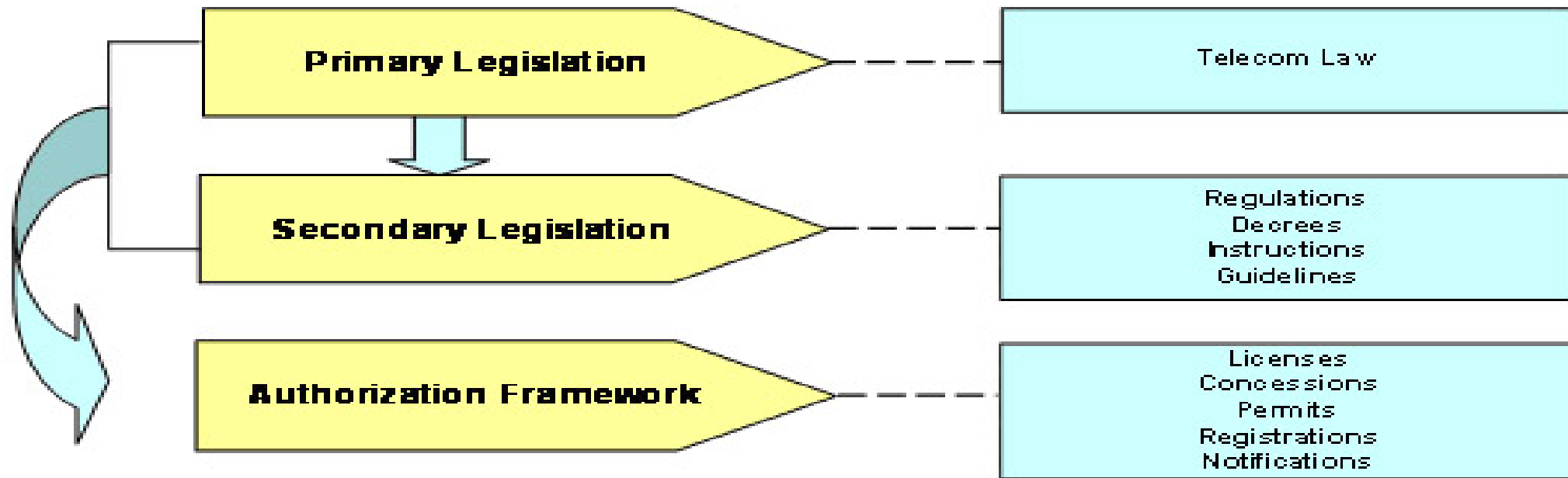
Regional Planning

- In addition, there are regional telecommunications organizations which address specific concerns of the countries within that geographic region, (*e.g., Europe, Asia, Africa, and the Western Hemisphere*), coordinate use of the radiofrequency spectrum with the region, and provide for a central source of information regarding spectrum use, services and technical developments.
- These regional groups also provide a venue for addressing upcoming activities throughout the ITU and for preparing regional proposals and common regional positions for WRCs.
 - Within these regional groups there is consideration of harmonization of spectrum allocations and technical regulations, where possible

National Policy Framework

- Primary Legislation:
 - Usually the Telecommunications Law
 - Sometimes there is Radiocommunications Law
- Secondary Legislation and Regulation:
 - Regulations governing authorizations, compliance, fee schedule, pricing, renewal, penalties.
 - Broadcast, Competition, Foreign Direct Investment, Privacy Legislation.
- Existing Rules of Procedures For resolving Arbitration and Disputes
- Other agencies involved in the licensing process:
 - Ministry of Health for emission standards.
 - Ministry of Commerce and Industry (consumer affaires)
 - Municipalities on land-use and rights of way.

Components of Legal and Regulatory Design



Strategic Planning – National Level

ITU-R National Spectrum Management Handbook, edition 2015– Chapter 1

1.6.1 Spectrum management planning, regulation and policy making

- The spectrum management organization should develop and implement plans, regulations and policies, taking into account advances in technology as well as social, economic and political realities.
- The output of the planning and policy-making effort is the allocation of frequency bands to the various radio services, for specific uses. When there are competing interests for spectrum use, the spectrum management organization should determine the use or uses that would best serve the public and government interest, including how to share spectrum....

Spectrum Master Plans

- Regulators in some countries – not many - publish Spectrum Master Plans.
- One of the first to publish a plan on a continuous basis is Infocomm Development Agency (IDA) in Singapore.
- Others are FCC/NTIA in USA, NBTC in Thailand, Ofcom in the UK which publishes two related documents:
 - Telecommunications Market Sector Outlook
 - Spectrum Outlook.
- Master Plans vary in approach:
 - Policy and Strategy oriented
 - Service and band oriented.

Spectrum Strategy - Ofcom

- Ofcom believes that publishing a medium to long term strategy for spectrum will be advantageous to users of the radio spectrum. Having a spectrum strategy will allow Ofcom to pursue a coherent long-term policy, and to ensure that short and medium term decisions fit within the framework of an overall objective. By short, medium and long term, Ofcom means periods of around 2, 5 and 10 years, respectively.
- Publishing the Spectrum Framework Review allows:
 - Consultation and discussion around the key strategic decisions;
 - Users making long term decisions to do so on the basis of the best information available; and
 - Those engaging in market-related activities such as trading to have increase certainty about the future availability of spectrum.
 - Ofcom will revise this document according to feedback received during the consultation process and reissue.

Summary

- We can distinguish between spectrum policy, strategy and regulation.
- The development of spectrum policy is greatly influenced by constitutional, legal, politics and culture.
- We should not expect all national policies to look alike nor to will they be put into action similarly.
- However given the fundamental nature of spectrum coordination and harmonization are necessary and an international framework has evolved to facilitate these goals.
- We will explore these aspects in greater detail through-out the remainder of this workshop

References for further reading (1)

- - ITU Radio Regulations <https://www.itu.int/pub/R-REG-RR/en> and its Rules of Procedures: <https://www.itu.int/pub/R-REG-ROP/en>
- - ITU World Radio Conferences <https://www.itu.int/en/ITU-R/conferences/wrc/Pages/default.aspx>

References for further reading (2)

- **Handbooks:**

- ITU-R: National Spectrum Management Ed. 2015 <https://www.itu.int/pub/R-HDB-21>
- A Standard Approach for Assessing the spectrum management needs of developing countries (ed. 2016):
<https://www.itu.int/en/ITU-D/Spectrum-Broadcasting/Documents/Publications/Administration%20Assesment-e.pdf>
- Assignment and use of radio spectrum – policy guidelines and economic aspects (ed. 2016)
https://www.itu.int/dms_pub/itu-d/opb/pref/D-PREF-EF.RAD_SPEC_GUIDE-2016-PDF-e.pdf
- Guidelines for the preparation of a national table of frequency allocations (ed. 2015)
<https://www.itu.int/en/ITU-D/Spectrum-Broadcasting/Documents/Publications/Guidelines-NTFA-e.pdf>

References for further reading (3)

- **Reports**

- Report ITU-R SM.2015-1 (06/2019) Spectrum Planning - Methods For Determining National Long-Term Strategies For Spectrum Utilization <http://www.itu.int/pub/R-REP-SM.2015>
- Report SM.2093-3 (06/2018): Guidance on the regulatory framework for national spectrum management <https://www.itu.int/pub/R-REP-SM.2093>
- Report ITU-R SM.2093 - Guidance on the regulatory framework for national spectrum management <https://www.itu.int/pub/R-REP-SM.2093-3-2019>

- **Recommendations:**

- Recommendation ITU-R SM.1047: National Spectrum Management. www.itu.int/rec/R-REC-SM.1047/en

A large, light blue watermark of the ITU logo is centered on the slide. It features a globe with a network of lines and the letters 'ITU' in a stylized font.

Thank you