Overview of GE84 Optimization Project

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Multilateral frequency coordination meetings

Sub-Saharan Africa (ATU)

- Digital migration and spectrum Ministerial Policy summits December 2011
- Digital migration and spectrum Ministerial Policy summit September 2012

Need to establish minimum spectrum requirements for broadcasting and broadband at the national level

Arab Region (ASMG)

- 35th meeting of the Permanent Arab Committee for Communications and Information (Cairo : 4-5/3/2014) ,
- Contributions of the Technical Secretariat of the Council of Arab Ministers for Communications and Information

Arab countries to ensure sufficient spectrum for broadcasting in the 470- 694 MHz to release the 700/800 MHz

Central America & Caribbean (CITEL, COMTELCA, CTU)

- Central American Summit on Digital Terrestrial Television and the Digital Dividend, El Salvador on 25 and 26 July 2016, and
- the “San Salvador Declaration” adopted by COMTELCA Members on 26 July 2016

To secure the operation of broadcasting stations and Enable the Digital Dividend

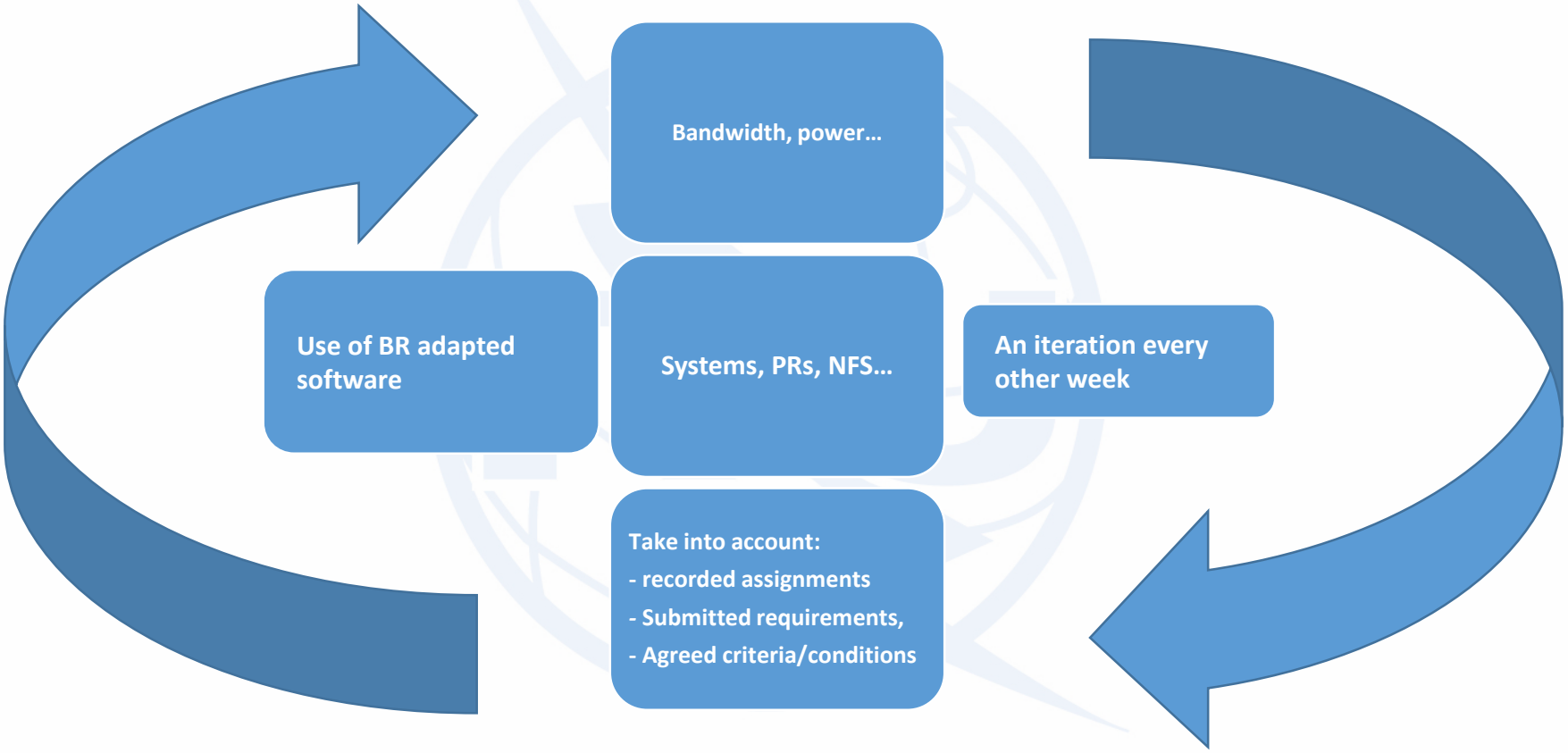
Coordination meetings process and results

	Sub-Saharan Africa 470-694 MHz	Arab Region 470-694 MHz	Central America & Caribbean VHF: 174-216 MHz UHF: 470-698 MHz
Average of satisfied requirements	97.37%	76.87%	96.13 % for VHF 94.41 % for UHF
Duration of the coordination process	18 months	11 months	18 months
Number of participating countries	47	17	30 (41 geographical areas)
Number of meetings	**3** Bamako, Kampala and Nairobi.	**3** Dubai, Hammamet and Marrakech.	**4** Managua, Guatemala City, Panama City, Belize City.
Number of iterations	33	27	27 in VHF 40 in UHF
Number of submitted frequency requirements	7107	4346	1149

PURPOSE

- **Facilitate the transition from analog to Digital Television (DTT) and the use of the Digital Dividend**
- **Avoid harmful interference**
- **Build informal consensus in the region towards the conclusion of formal agreements between the administrations involved before notification of the frequency assignments to the ITU.**

BR support in the coordination process



Capacity building (training on BR software, compatibility analysis, frequency assignments…) and assistance all along the process

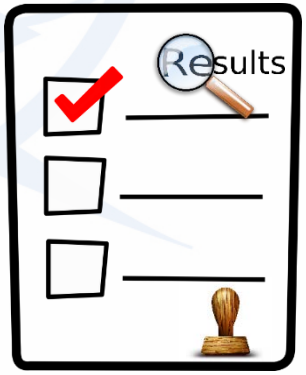
Outcome of the frequency coordination meetings

Toward a successful coordination process

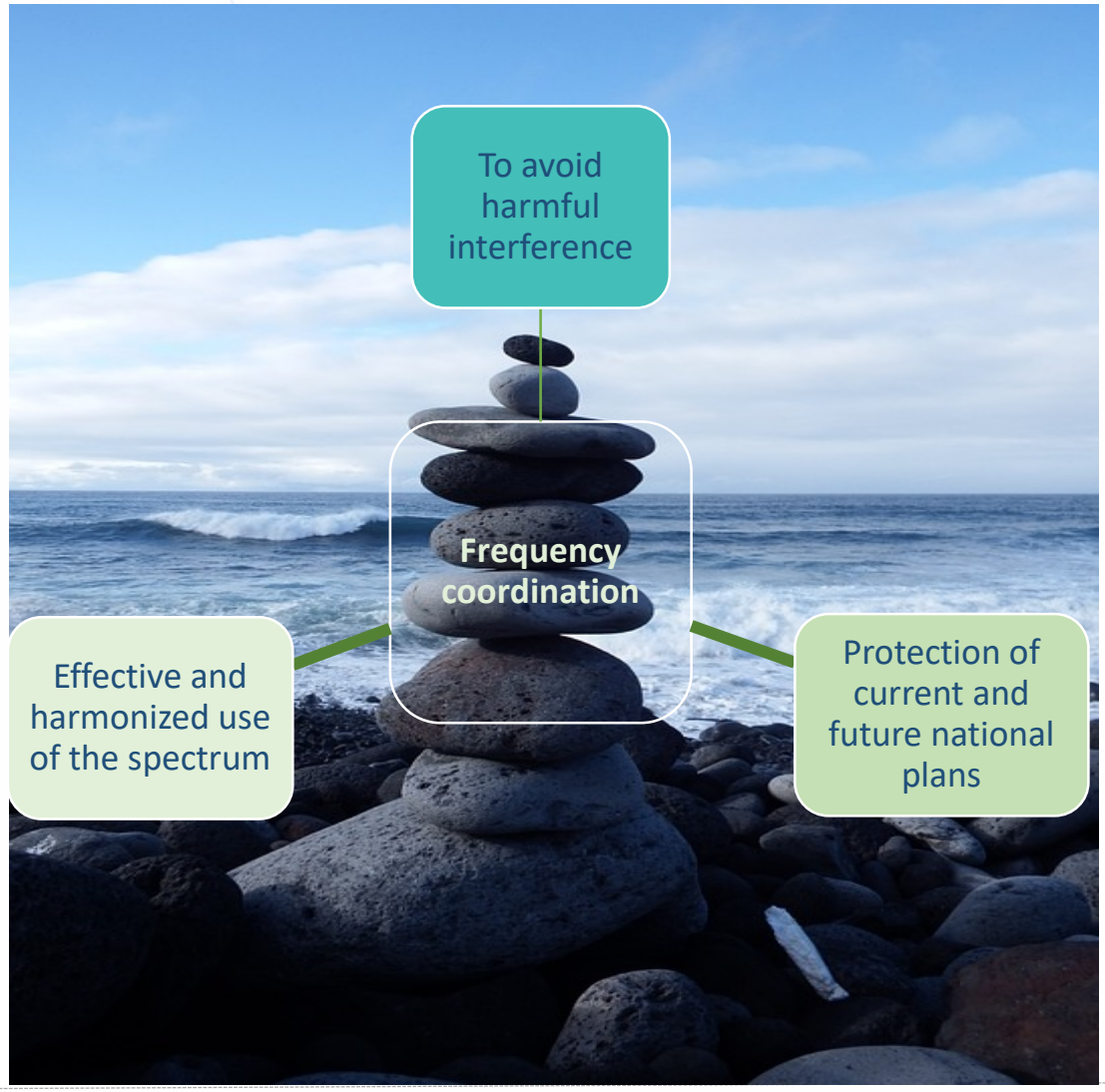
- General agreed criteria and interference level
- Achieved frequency coordination for cases outside the agreed conditions on bi-lateral level

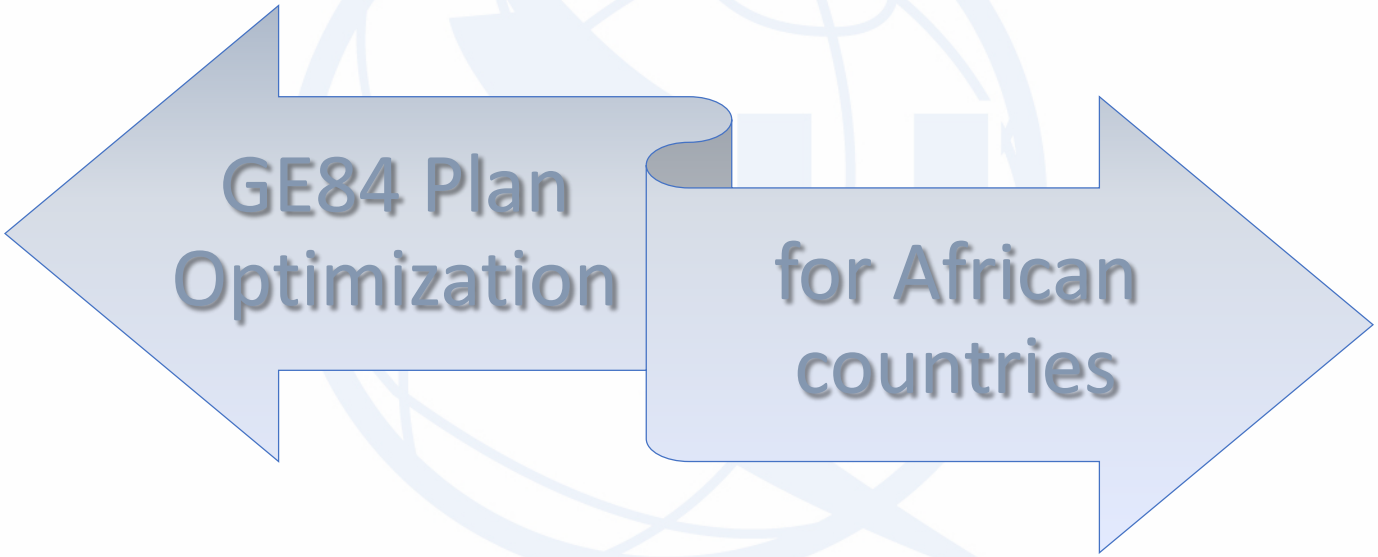
- Reasonable number of requirements, especially close to the borders;
- Suppress the Plan assignments that are not intended to be operated.

Assignments free of interference



Frequency Coordination is Key!




GE84 Plan
Optimization
for African
countries

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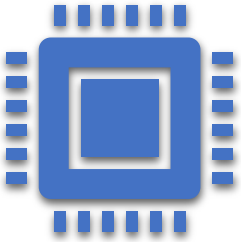
Why optimize GE84 Plan for Africa?

- Address the **increasing demand** for new FM radio stations by enabling the assignment of new frequencies,
- GE84 Plan is **congested**, therefore, it is needed to:
  - Ensure an efficient use of the 87.5-108 MHz band for analogue sound broadcasting, by accurately reflecting the situation of the FM band in the Region, by reviewing the:
    - *GE84 Plan entries, and*
    - *corresponding entries in the MIFR.*
  - Ensure **compatibility** among the existing and new broadcasting frequency assignments,
  - Facilitate potential future introduction of digital sound broadcasting.

Planning basis for GE84 optimization



Technical criteria used for compatibility calculations – GE84 Agreement

Uniform 100 kHz frequency step (spacing): Section 3.2 of Chapter 3 of Annex 2 of the Agreement,

protection ratios: Section 3.4 of Chapter 3 of Annex 2;

propagation model: Chapter 2 of Annex 2.

Assignments to be taken into account:

- The ones recorded in the GE84 Plan and the ones published in Part A of Special Sections GE84 : **Yes**
- Assignments to other primary services in adjacent bands: **No**

Compatibility analysis software

ITU has adapted the existing GE84 software to a large-scale compatibility analysis necessary for the GE84 Plan optimization

This software will be further adapted according to the agreed planning and coordination criteria.

Criteria/conditions approved by the 1st meeting

Procedural

- To stop any modification to the GE84 Plan until the end of the coordination meetings.

Practical

- Submit the requirements every other Thursday to brbcd@itu.int for iterations;
- An iteration every two weeks.
- If an administration does not submit its requirements, the requirements used for the previous iteration will be taken;
- For absent administrations, the BR will generate requirements and try to contact them.
- Stop submission of FLEX requirements to iterations starting from Iteration 9 (14 May 2021)
- Avoid drastic changes to the requirement file, starting from iteration 12 (25 June 2021)
- Invite Non-African neighbouring countries to the 2nd and 3rd meetings.

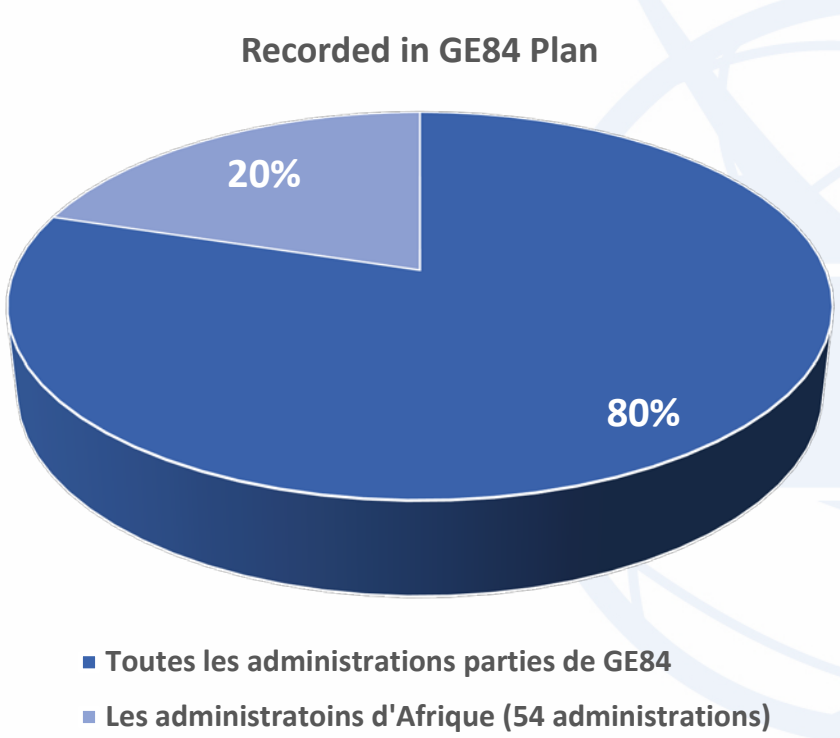
Technical

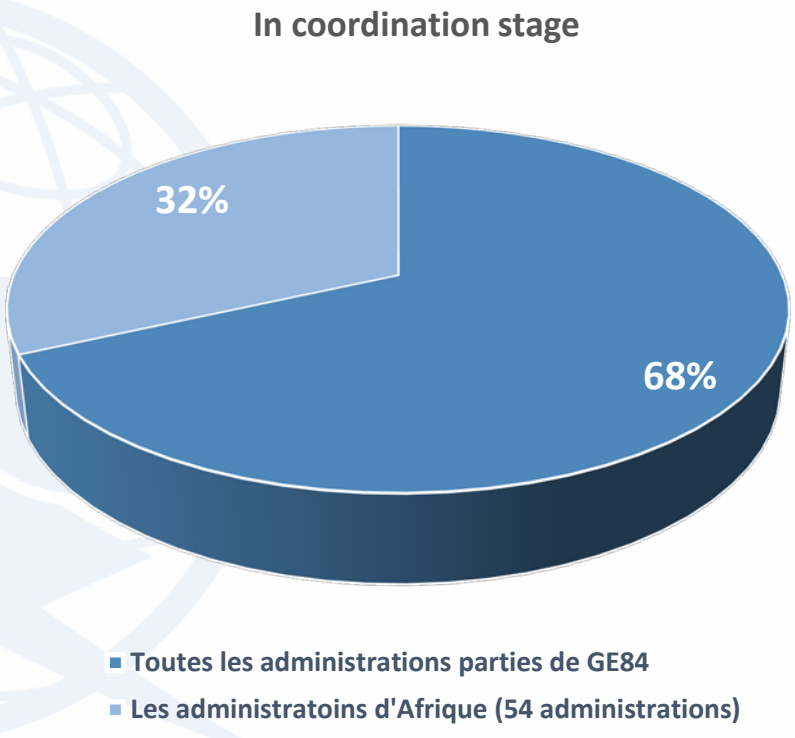
- Maximum acceptable Nuisance Field Strength (NFS) value is 54 dB(μV/m)
- Take into account the polarization discrimination (10dB).

Use of FLEX requirements

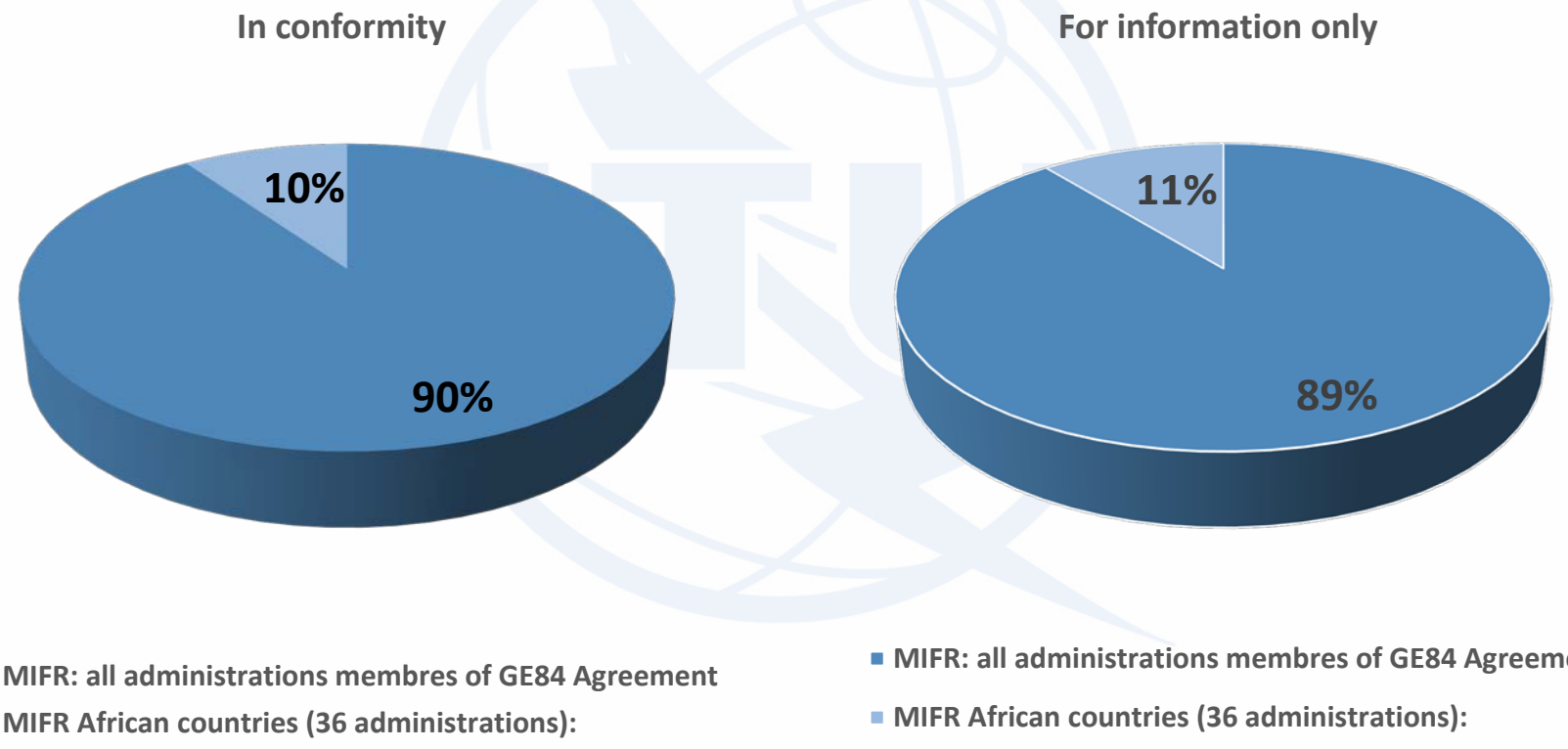
- BR generated an initial set of FLEX requirements for each administration based on recorded plan entries.
- Iterations 1 – 9: Each administration worked on their requirements file using a mix of Fixed and Flex requirements.
- From iteration 9 (14 May 2021) FLEX requirements could not be submitted anymore to the iterations.
- FLEX requirements can be still used internally by one or several administrations to find assignable channels in between iterations.
- The use of FLEX requirements is still a useful tool to find assignable channels once GE84 optimization process is over.

GE84 Plan statistics for Africa



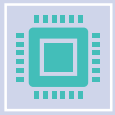


MIFR statistics for FM



Ensure success!

The success of GE84 optimization will require:



Intensive involvement by administrations in:

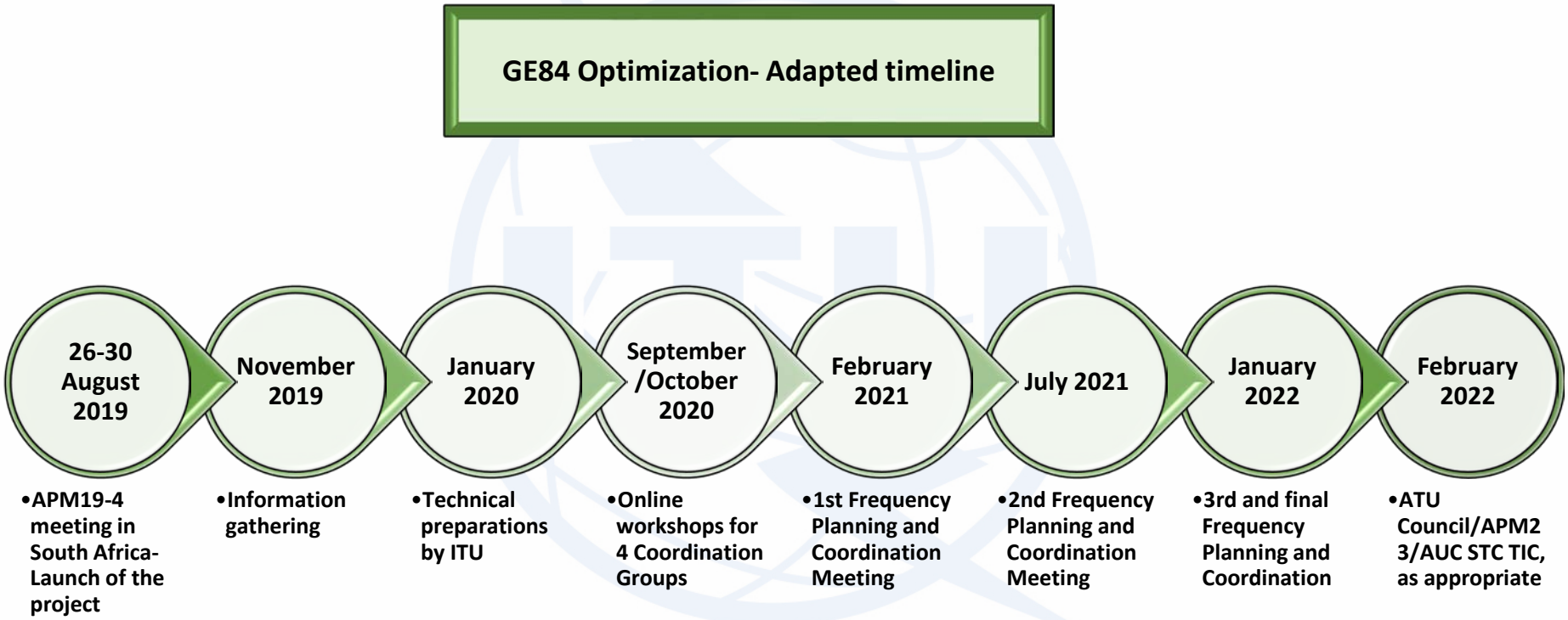
- updating the GE84 Plan,
- updating the MIFR,
- providing the necessary data/requirements,
- mastering the software and tools provided by ITU,

Active and fruitful participation in the frequency coordination meetings

- Engineers in charge of the GE84 Plan and/or frequency assignment for FM radio,
- Same participating experts from all administrations involved along the process,

To identify additional mutually compatible assignments.

GE84 Optimization- Adapted timeline



GE84 Plan Optimization Workshops

- Online trainings based on demonstrations and presentations on the project, its mainstreams, and the use of BR software, including:
  - the tools adapted by the BR to run compatibility analysis of new requirements,
  - General view on the GE84 Agreement applicable procedures

- Workshop meeting recordings and presentations are available online at:
  www.itu.int/en/ITU-R/terrestrial/broadcast/africa/Pages/Workshop.aspx

GE84 Plan Optimization: Last Mile Hints

- **Reasonable number of requirements:**
  Remove as much as possible your non-assignable channels from your requirements file

- The **final list of assignable channels** will include all assignable channels when **using GE84 propagation curves and ignoring self and received interferences**. Solve the cases of real received and internal interferences. It is important that any assignable channel, once put into operation (on air), will not suffer from interferences.

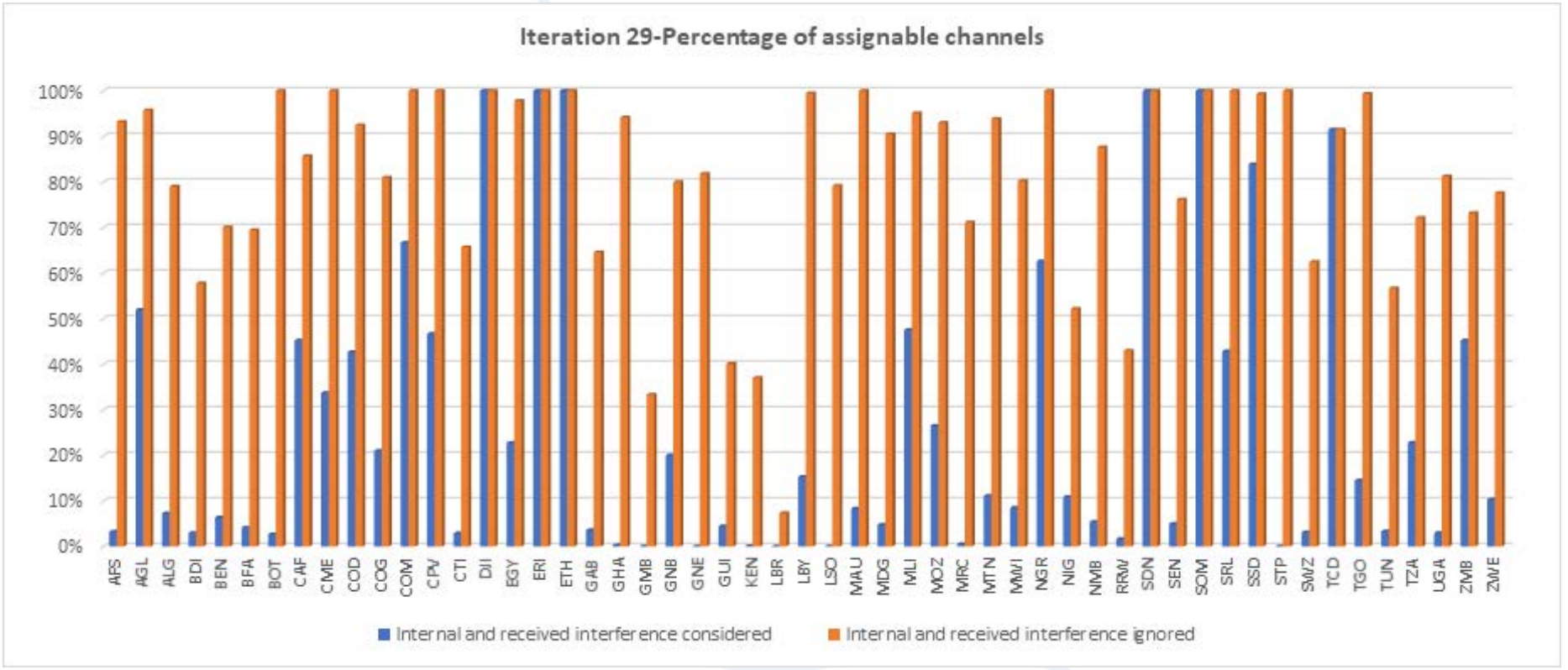
- **Add the name of the administrations with which you coordinate the relevant requirement (s) in the <COORD>** section of the electronic notice(s) when the requirement is not in accordance with the General Agreed Criteria (such as NFS > 54), but you reached agreement(s) with neighbouring administrations on a bilateral basis.

- For recorded assignments in the GE84 Plan with **very high power (40 dBW and above),** that are affecting neighbouring countries: **Consider reducing the power** to the one in operation. Then submit the corresponding MOD notices in the requirements.

- Take the opportunity during this **3rd coordination meeting to initiate bilateral meetings** to solve compatibility issues. BR experts are available to provide assistance at your request.

- GE84 Optimization tool does not take into account **Aeronautical radionavigation stations** in calculations. It is your responsibility to ensure the protection of your operating/existing aeronautical stations through bilateral discussions. See provision 4.2.2 f) of the GE84 Agreement.

Status so far



Next steps

- **Final list of assignable channels:** Iteration 32
  (**submission** of requirements on **Thursday 27 January** 2022 → results on Friday 28 January 2022)

- After the 3rd coordination meeting:
  - **Official submission under article 4** of GE84 Plan
    (including coordination information)
  - **Coordination continues**:
    Coordination of non assignable channels or search for new frequencies using the different tools (FLEX, terrain models, propagation models, etc).
  - **Stations in operation**:
    Notify them according to article 7 of GE84 Agreement (article 11 of RR)

Quick Links

- Website for the GE84 Optimization Project:
  www.itu.int/en/ITU-R/terrestrial/broadcast/africa/Pages/default.aspx
- GE84 online workshops material:
  www.itu.int/en/ITU-R/terrestrial/broadcast/africa/Pages/Workshop.aspx
- GE84 Software (on eBroadcasting portal):
  www.itu.int/ITU-R/eTerrestrial/eBroadcasting
- Final Acts of the GE84 Agreement:
  www.itu.int/pub/R-ACT-RRC.5-1984/en

Thank you!