भारतीय विमानपत्तन प्राधिकरण
AIRPORTS AUTHORITY OF INDIA

Picture Courtesy: ISRO

Temporary Airspace Closure for Rocket Launches

PROCEDURES AND INITIATIVES

AIRSPACE CLOSURE

- Artillery Firing & Rocket Launches
  - Notified Danger Areas: Danger Areas published in eAIP
    - Active H24 (63 danger areas published), or
    - Activated through NOTAM (65 danger areas published)
  - Ad-hoc areas: Published and activated through NOTAM
    - Used by Military and R&D agencies

More than 90% of danger areas are controlled by Military

NOTIFICATION AND ACTIVATION

- Annex 15 / DGCA India CAR requirements
  - Minimum 7 days notice
- Airline requirements
  - 14 working days notice
  - 3 days notice of definitive window
  - Minimise activity duration
  - Avoid busy airways
  - Avoid peak hour traffic
  - Timely dissemination of “Activity Over” Information
  - Nominate Nodal Coordinators at ATC centres

AIRSPACE AUDIT

- Audit of military Restricted and Danger Areas conducted
- The audit has identified:
  - Gaps in the AIP information
  - Inactive areas
  - Actual requirement of the Controlling Agencies
- Negotiation underway with the military to realign and notify R/D areas according to the actual requirement

REALIGNING DANGER AREAS

- Denotification of notified but unused Field Firing Ranges is in the final phase
- Efforts are on to convert R/D areas from Permanent to NOTAM-activated and later to AMC-Manageable Areas.
- Creation of new R/D areas is not encouraged. TRA/TSA will be established and activated on FUA principles

REALIGNING DANGER AREAS ….

- VOD 174 (A) & (B) [Sriharikota] denotified
  - Large volume of airspace released. Only 20% being closed now.
- VOD 175 (Thumba) realigned
  - Realigned area is about 30% of the original area; 14% when only VOD 175 (A) is active
- VOD 172 (A) [Cochin]denotified w.e.f 23 JUN 2016
  - Arrival, departure and overflying restrictions at Cochin International Airport (VOCI) will be significantly reduced

ROCKET LAUNCHES

- VOD 174 (A) & (B) [Sriharikota] denotified.
  - Ad-hoc danger zones will be notified through NOTAM for each launch
- Coordination and Notification Process streamlined
  - Initial intimation: D minus 45 days
  - Intimation of definitive launch window of 3 days: D minus15 days
  - Launch date confirmation: D minus 3 days and D minus1 day
  - “Launch-Over” confirmation: Within 30 minutes of the launch
  - NOTAMs: At D minus 15 and D minus 3 stages

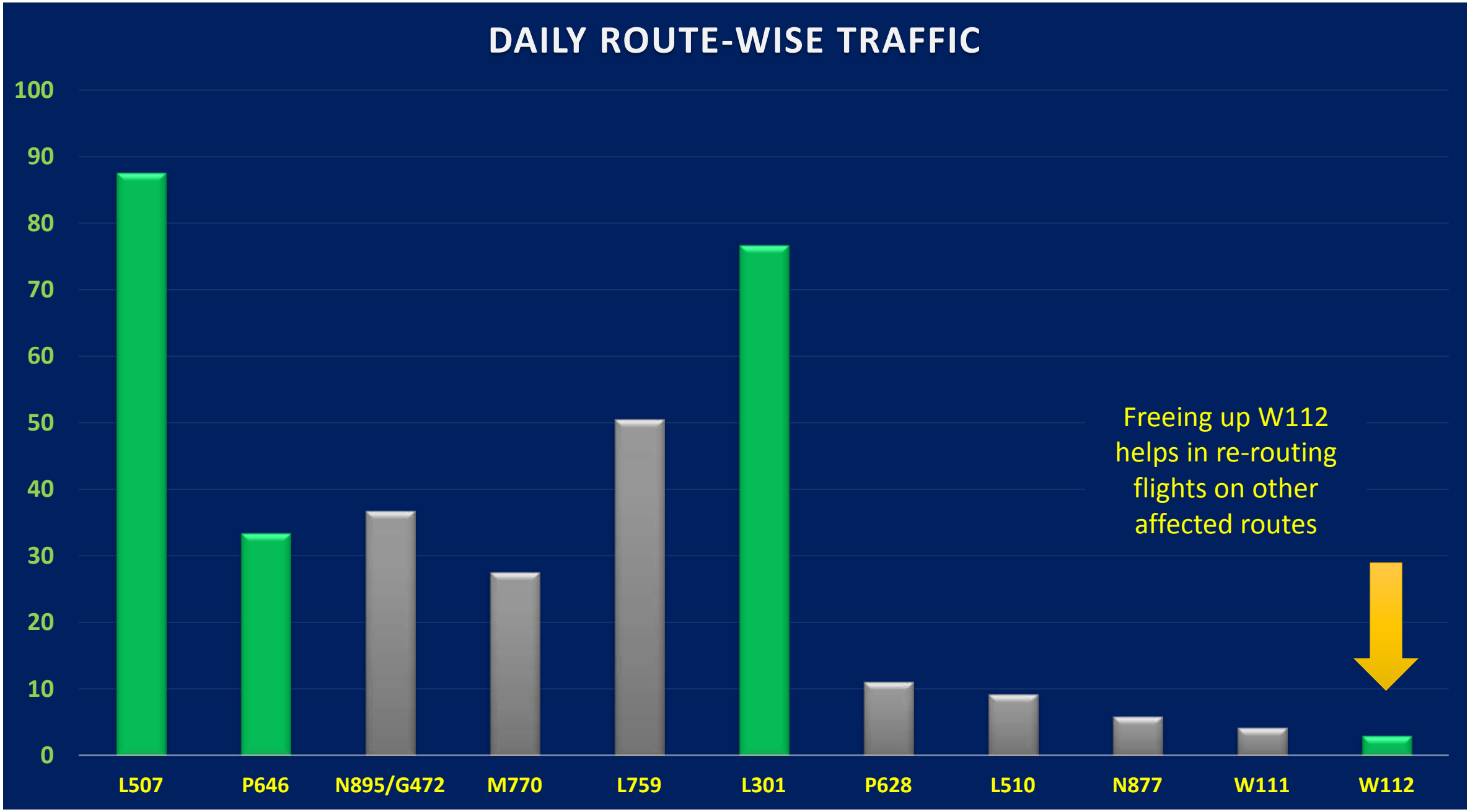
EFV LAUNCHES

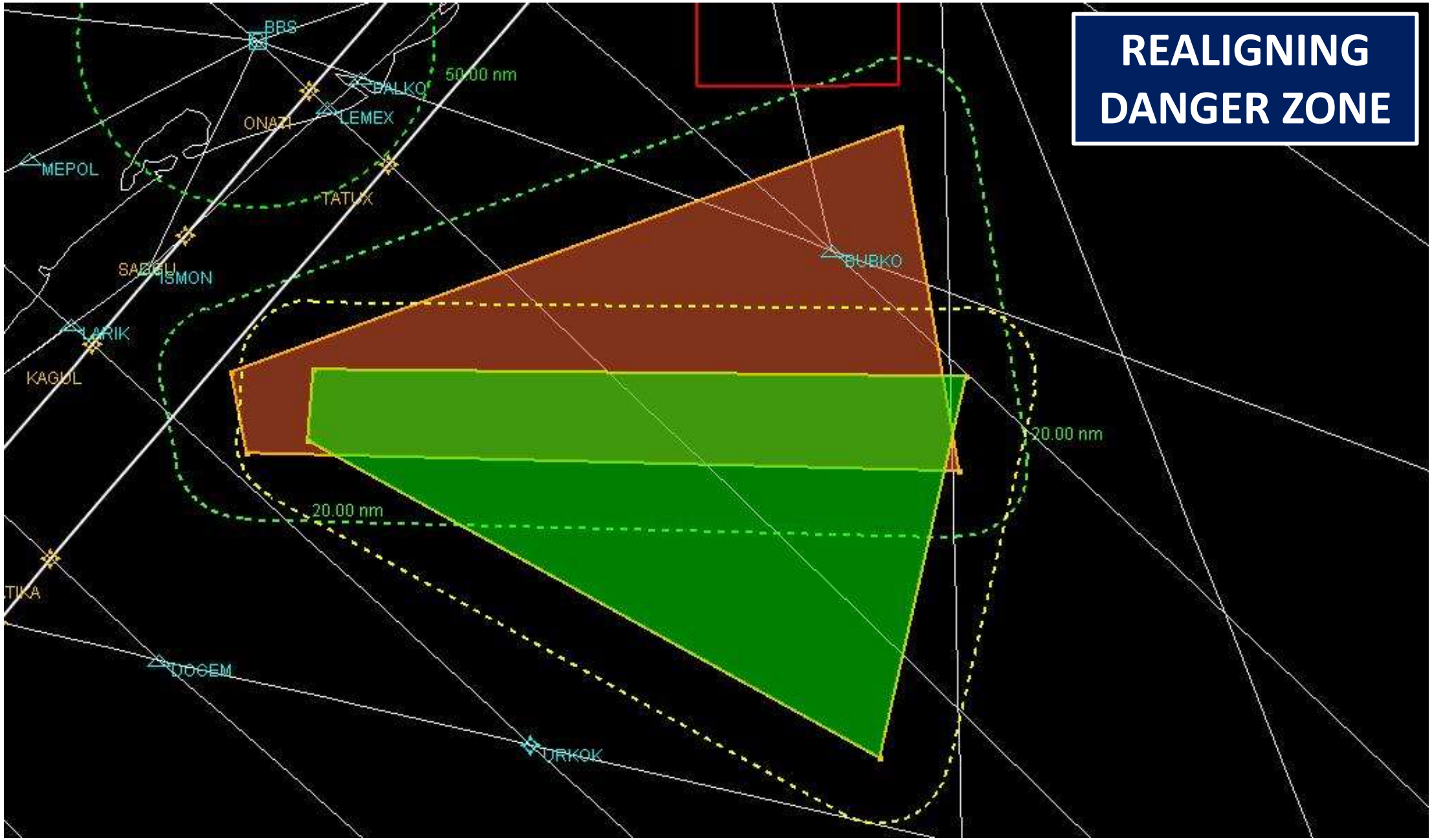
- Experimental Flight Vehicle (EFV) launches
  - Ad-hoc danger zones will be notified through NOTAM for each launch
- Coordination and Notification Process streamlined
  - Launch intimation D minus15 days
  - NOTAM at D minus 8 stage
  - Launch window reduced to 2 days and 3 to 4 hours each day
- Realigning Danger Areas
  - Realignment / Relocation / Reduction of danger areas to avoid major busy international oceanic routes is in advance stage of negotiation

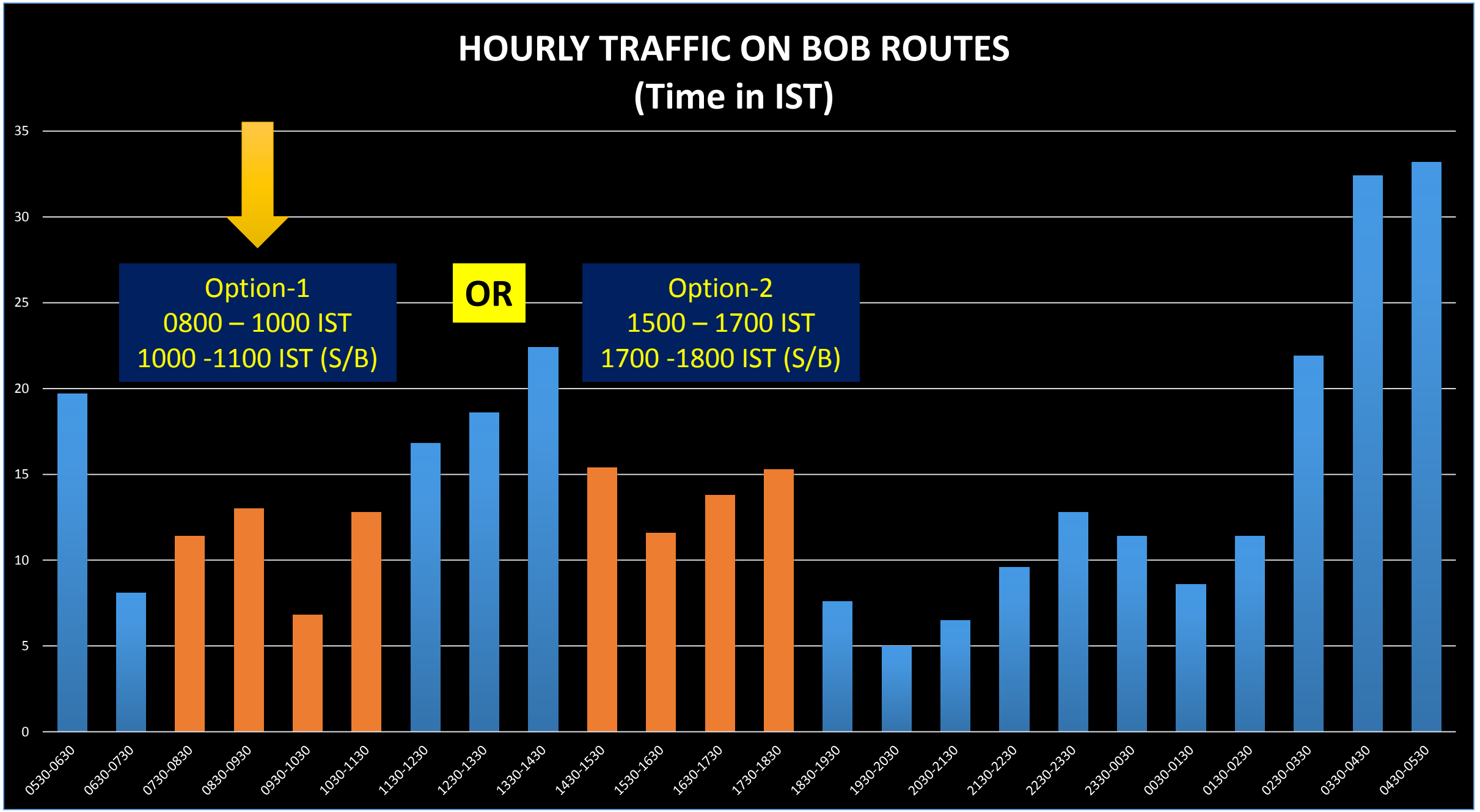
EFV LAUNCHES

- Standardising Danger Areas
  - Action underway to create standard danger areas which will help in streamlining the airspace management process including identification of alternate routings for affected route segments
  - Changes in ATC procedures during airspace closures can also be standardised
- LOA between Airspace User and ANSP
  - LOA between Controlling Authority of Danger Areas and ANSP for airspace management during launches will be signed in near-term.


REDEFINING LATERAL LIMITS OF ACTIVITY
P646
W112
L301
Odisha
DOPID
BOKEV
MAVLA
GOLAN
KAKID
SURUP
BUMRO
BBS
BOLOS
PALKO
ONATI
BIXON
TATUX
BUBKO
SADGU
ISMON
LARIK
KAGUL
NIKIR
PATKA
MEPOL
DORIL
VEKRA
MABDU
BILON
BIBRO
NOLOV
MEPOK
VVZ
POTAS
NODAX
OLSOR
DOGEM
URKOK
MABUR
SAGOD
IBITA
TEBOV
ELPED
VARLO
GUNTO
GUTNO
OGUNA
VIBAL
GUTID
OPASA
DAMKI
ELBAB
JKOSI
RRP
JH
ENTAP
NIPAD
RJM
VIPA
XOPOX
SUPLU
ORARA
GOPNU
KASRO
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
US Dept of State Geographer
Image Landsat
© 2015 Google
Imagery Date: 4/10/2013
18°50'06.24" N 87°16'58.16" E elev -6944 ft
Eye alt 649.27 mi
Google earth


DAILY ROUTE-WISE TRAFFIC
100
90
80
70
60
50
40
30
20
10
0
L507
P646
N895/G472
M770
L759
L301
P628
L510
N877
W111
W112
Freeing up W112 helps in re-routing flights on other affected routes


REALIGNING
DANGER ZONE
BBS
DALKO
LEMEX
ONAZI
MEPOL
TATIX
SUBKO
ISMON
LARIK
KAGUL
50.00 nm
20.00 nm
20.00 nm
UJOGEM
IJRKOK


HOURLY TRAFFIC ON BOB ROUTES
(Time in IST)
Option-1
0800 – 1000 IST
1000 -1100 IST (S/B)
OR
Option-2
1500 – 1700 IST
1700 -1800 IST (S/B)
35
30
25
20
15
10
5
0
0530-0630
0630-0730
0730-0830
0830-0930
0930-1030
1030-1130
1130-1230
1230-1330
1330-1430
1430-1530
1530-1630
1630-1730
1730-1830
1830-1930
1930-2030
2030-2130
2130-2230
2230-2330
2330-0030
0030-0130
0130-0230
0230-0330
0330-0430
0430-0530

EFV LAUNCHES - INFORMATION FLOW

Airspace User sends Range Memo to AAI CHQ

1 day

AAI CHQ plots the area; forwards to ATC Centres for comments

2 days

ATC Centres send comments to AAI CHQ

1 day

AAI CHQ compiles the comments, resolves conflicts, issues approval to all concerned

1 day

FIRs initiate NOTAM action

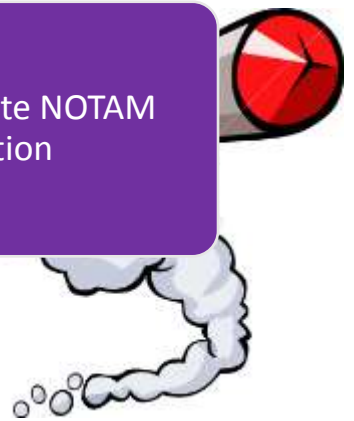
7 days

Start of Activity Window

Activity completed and airspace vacated by the user

< 30 min

Nodal FIR cancels NOTAM & informs other affected FIRs



INITIATIVES – BIMT/3 CONCLUSION

- India presented WP on ***Coordination For Rocket Launch Airspace Closures*** in the BIMT-ATM/CG/3 meeting at Kolkata in DEC 2015

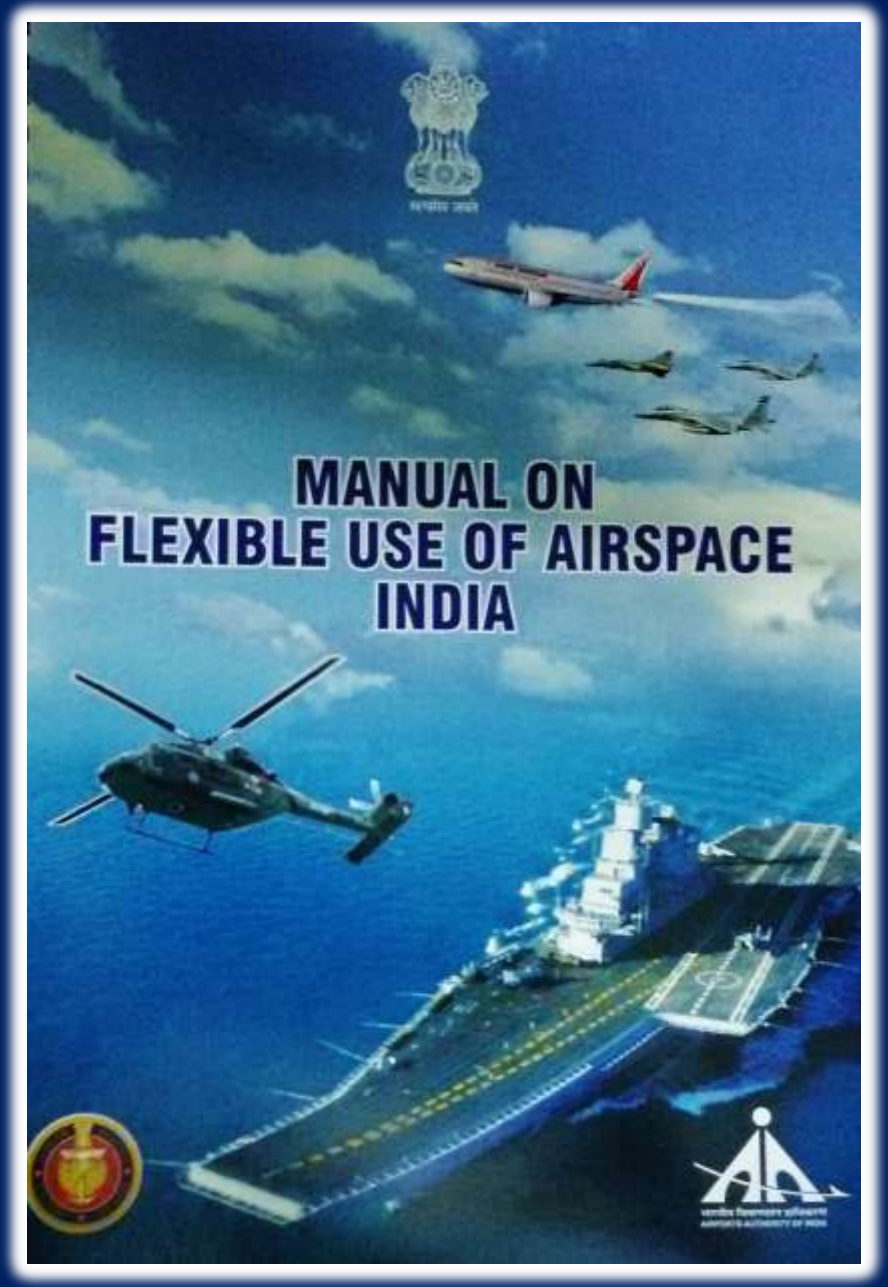
Conclusion BIMT 3/3:

- BIMT States agreed that for post-NOTAM coordination for airspace closure due to rocket launches:
  - Watch Supervisory Officer (WSO) [FIO in case of Bangladesh] of the FIR from where the launch takes place will be the Primary Nodal Coordinator.
  - WSOs / FIO of the other affected FIRs to which danger areas extend, will be the Secondary Nodal Coordinators.
  - The States also agreed to include the contact details of the Primary and Secondary Nodal Coordinator, as appropriate, in the launch activity NOTAM.

FOCUS AREAS

- Use FUA principles to optimize airspace use during danger area activation
- Reduce launch window and slot timings
- Provide sufficient notification to stakeholders
- Immediate cancellation of NOTAMs on completion of activity
- Standardise danger areas as TSAs, standardise alternate routings and coordination procedures
- Improve communication between affected States/ANSPs.

  Identify Nodal Coordinators and publish their contact details



THANK YOU