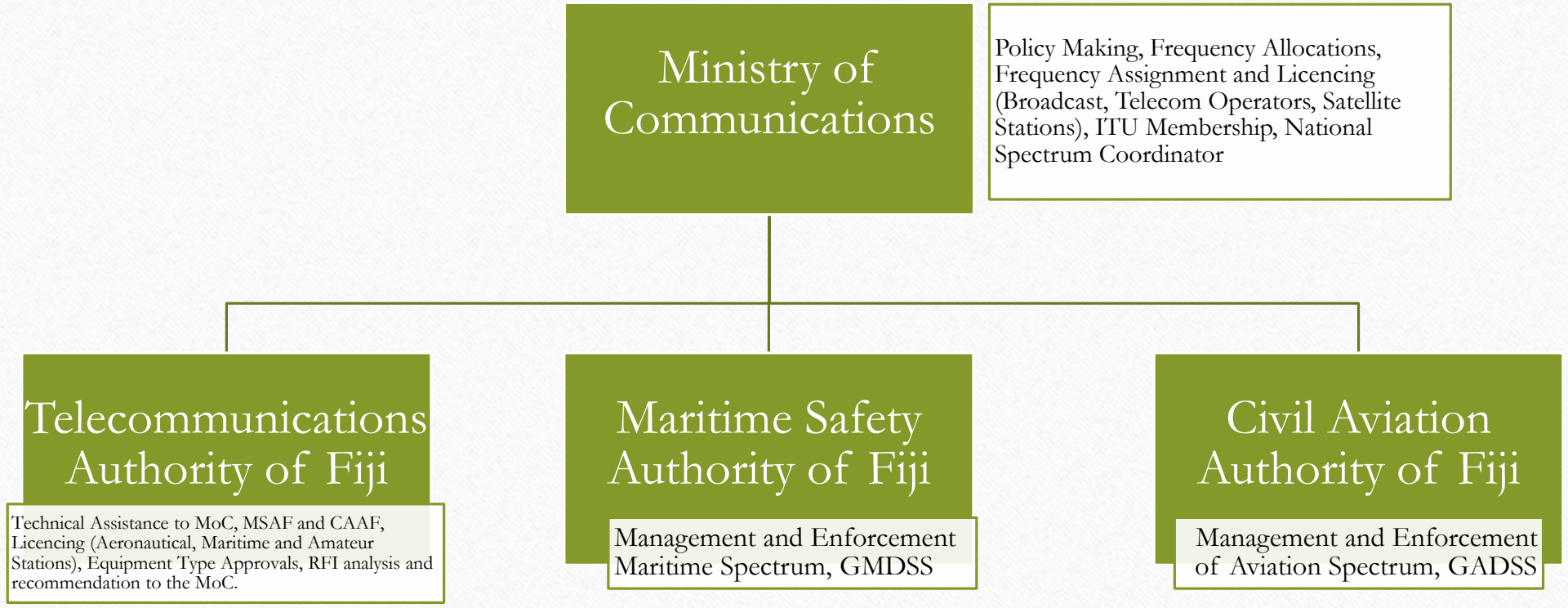
Fijian Spectrum Management Case Study

Monitoring Radio Frequency Spectrum in Modern Wireless Era

Legal and Management Structure for Spectrum Management & Monitoring – Fijian Context



Roles and Responsibilities

A. Ministry of Communications

1. Overall Spectrum Management Role
2. ITU Membership
3. Frequency Allocations
4. Frequency Assignments
5. Frequency Coordination
6. Frequency Auction
7. Frequency Licencing
   - Satellite Stations
   - Broadcasting Services
   - Telecommunication Services
   - Private Networks

B. Telecommunications Authority of Fiji

1. Provide Technical Assistance to MoC, MSAF & CAAF
2. Spectrum Standardisation
3. Equipment Type Approvals
4. Import Permit Issuance - for importation of radio communication devices
5. Spectrum Monitoring
6. RFI analysis and recommendations to MoC, MSAF & CAAF
7. Radio Station Licencing
   - Amateur Radio Station Inspection & Licencing
   - Maritime Station Inspection & Licencing
   - Aeronautical Station Licencing

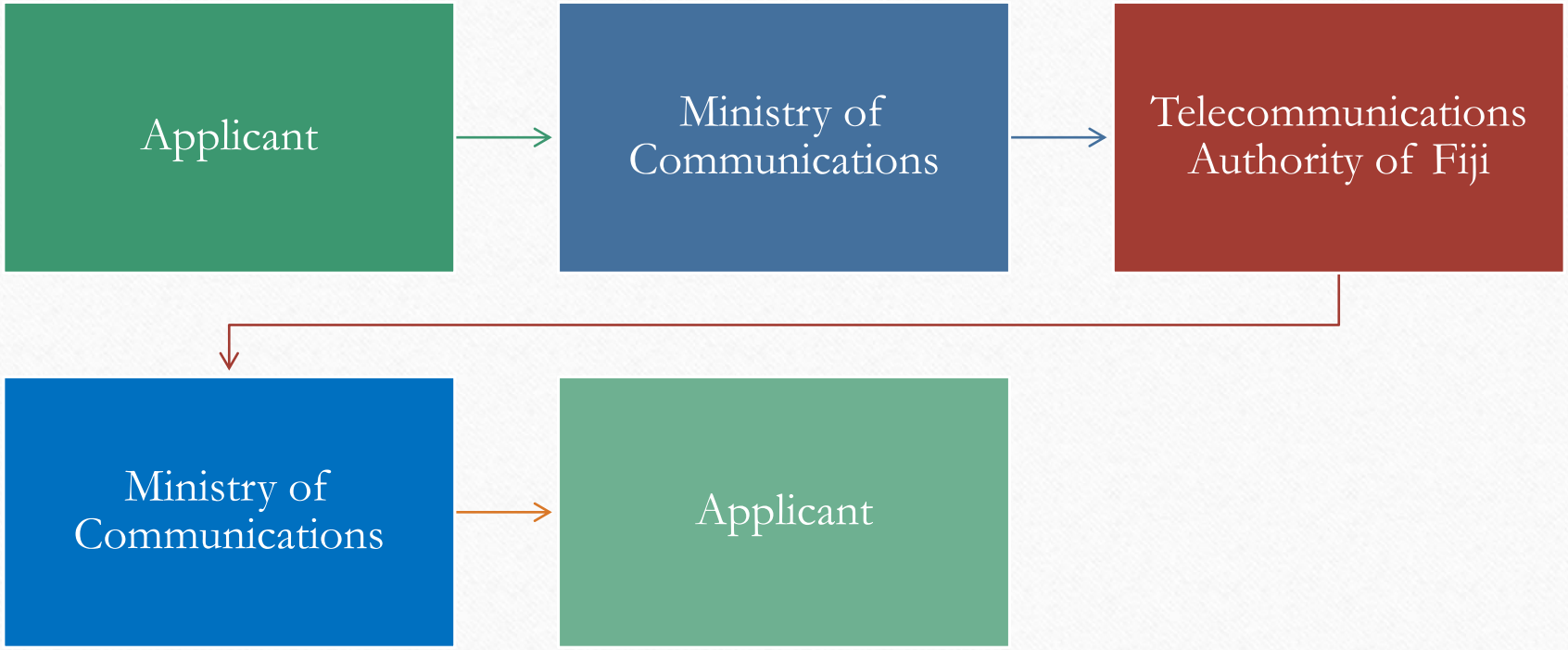
C. Maritime Safety Authority of Fiji

1. Maritime Spectrum Management
2. Enforcement (GMDSS)
3. Membership to International Maritime Organisation (IMO)

D. Civil Aviation Authority of Fiji

1. Aeronautical Spectrum Management and Monitoring
2. Enforcement (GADSS)
3. Inspection of Aeronautical Stations

Spectrum Licencing Structure



Key Spectrum Holders

- Mobile Telephony/Data Service Providers
- Fixed Telephony/Data Service Providers
- Broadcast Services
- Aeronautical Services
- Maritime Services
- Amateur Services
- Land Mobile Services
- Private Networks Operators

Infrastructure Available for Spectrum Monitoring

- 3 Engineers
- 3 Spectrum Analysers
  - 2 Portable analysers
  - 1 Bench analyser
- 1 Vehicle

Interference Issues

- DECT cordless telephones against 3G mobile service
- Intermodulation interference between 2 mobile service providers
- Intermodulation interference from high powered digital TV transmitters to land mobile repeater services

Steps Taken for Different Interference Issues

1. DECT Cordless Telephones
   a) Identification of DECT frequencies and 3G frequencies
      1. DECT frequencies: 1880 – 1900 MHz & 1920 – 1930 MHz
      2. 3G frequencies: 1920 – 1940 MHz
   b) Carry out mobile monitoring o reported areas to ascertain situation
   c) Confirmation of situation that is caused by DECT cordless telephones
   d) Issuance of public notice informing public of the causes of drop calls and slow or now data browsing on 3G service
   e) Follow up public notice prohibiting importation and usage of DECT cordless telephones
   f) Confiscation and surrendering of DECT cordless telephones

2. Intermodulation interference between 2 mobile service providers

- Analysing of RFI report submitted by interfered service providers
- Conduct field tests on affected base stations to ascertain situation reported as both base stations were close to each other
- Confirmed that intermodulation signal was equal to noise level
- Inspected the suppression ability of receiving system of interfered service provider
- Confirmed the suppression inability of receiving system of interfered service provider
- Interfered service provider adjusted its receiving system by installation of filters which led to the solving of the interference issue

Unresolved Interference Issue –need expert opinion of this forum

1. Intermodulation interference from high powered digital TV transmitters to land mobile repeater services
   i. Challenges faced was the unavailability of RFI infrastructure necessary to resolve interference
   ii. Available knowledge of resolving this issue since this is the first time it occurs after the deployment of Digital TV