Workshop on Spectrum Management and Harmonized use of Spectrum Resource 28 - 30 Nov 2017 Regional Spectrum^{Nadi,} Management Plan & Harmonization of spectrum Policies in Pacific region

The objective for developing a Pacific Regional Plan is to streamline and harmonize spectrum management policies in the Pacific in line with new and emerging practices for spectrum management.







Presentation outline

This is a two part presentation.

Part 1 addresses the Regional Spectrum Management Plan &

Part 2 the harmonization of spectrum Policies in Pacific region

The Pacific Regional Plan seeks to streamline and harmonize spectrum management policies in the Pacific in line with new and emerging practices for spectrum management.





Regional Harmonization

Harmonization of spectrum management practices and frequency allocation across the region is a goal defined by the Pacific Island Countries.

Specifically band harmonization is sought for the various services:

➢ PPDR (Police and Public Safety).

- ➤ Defence.
- ➢ Digital Television.
- ➢ Fixed Services.
- ➤ Satellite
- Emergency Services







Regional Spectrum Plan

Development of the Regional Spectrum Plan would require:

- Review outcomes of World Radio Conference 2015 (WRC15)
- Review and update Spectrum Allocation Table
- Prepare draft Regional Spectrum Management Plan for consultation
- Prepare proposals for the principles for the design of a revised Regional Spectrum Management System
- Review Spectrum Management Regulations
- Develop Policy Paper(s) on various band usage and possible allocation (700 MHz, PPDR (Police and Public Safety), Defence, Digital Television, Fixed Services, Satellite & Emergency Services
- Conduct Public Consultation on utilisation of and charging for the Bands
- > Implement the allocation and award of frequencies in the Bands











Considerations for Spectrum Plan

- Spectrum is an economic enabler and the Regulator has to balance competing needs and prioritise in the national interests. (See *Exploring the Value and Economic Valuation of Spectrum*, www.itu.int April 2012).
- An example is band 3400 3800 MHz, this is put forward to support IMT-2020 (5G) but in Pacific the band remains vital for 'C Band' fixed satellite services.
- To extract the best economic value from spectrum the focus should be on enabling the services that deliver the highest return to the economy: maritime and aeronautical; defence and emergency services; fixed satellite services and mobile services, television and radio.
- There is now an increasing focus on automation, the Internet of Things (IoT) and spectrum requirements to support this extra demand.











Additional considerations

- A Spectrum Plan is the basic tool for spectrum management this outlines how spectrum may be assigned to which users and the sharing issues that may be faced.
- Plans are based on the outcomes (Final Acts) of the most recent WRC but also contain important Country Footnotes that set aside bands for particular use. (e.g. preservation of C Band FSS services in the Pacific Region.
- > The current approach is to develop a Five Year Spectrum Strategy (FYSS).
- The FYSS will look at each band holistically and set out a plan for the introduction of new services and the retention of services that are currently a vital part of Pacific connectivity.







Brief analysis of some Frequency Bands

- The Bands being sought for 4G and 5G are already being used, below 1 GHz bands are being used by 2G (GSM) and 3G (UMTS) services or by television broadcasters. Also the bands will be used for Land Mobile systems & Emergency Services.
- Above 3.4 GHz the bands sought by IMT-2020 are almost invariably those used by the Fixed Satellite Service (FSS). These bands are important for connectivity in areas not serviced by fibre technology and also as a diversity system
- Above 3.4 GHz frequency bands could be available to IMT services that are not being used by the FSS; e.g. 32 GHz, the FYSS will examine these issues and develop a road map for spectrum reform that best suits the Pacific region.





Five Year Spectrum Plan (FYSS)

- The FYSS will examine these issues and develop a road map for spectrum reform that best suits the Pacific region. From this, and developed in parallel due to time constraints, will be a suggested list of positions for each current WRC-19 Agenda Item. These will form the basis of inputs to the CPM Report (due August 2018) and into the APT via the APGs and the APT Common View.
- This makes up the final formal deliverable under this project and will be presented along with the Spectrum Plan and the FYSS in a seminar planned for March 2018 in Fiji.











Spectrum Policies

Spectrum is an economic enabler but its use is often driven by self-interest on the part of carriers, equipment vendors and other services. It is the role of the Regulator to balance these competing needs and prioritise in the interests of the nation they represent.

As policy Pacific Island Countries need to establish their spectrum policy based on national interest and it is suggested that the primary focus should be the use of spectrum of as an economic enabler and also for connectivity.











Spectrum plan

The following slide shows the Australian Radio-Frequency Allocation Chart prepared by ACMA this is a standard 'tabular' chart which is useful for engineering managers when looking at band use.

It is expected that by March 2018 all Pacific countries would be able to prepare similar charts based on the PiRRC provided draft Regional Spectrum Plan







Proposed Regional Plan

The Spectrum Plan will cover all bands from 8.3 kHz to 420 THz and will divide the radiofrequency spectrum into a number of 'bands' specifying the general purpose for which each band may be used.

The Plan should generally bind participating Administrations. Article 4.4 of the Radio Regulations allows Administrations to use spectrum for a purpose not outlined in Article 5 provided that the associated radio systems do not cause harmful interference not claim protection from systems in other Administrations operating in accordance with the Radio Regulations. Such assignments will be outlined in the Plan by way of individual country footnotes.











The figure above is a standard 'tabular' chart which is useful for engineering managers when looking at band use. The chart below was produced originally for the Australian Communications Minister who later dubbed it 'The Spectrum Chart for Dummies'. This chart is pictorial and is very useful for high level decision makers and also for education purposes.

Countries may be consider the use of this type of chart.







Questions for Administrations

In order to collate the Spectrum Plan, the Five Year Strategy and the WRC-19 Agenda Item positions information on current spectrum use is required as well as information on which particular services are vital to each community. To gather this information a number of questions are proposed below:

1 Current Spectrum Use.

What is the current band by band spectrum usage in your Administration? A list of issued licences in frequency order or an Excel spreadsheet would be sufficient for this analysis.





Questions (2)

6.2 Television Broadcasting.

Which bands, and within these which channels are used for television broadcasting in your Administration? Is television broadcasting analogue or digital in your Administration? Is the band, or any part of the band 694 MHz to 806 MHz used for television Broadcasting? If yes, are there any plans or processes underway to clear this band.

3 Emergency Services and Defence.

What bands are used to support the activities of emergency services and defence in your Administration? Do emergency services or defence services anticipate a need for Public Protection and Disaster Relief (PPDR) spectrum or services in the future?





Questions

4 Maritime and Aeronautical.

Are there any bands in use that are not harmonised with global aeronautical or maritime bands

5 Current Mobile Broadband.

What bands have been allocated to telecommunications Carriers for the provision of mobile services including mobile broadband (i.e. 2G, 3G and 4G)? Have any carriers or vendors approached your Administration for access to 5G spectrum? If yes which bands?

6 Future Mobile Broadband.

Have any bands been identified or released for future mobile broadband services (4G and 5G)? An example may be the APT-700 MHz band.

7 Vital Services.

Are there any other services that are vital for the connectivity of your country? An example may be 'C Band satellite services' which are reliable in areas of high rainfall. Other examples may include certain over water fixed service bands, Ka satellite bands (O3b) and HF radio bands.





Other issues

Other Issues.

Are there any other spectrum management issues that may affect the planning of spectrum into the future? Examples may include special allocations to services that are not in accordance with the ITU Table of Frequency Allocations outlined in Article 5 of the Radio Regulations.

Spectrum Reform Roadmap

A roadmap for future spectrum planning is not a requirement under this project, but guidance on how to develop one will be a part of the FYSS. The roadmap will outlined a procedure for making and reviewing spectrum planning decisions. This final chapter of the Strategy will also briefly discuss allocation options for high value bands, for example Auctions. Auctions have been used almost exclusively globally and offer certain benefits for developed economics, however other economies may benefit from different approaches. For example east Timor used deployment goals as a part of the allocation process which ensured the maximum number of citizens as possible had access to affordable telephone and internet services in the shortest possible time.





THANK YOU

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