



Presentation on

IDENTIFYING THE TECHNICAL AND OPERATIONAL ENABLERS FOR SUCCESSFUL IMPLEMENTATION OF OPTIMIZED LONGITUDINAL SEPARATION MINIMA

Presented by: Pakistan

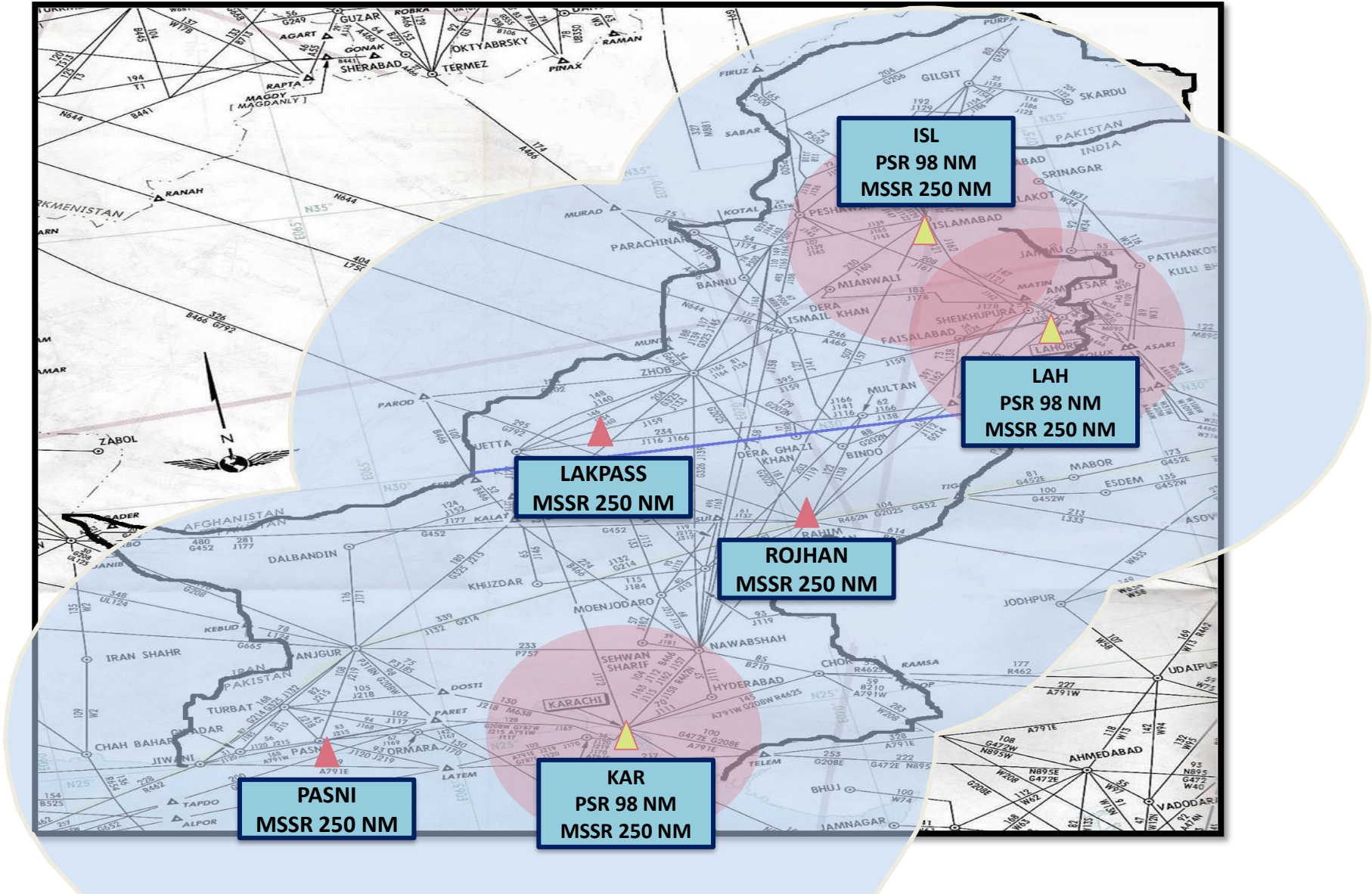
16 June 2026

- **Background**
- **Infrastructure in Pakistan**
- **Separation Minima (Within & at TCPs)**
- **CNS Requirements**
- **ACC Sectorization**
- **ADS-B & GNSS RFI**
- **Proposed Action by Meeting**

- ➔ Direct Controller Pilot communication using VHF
- ➔ Mode-S SSR covering major portion of airspace for provision of ATS
- ➔ Redundancy of ATS surveillance using ADS-B as well as to cover the gaps
- ➔ Small portion of airspace at the interface of Lahore and Urumqi FIR, still not covered due to topographic constraints

MSSR & PSR COVERAGE (Theoretical)

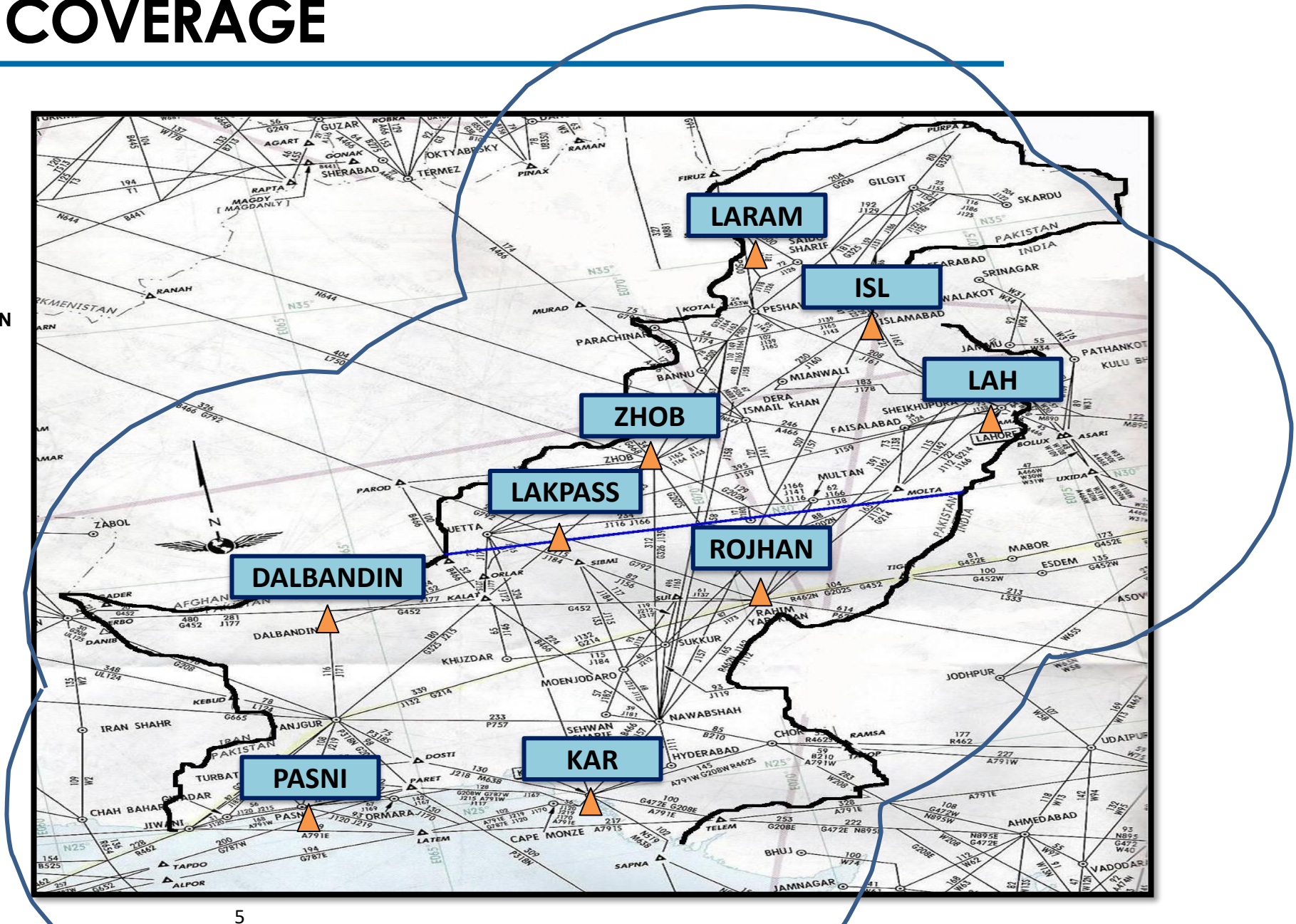
-  MSSR + PSR
-  MSSR
-  PSR COVERAGE
-  MSSR COVERAGE



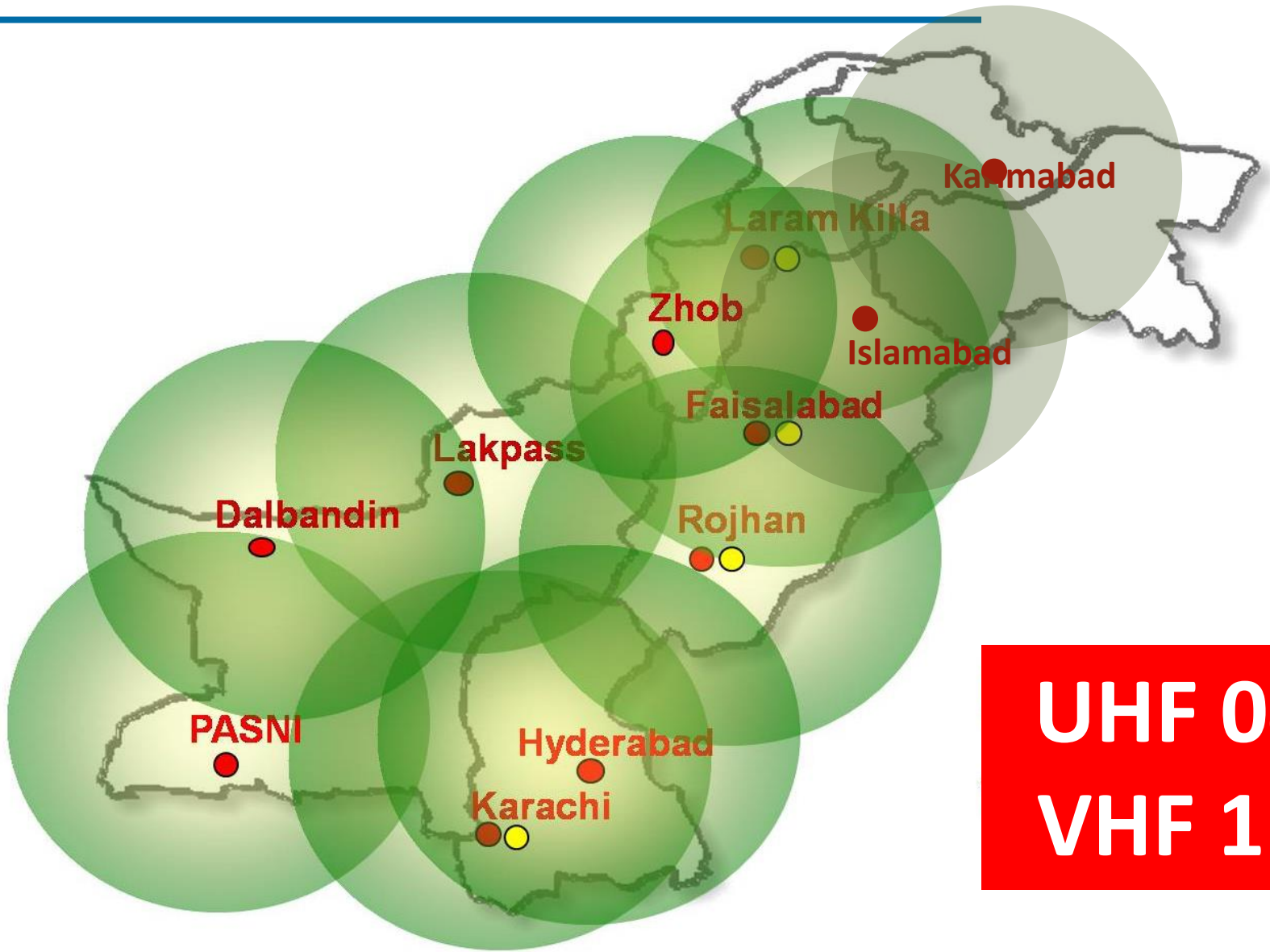
ADS-B COVERAGE

▲
ADS-B STATION

■
ADS-B
COVERAGE
250 NM



VHF COVERAGE

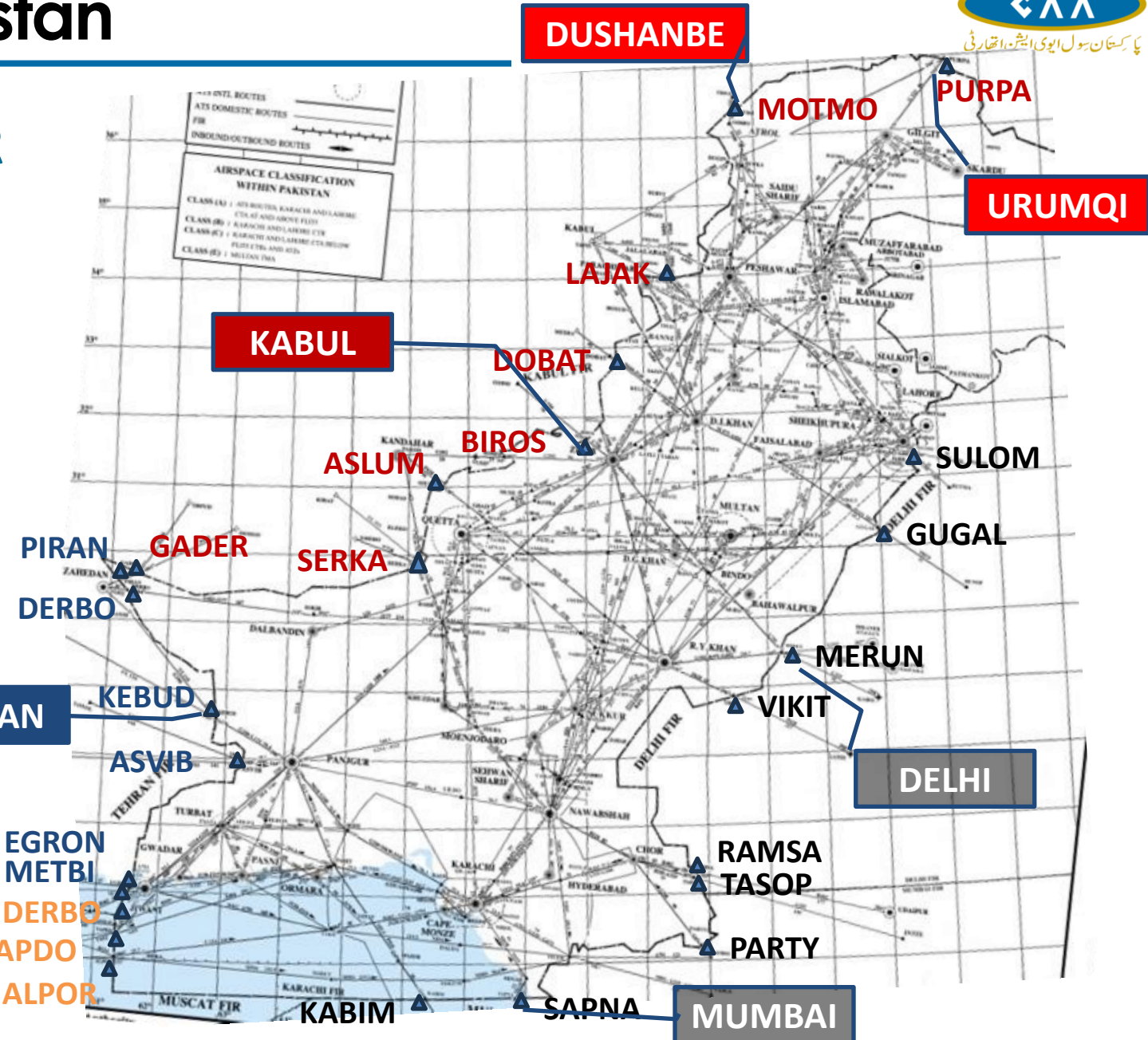


UHF 04
VHF 11

Separation Minima in Pakistan

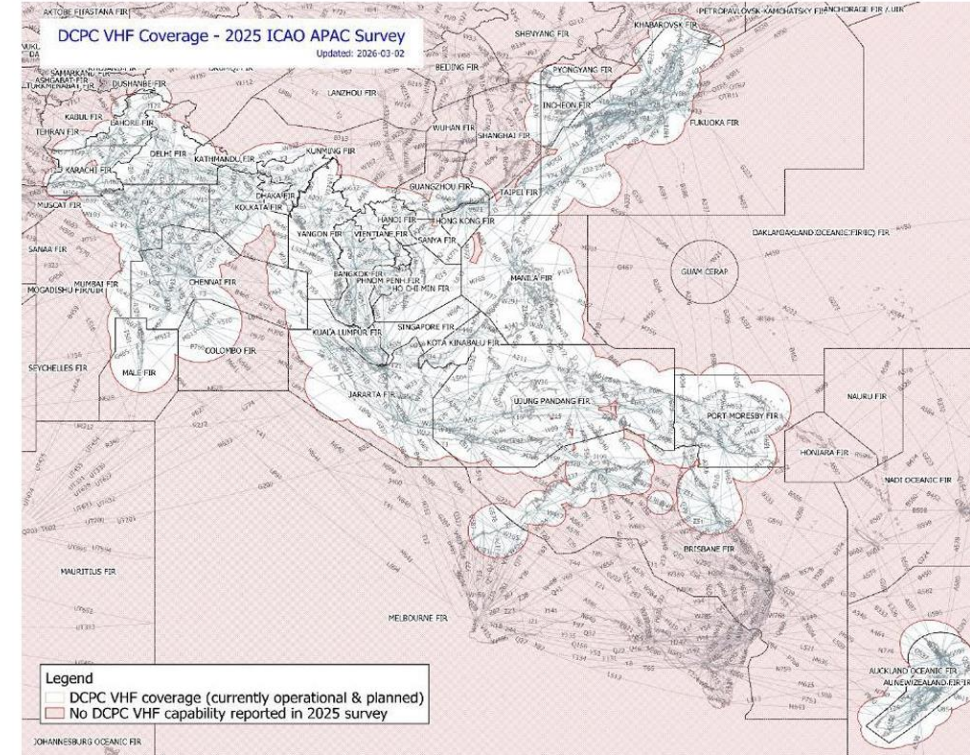
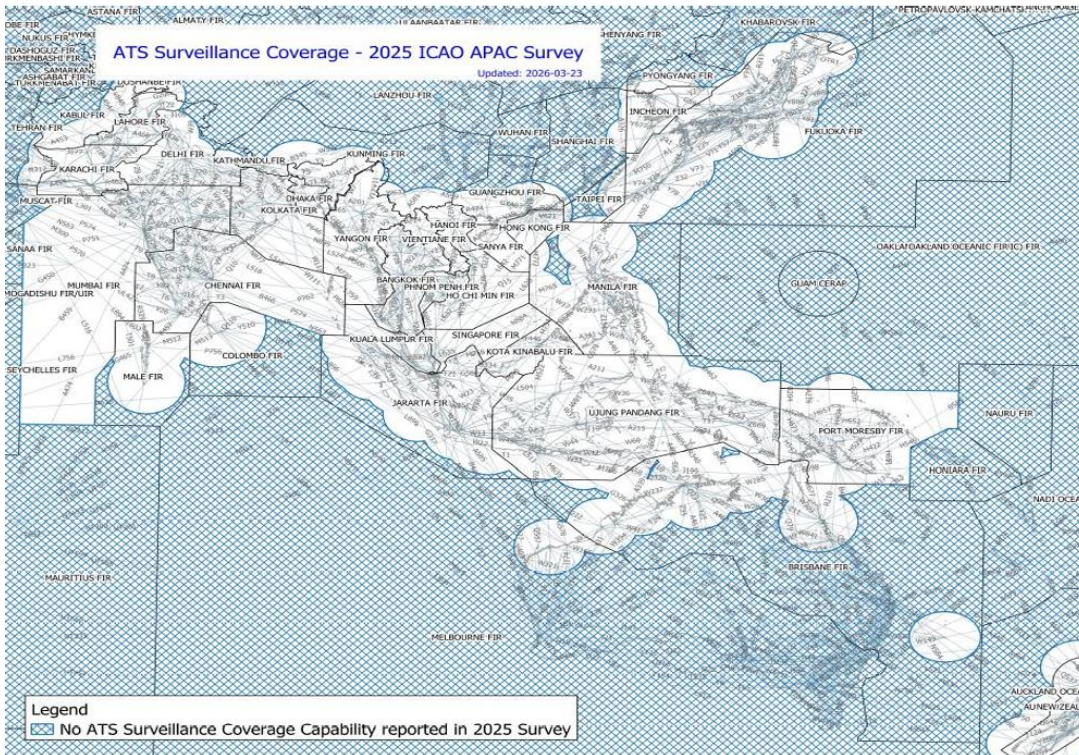
- Within Karachi & Lahore FIR
Enroute 15 NM / Terminal 5 NM
- TCP with Urumqi 10 minute
- TCP with Dushanbe 10 minute
- TCP with Kabul – 15 minute
- TCP with Tehran – 50NM
- TCP with Muscat – 5 minutes
- TCP with Delhi / Mumbai 50NM

MUSCAT



CNS REQUIREMENT 30/10 (1/2)

- ➔ 10 NM – Based on ATS Surveillance / VHF (Enroute Continental)
- ➔ APAC ATS Surveillance & DCPC Coverage Surveys indicate missing data and does not specify the level above which this coverage exist
- ➔ Cost Benefit Analysis remains an important factor for upgradation



CNS REQUIREMENT 30/10 (2/2)

- 30 NM – Based on Performance Based Operations (RNP 2 or 4, RCP240 & RSP180)
- Provision of Data Link by ANSP, Performance Monitoring and aircraft capability
- Cost Benefit Analysis remains an important factor for upgradation

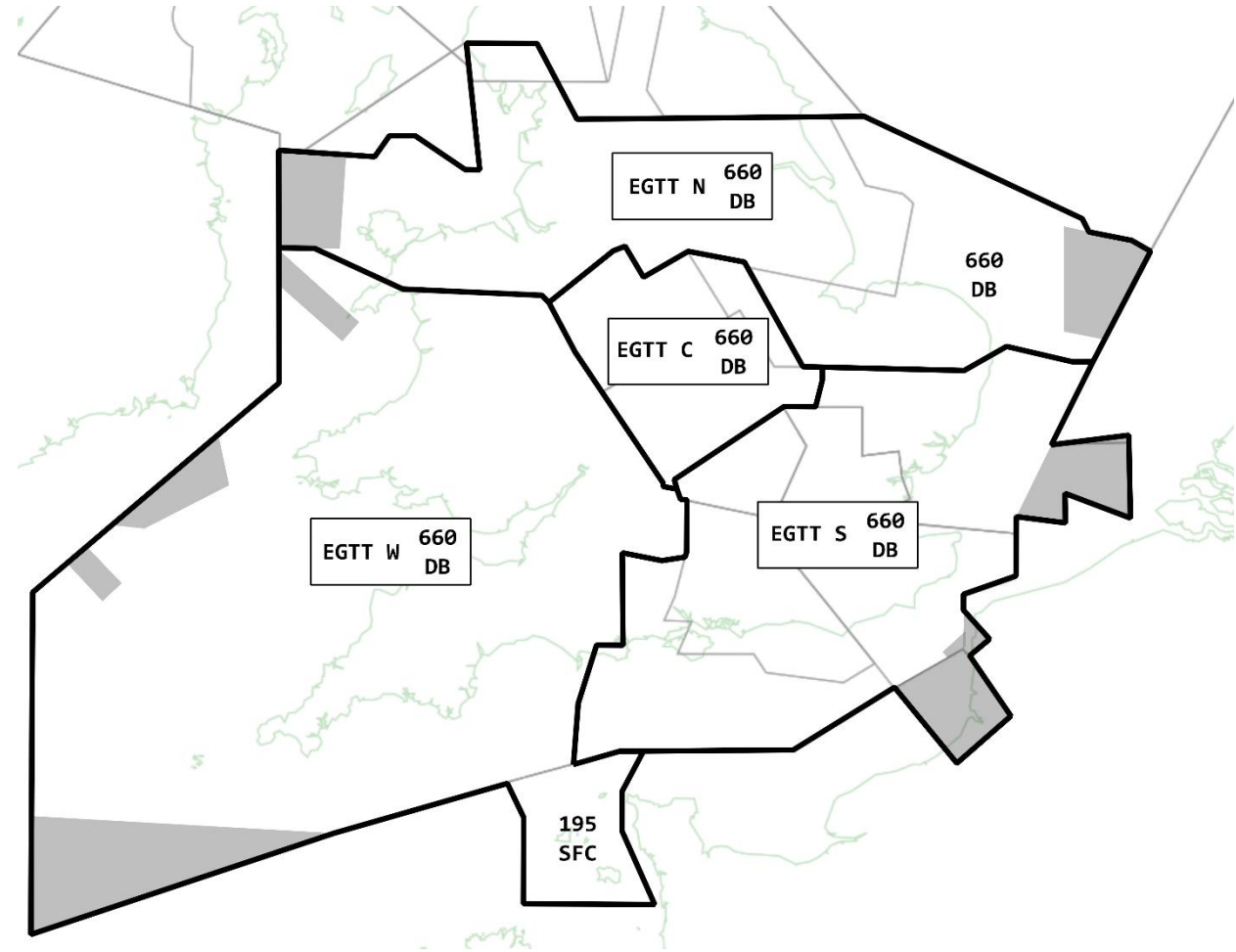
5.4.2.9.2 The following separation minima may be used for aircraft cruising, climbing or descending on:

- a) the same track; or
- b) crossing tracks, provided that the relative angle between the tracks is less than 90 degrees.

<i>Separation minima</i>	<i>RNP</i>	<i>RCP</i>	<i>RSP</i>	<i>Maximum ADS-C periodic reporting interval</i>
93 km (50 NM)	10	240	180	27 minutes
	4	240	180	32 minutes
55.5 km (30 NM)	2 or 4	240	180	12 minutes
37 km (20 NM)	2 or 4	240	180	192 seconds (3.2 minutes)
5 minutes	2 or 4 or 10	240	180	14 minutes

ACC SECTORIZATION

- ICAO framework on the sectorization of ACC mainly covering the configuration of ATS routes, geographical distribution of traffic, availability of CNS-ATM facilities and capacity of ATS personnel.
- The sector size and applicable separation minima could be important factors.
- The provision of ATS with lower separation minima in a large area of scan could be a challenge.



- GNSS Radio Frequency Interference - a global challenge to aviation industry.
- With the geo-political instability in some regions, the issue is continuously escalating.
- Regional Surveillance Strategy recommends to maximize the use of ADS-B for ATS surveillance.
- Possible disruption of surveillance-based separation in areas where surveillance is based on ADS-B alone and GNSS RFI events are being reported.

Proposed Action

- note the information contained in this paper;
- Consider the development of guidance material to address highlighted aspects in the work programme of the Task Force so as to facilitate States in implementation of 30/10 NM longitudinal separation minima; and
- Discuss any relevant matters as appropriate.



QUESTIONS ?