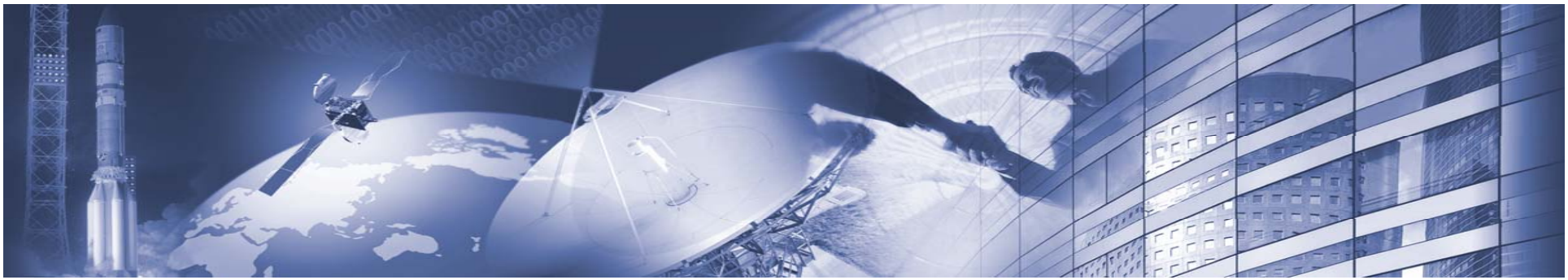
ITU/IDA workshop on the efficient use of the spectrum/orbit resource

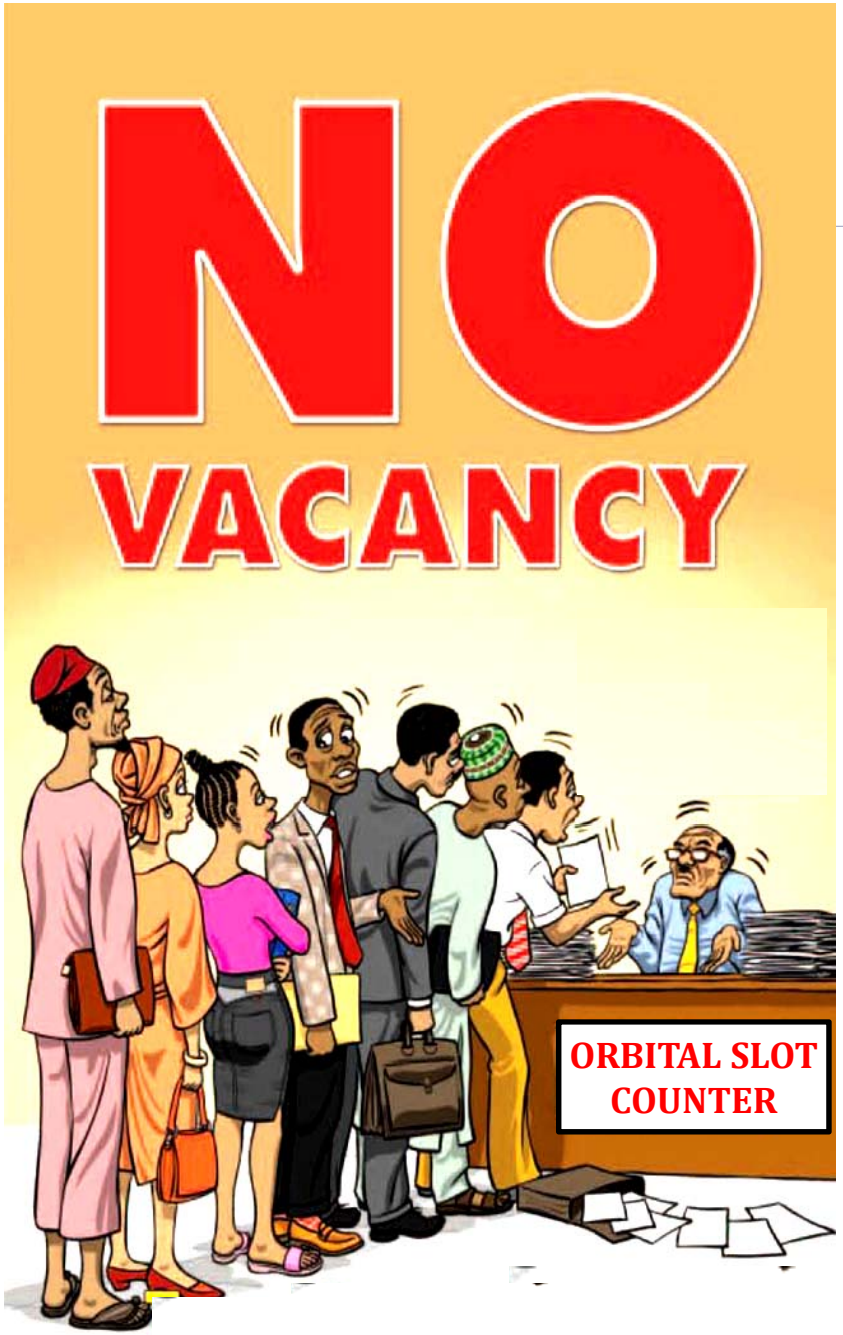
17-18 June 2010, Singapore



We Manage - We Benefit

Presented by:
Teh Chin Eng
MEASAT Satellite Systems Sdn. Bhd.
Malaysia

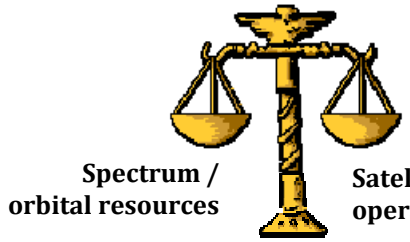
Regional Satellite Operator of the Year
Excellence in Satellite Management
September 2008



WHY?

- Frequency spectrum and orbital slot are limited natural resources
- Usage based on “first come first serve” basis
- The current ITU database is unfortunately not a true reflection of actual spectrum and orbit utilization:
  - Numerous assignments recorded in the MIFR are either not being used or corresponding satellite already ceased operation - no suspension requested
  - Satellite parameters correspond to impractical max and min operating margins and coverage area
  - Administrative due diligence information contained in the RES49 Special Section does not reflect the true situation
- New entrants with firm plans are blocked from utilising these orbital locations or even operating at adjacent orbital locations

KEY TOPICS



- **Application of RR No. 11.41**

- Establishment of international satellite monitoring (ISM)

- Beyond RES49

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Application of RR No. 11.41

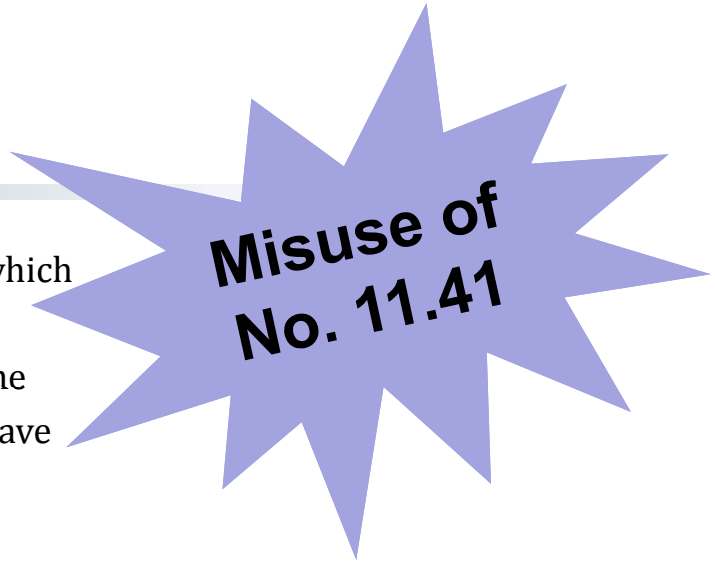
In reality, it is difficult to 100% complete the required coordination procedure prior to notification. There are many reasons, some of which are:

- Agreement may not be provided to protect own interests and prevent competition
- In some instances, slow or no response to coordination request
- Hindered by over protective (or sensitive) technical characteristics of the recorded networks
- Increasingly more networks having co-frequency and co-coverage as well as closer orbital separations

<u>WARC-95 approves No. 11.41</u>

- Provides flexibility to Administrations who could not successfully complete all the required coordination to have their frequency assignments recorded into the MIFR on provisional basis
- Prevents recorded assignments (in some cases, which have not been brought into use) from blocking the entry of new frequency assignments into the Master Register
- The earlier recorded assignments are protected from the provisionally recorded assignments under No. 11.41 by No. 11.42

Application of RR No. 11.41



- Some coordination requirements was not initiated or completed, which may be used to bypass coordination with others
- The provision should only be used as a last resort after efforts by the notifying Administration to complete the necessary coordination have failed
- There should be some mechanisms to tighten the use of No. 11.41

- **Indicate reasons for coordination that could not be completed and provide evidence of coordination efforts to BR, e.g. correspondence or excerpts of Summary Records**
- **Provide evidence such as transponder plots to the BR to indicate that the assignments have been used at the slot when changing frequency assignments from provisional to permanent basis in MIFR**
- **To show on the ITU website the frequency assignments recorded under No. 11.41 and when these assignments are changed to permanent basis in the MIFR**

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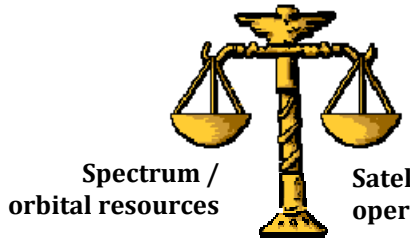
KEY TOPICS



- Application of RR No. 11.41
- **Establishment of the ISM**
- Beyond RES49

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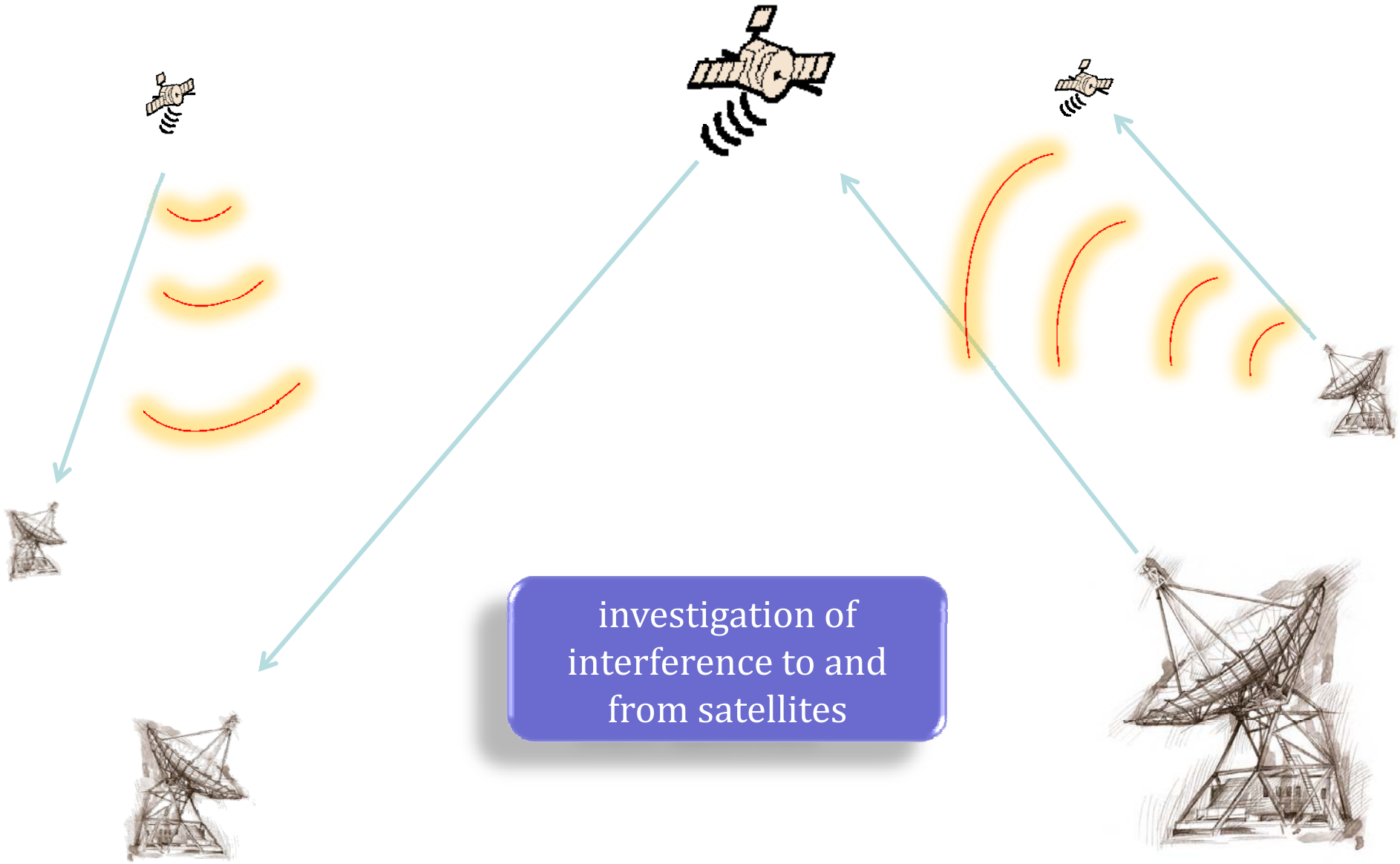
Why an ISM System?

- A feasible option to clear paper satellites from the MIFR and as a mechanisms to facilitate confirmation of Administrative Due Diligence information.

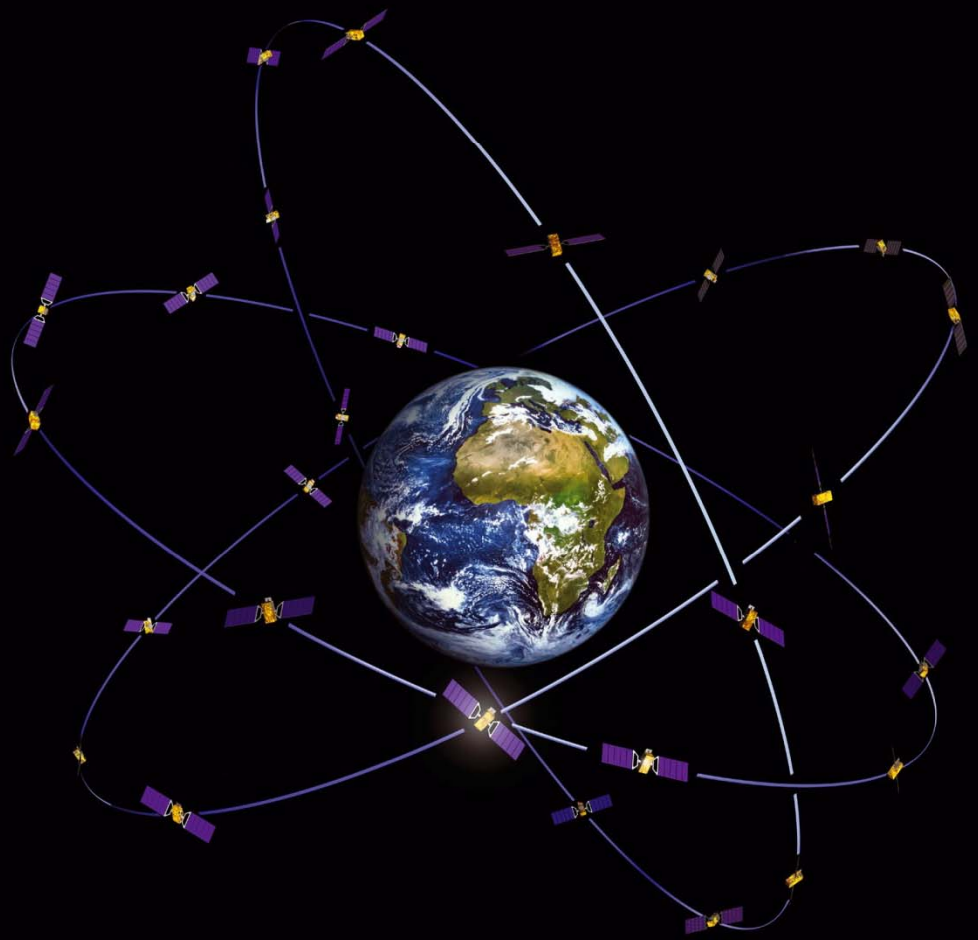
- Able to minimize non existence of satellite networks which have submitted Administrative Due Diligence Information and Notification information to the BR.

- Useful in resolving satellite interference disputes between administrations in cases brought up to the RRB.

The ISM System monitoring activities includes…



The ISM System monitoring activities includes…

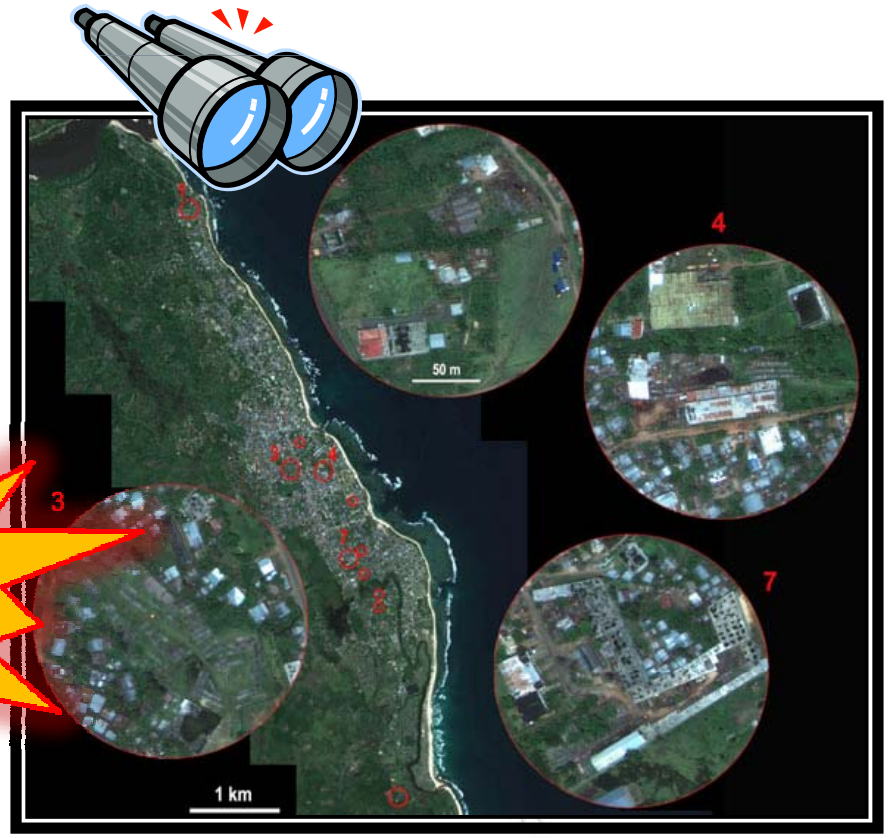


monitoring the usage of spectrum and orbital resources

The ISM System monitoring activities includes…

detection of the illicit use of satellites

ILLICIT USE OF CONFIDENTIAL DATA



In ITU-R Rec. 36, WRC-97 *invites administrations*

- to make every effort to provide monitoring facilities as envisaged in Article **16**;

  - the ISM comprises only those monitoring stations which have been so nominated by administrations
  - A centralizing office to be designated which all requests for monitoring information is addressed and through which monitoring information will be forwarded to the Bureau
  - Administrative and procedural requirements for use and operations of the international monitoring system should be in accordance with the provisions of Recommendation **ITU-R SM.1139**

- to inform the BR of the extent to which the administrations are prepared to cooperate in such monitoring programmes as may be requested by ITU-R;
- to consider the various aspects of monitoring emissions originating from space stations to enable the provisions of Articles **21** and **22** to be applied.

The Implementation an ISM System

- There are many existing satellite operators or third party teleport that has the satellite monitoring capability.

- The existing ISM operator can be invited to provide the monitoring service with minimal fee or free of charge on a voluntarily basis.

- Proposal can be made to the next Plenipotentiary Conference or WRC (as appropriate) for the setting up of an ITU's ISM system

The Concerns in Implementation an ISM System

Organizations may be
reluctant to share
information of their satellites
for **fear of revealing**
too much information.

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Fundamental Principles of an ISM system and its Coordinating Body

Objective of the ISM system and establishment of the Coordinating Body

Implementation of equal rights

Legal Obligation of the Coordinating Body

ISM system and its activities

Fundamental Principles of an ISM system and its Coordinating Body

Objective of the ISM system and establishment of the Coordinating Body

Understand that all members have great interest in the efficient use of the orbital resource and on the basis of absolute equality, the coordinating body shall ensure that each member share the responsibility to actively participate in the process to ensure efficient use of the orbital resource.

Implementation of equal rights

In implementing equality to all of its members, members shall have equal rights in the outlining of the coordinating body's policies.

Legal Obligation of the Coordinating Body

One of the responsibilities of the coordinating body is to ensure the confidentiality of the classified information.

Fundamental Principles of an ISM system and its Coordinating Body

ISM system and its activities

Acquisition of data/information

Auxiliary data could be acquired from the satellite operator, member or other external sources, which will be stored in the data bank.

Sharing of satellite data/information

Data/information of the military satellites are not shared with the members.

Data/information of non-military satellites are available to all members.

Usefulness

The availability of the satellite data/information will be immediate and will directly benefit all members.

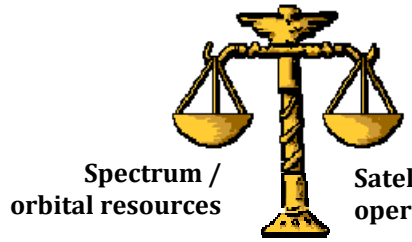
Fundamental Principles of an ISM system and its Coordinating Body

ISM system and its activities

Initiation of the ISM activities

- Monitoring activities may be continuous or periodic, based on the necessity of the satellite data and thereafter, leads to the achieving of the data.
- Based on request by members, provided that the service sought are within the provisions of the coordinating body's scopes.
- Members may request for satellite data monitored by the ISM station on the need basis, for example:
  - to validate the actual bringing into use of orbital slot and frequency spectrum
  - to investigate interference cases

KEY TOPICS



- Application of RR No. 11.41

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- **Beyond RES49**

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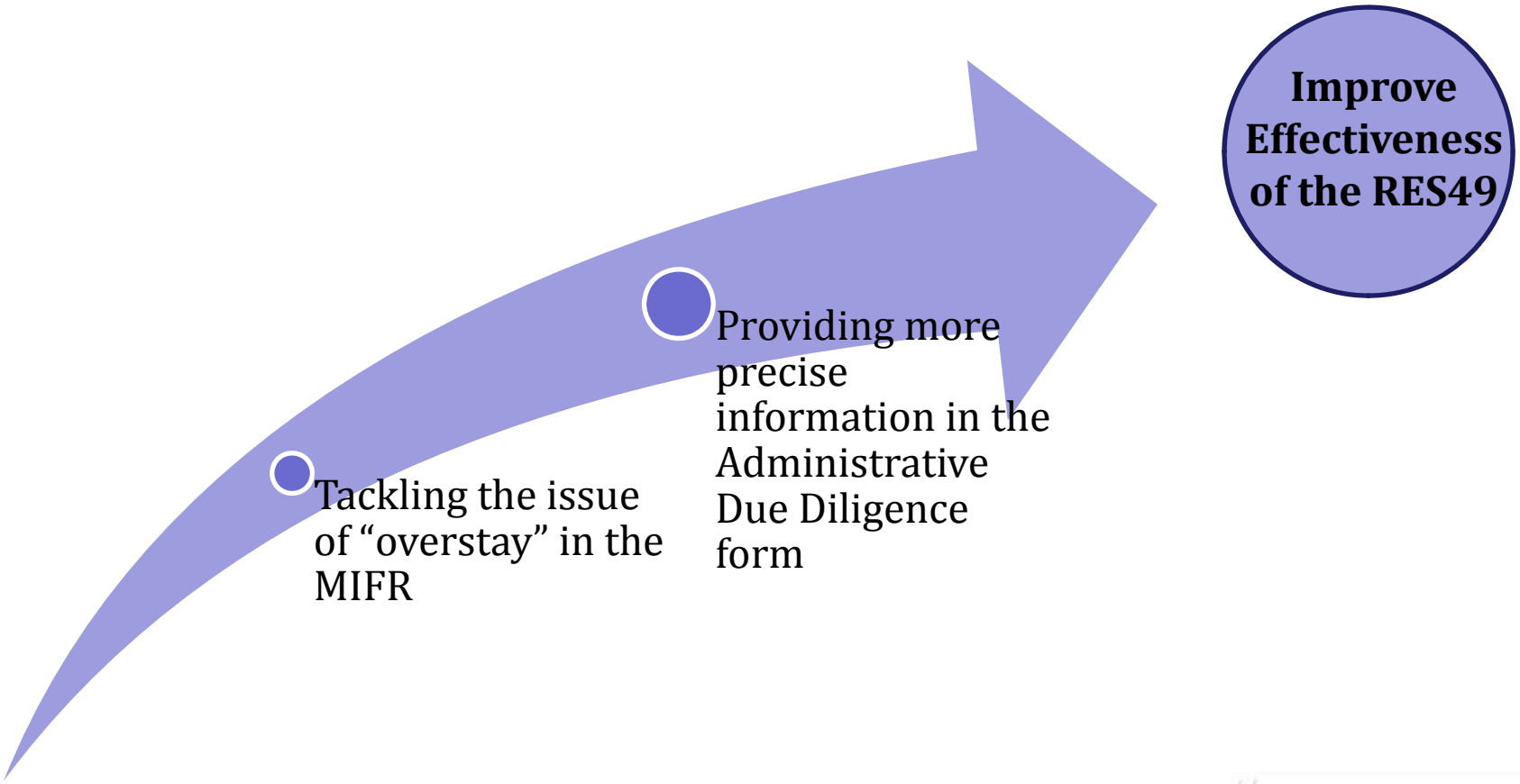
What can be done?



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Issue #1: “overstay” in the MIFR

- Blocks entry of new assignments due to difficulty of obtaining coordination agreement from “overstayers”, who sometimes are not using the assignments at all.
- Request for suspension under 11.49 abused or under-used

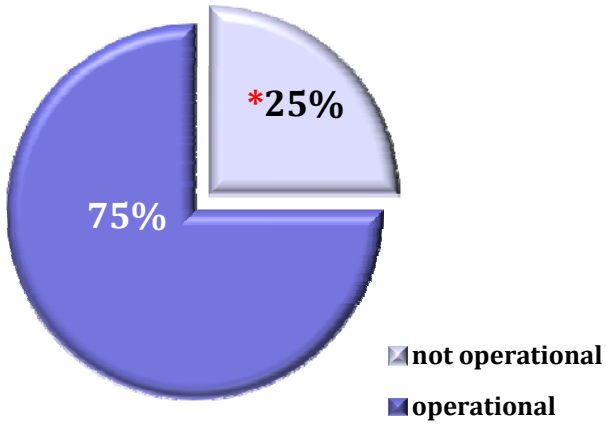
CASE STUDY

From 2000-2009, 16 satellites were resumed after suspension under 11.49. Checks revealed that at present 25% are not operational after resuming the suspensions. **Ideally there should be 100% operational satellites after suspension is resumed.**[1]

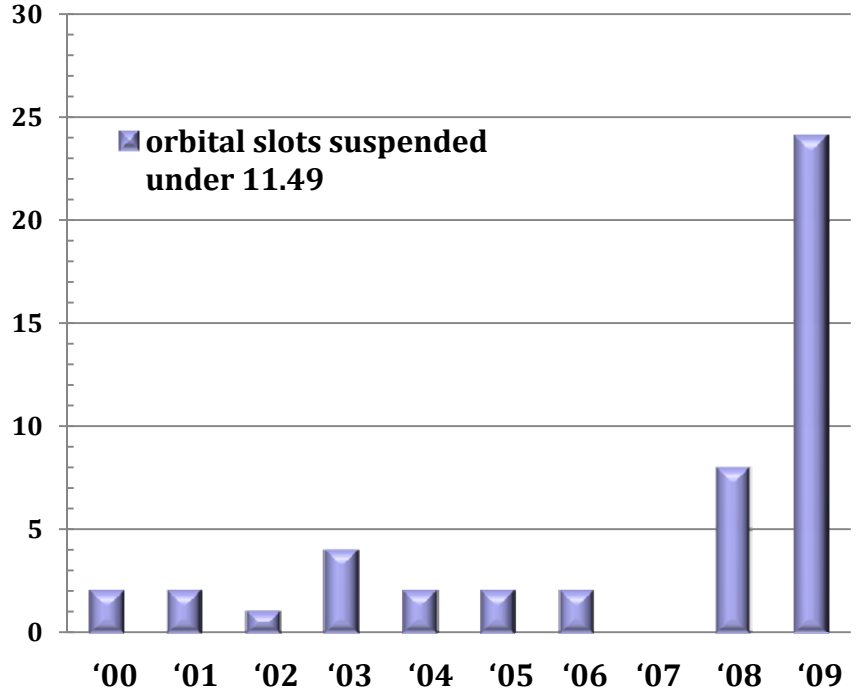
[1] http://www.sat-index.co.uk/geo/ and http://www.n2yo.com/satellites

A brief summary of 11.49 activity since 2000

Percentage of satellites operational after suspension under 11.49 that has been claimed to be resumed (2000-2009)



Requests to suspend orbital slots under 11.49 (2000-2009)



Trend shows that education and awareness has increased the number of requests for suspension – we seem to be on the right track!

Source: www.itu.int/ITU-/space/snl/list1149/index.asp (updated 05.05.2010)

* Simon Boliviar has a valid extension of suspension until 18 September 2010

Tackling "Overstay"

BR's role

- **Provide a Clarke's belt snapshot periodically**
- **"Clean-up MIFR" campaign** – issue circular requesting administrations to voluntarily study orbital atmosphere within a close separation from all their orbital slots.

Adm/Operators' role

- **Pro-active study on RES49 information in IFIC**
  - Evaluate effect on own satellites / orbital slots
  - Provide comments to inaccurate due diligence information immediately

- **Pro-active study of suspended slots adjacent to own satellites / orbital slots**
  - Comment if suspension date is prolonged without actual satellite
- **Redefine term "bringing into use" with possible use of words "physical satellite" or "operational satellite" (by WRC)**

Issue #2: Due Diligence Information

Current RES49

- **Manufacturer information**
  – launch facility, launch vehicle
- **Launch Window**
  – A period; normally inaccurate
- **Frequency range**
  – More frequencies are notified than those that end up being used

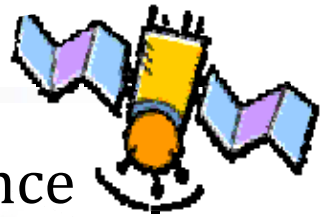
The lack of information allows possibilities for manipulation of an assignment in the MIFR

"Wider" RES49

- **Actual coverage**
  -Attach actual footprints of satellite
- **Detailed power capabilities**
  -Based on actual footprint
- **Detailed transponder frequencies**
- **Actual lifespan** of satellite

The above information to be <u>endorsed</u> by manufacturer of the satellite as they best understands its limitations and ability

A new “post” RES49 form?



- Submit post RES49 information in a new Due Diligence form with actual date of launch

- Ideally to contain footprints from IOT – yet another proof to the BR that the satellite has indeed been launched

- BR proceeds to verify and validate assignments in MIFR, and seek for further clarifications accordingly if needed

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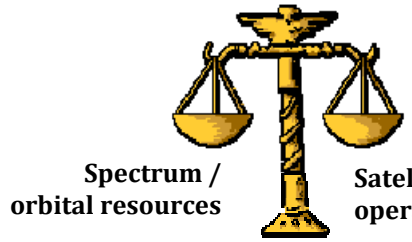
What next ?



Proposed way forward

- Administrations and Sector Members to consider the ideas and make proposal to the relevant study groups and/or conference
- BR to consider the suitability of the above ideas and identify relevant ITU-R working parties for further study

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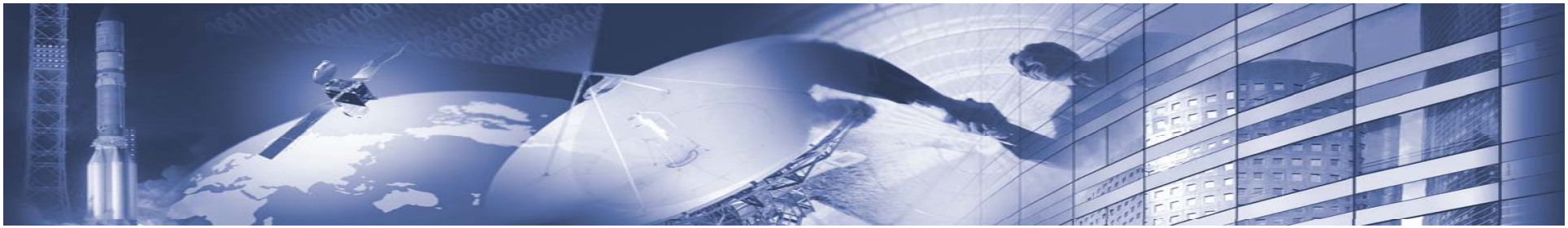

THANK YOU

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