International Civil Aviation Organization

Second Meeting of the Bay of Bengal Traffic Flow Review Group (BOBTFRG/2)

Bangkok, Thailand, 08 – 10 October 2019

Agenda Item 4: Review of the Existing Traffic Flow Route Structures in BOB Airspace and Identifying Priorities

EXISTING TRAFFIC FLOW OVER BAY OF BENGAL AIRSPACE

(Presented by Airports Authority of India)

SUMMARY

This paper presents the data on traffic flow, fleet mix, fleet equipage and current status of operations over Bay of Bengal Airspace.

1. INTRODUCTION

1.1 Bay of Bengal airspace connects South-East Asia to India, Middle-East and Europe. ICAO APAC ANP VOL-II identifies the Major Traffic Flow as AR2 High Density airspace. This paper presents the analysis of existing flow in the airspace over Bay of Bengal.

2. DISCUSSION

2.1 The Asia to Middle East/Europe, South of the Himalayas (EMARSSH) route structure was implemented on 28 November 2002 in the airspace between Australia, South-East Asia, Bay of Bengal, Continental India, Middle East and Europe.

2.2 The successful implementation of EMARSSH routes and subsequently RVSM is primarily due to the combined efforts of three Regions of ICAO, excellent support by IATA and ANSPs.

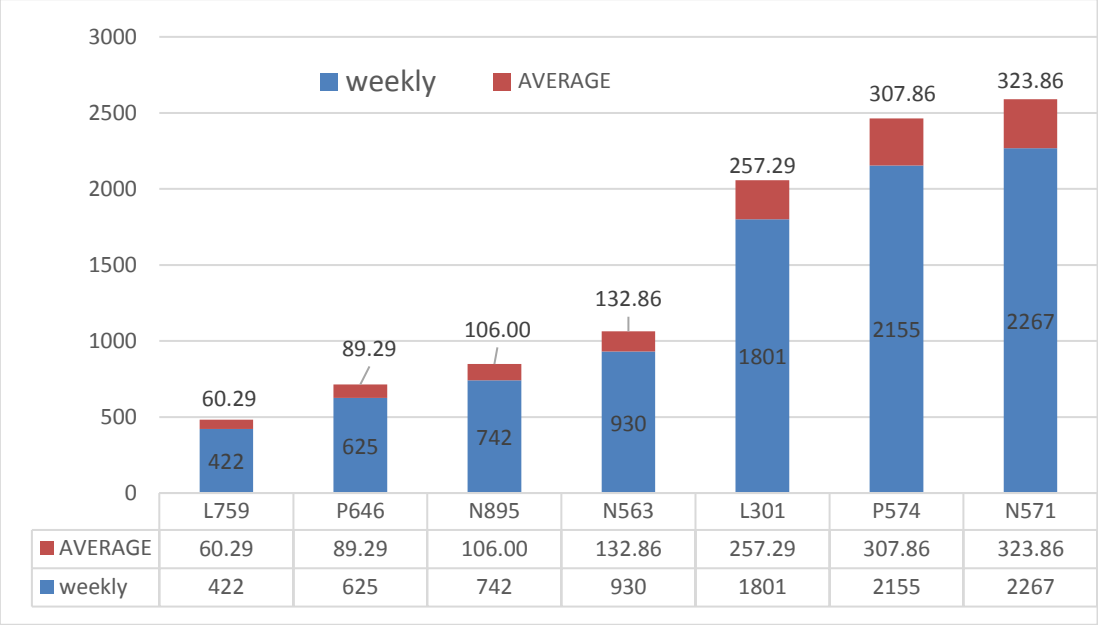
2.3 The Second Meeting of the Joint Coordination Meeting of the ICAO Reduced Vertical Separation Minimum (RVSM) Implementation Task Forces of the Middle East and Asia Regions (JCM-RVSM MID/ASIA/2) for implementation of RVSM in the Middle East Region and in the Asia Region for the Bay of Bengal and beyond was held in 2003. The meeting agreed that implementation of RVSM in the Middle-East Region would be in an RNP 5 environment and interface with the Asia and Africa Regions in an RNP 10 environment.

2.4 The flight level allocation scheme for the RVSM band FL 290 to FL 410 inclusive was designed with in-built separation of crossing tracks, and for weather deviations over the Bay of Bengal, which were significant during cyclonic activity in the monsoon season. The meeting reviewed the flight level allocation scheme and IATA proposed some changes. The meeting also agreed, to meet flight level requirements for the domestic traffic flow over continental India, international overflights (over continental airspace) could be subjected to flight level changes by the appropriate Indian ACCs.

2.5 ICAO APAC ANP VOL II identifies the traffic flow as Category S airspace, however, there exists a major Gap in Surveillance & Communication Coverage over Bay of Bengal. Considering the non-availability of technology of ground-based CNS/ATM infrastructure, ANSPs in the region implemented ADS-C/CPDLC facility for providing ATS over Oceanic Airspace. However, the low

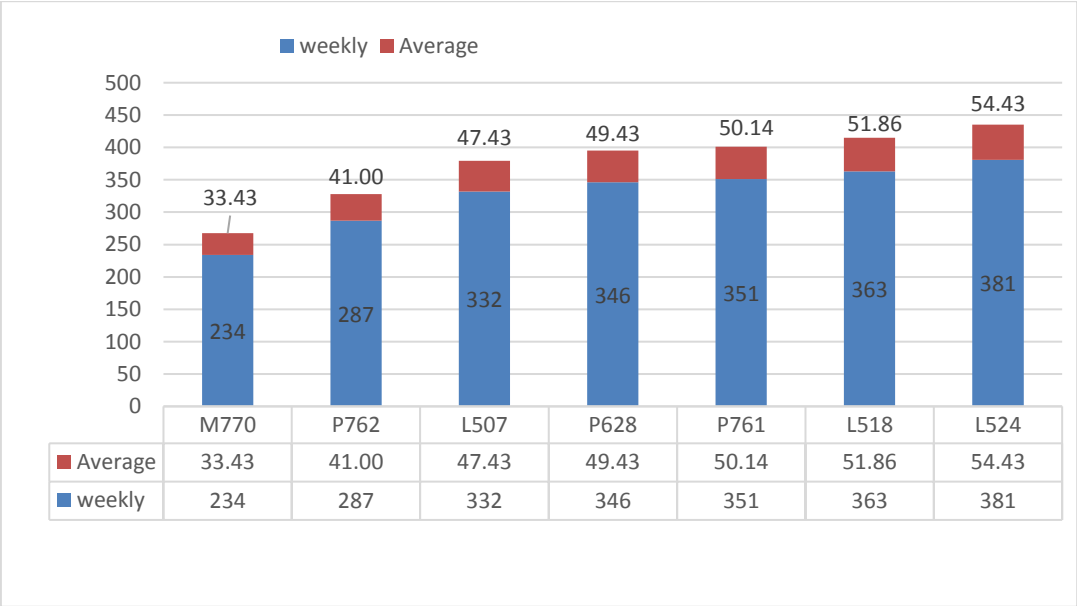
level of equipage and non-availability of mandates have reduced the effectiveness of ADS-C/CPDLC in enhancing capacity.

2.6 Current status of traffic flows (August 2019):



	L759	P646	N895	N563	L301	P574	N571
AVERAGE	60.29	89.29	106.00	132.86	257.29	307.86	323.86
weekly	422	625	742	930	1801	2155	2267

Chart 1: BOB Routes with Daily Average of 60 or More Flights



	M770	P762	L507	P628	P761	L518	L524
Average	33.43	41.00	47.43	49.43	50.14	51.86	54.43
weekly	234	287	332	346	351	363	381

Chart 2: BOB Routes with a Daily Average of 30 to 60 Flights

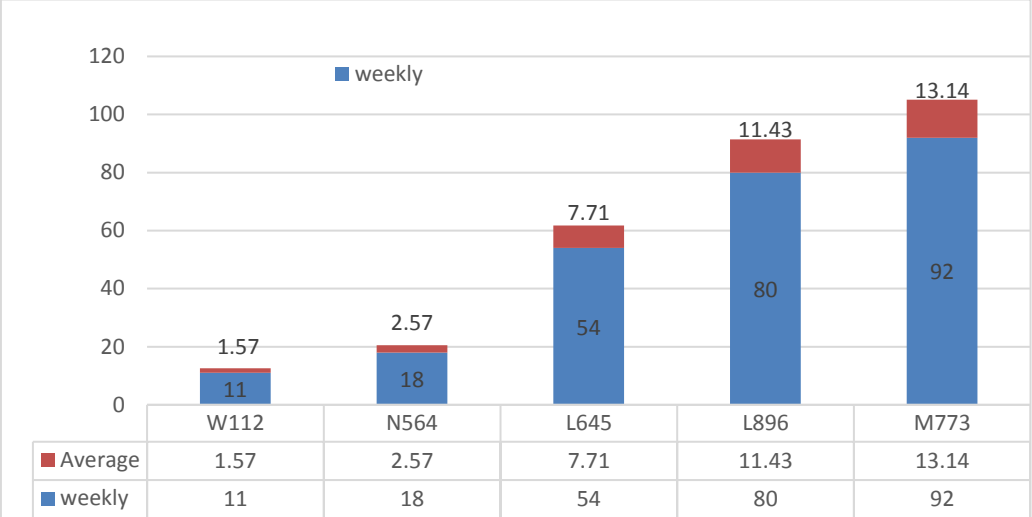
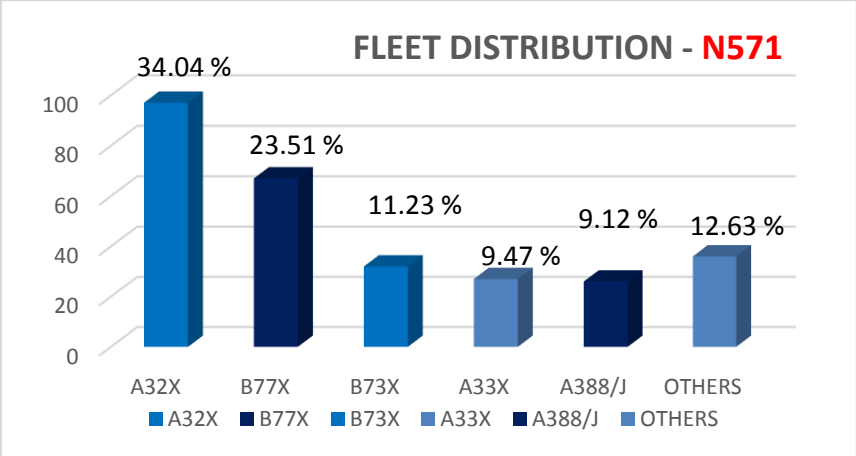
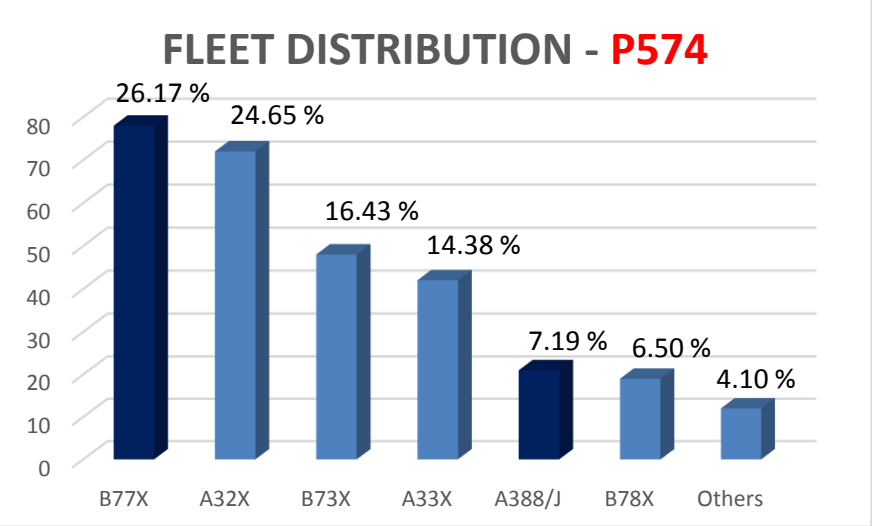
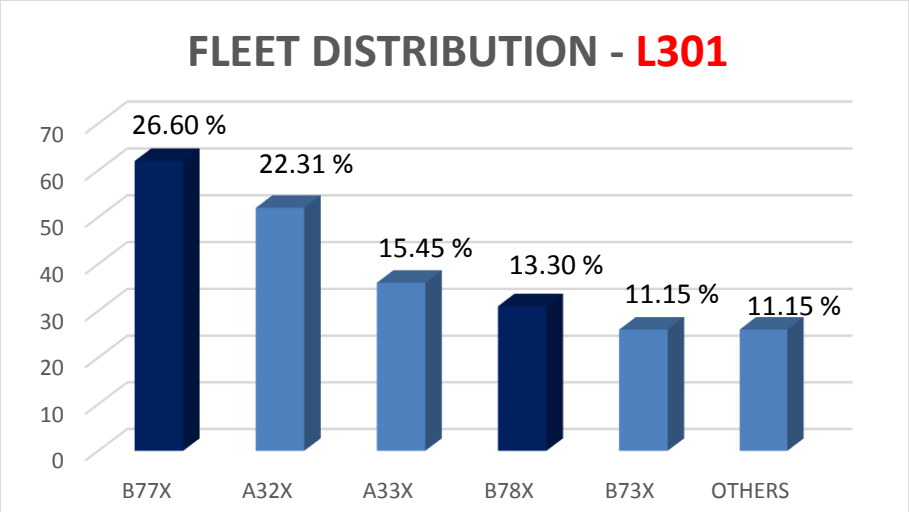


Chart 3: BOB Routes with a Daily Average of Less Than 15 Flights

2.7 Fleet Distribution:







2.8 Fleet equipage survey based on flight plan data:

S. No.	FIR	Total Number of Flights	RNP 2	RNP 4	ADS-B		
					FPL item 10 - B1/V1/U1		
					B1	V1	U1
1	CHENNAI	15989	4471	4593	10778	161	8
		%	**27.96**	**28.72**	**67.4**	**1**	**0.05**
2	DELHI	13274	3288	3380	7794	82	16
		%	**24.77**	**25.46**	**58.71**	**0.61**	**0.12**
3	KOLKATA	11690	6063	4515	7919	76	43
		%	**51.86**	**38.62**	**67.74**	**0.65**	**0.36**
4	MUMBAI	14222	4076	3330	9822	241	3
		%	**28.65**	**23.41**	**69.06**	**1.69**	**0.02**

S. No.	FIR	Total Number of Flights	ADS-C/CPDLC							
			FPL item 10 - J1/J2/J3/J4/J5/J6 - D1/G1							
			J1	J2	J3	J4	J5	J6	D1	G1
1	CHENNAI	15989	959	590	2237	1920	3116	205	3446	324
		%	**5.99**	**3.69**	**13.99**	**12**	**19.48**	**1.28**	**21.55**	**2.02**
2	DELHI	13274	854	595	1559	1897	2812	253	2871	203
		%	**6.43**	**4.48**	**11.74**	**14.29**	**21.18**	**1.9**	**21.62**	**1.52**
3	KOLKATA	11690	1109	1100	2479	2646	3876	339	3896	344
		%	**9.48**	**9.4**	**21.2**	**22.63**	**33.15**	**2.89**	**33.32**	**2.94**
4	MUMBAI	14222	1438	752	2732	2352	3868	212	4211	398
		%	**10.11**	**5.28**	**19.2**	**16.53**	**27.19**	**1.49**	**29.6**	**2.79**

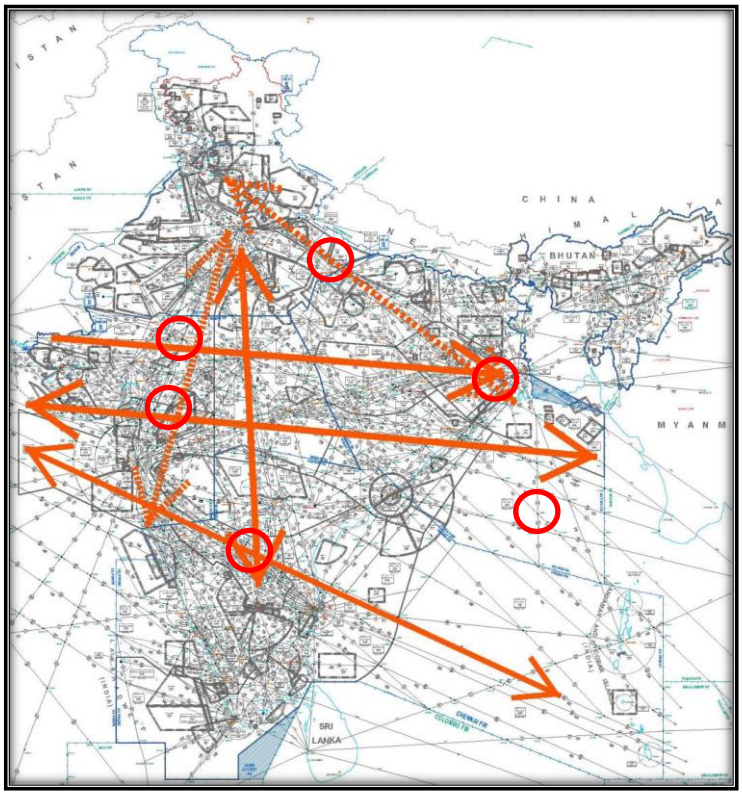
2.9 Fleet Equipage Survey (AAI & IATA):

S. No.	Airline	No. of Aircraft	RNAV 1	RNAV 2	RNAV 5	RNP 1	RNP 2	RNP 4
1	China Southern	655	655	655	655	655	NA	655
2	Lufthansa*	109	109	109	109	109	109	109
3	Emirates	268	268	268	268	268	268	268
4	ETIHAD	122	122	122	122	122	122	122
5	Scoot Air	48	48	48	48	48	48	48
6	Singapore Airlines	135	135	135	135	-	135	135
7	SILK AIR	34	34	34	34	34	34	34
8	Sri Lankan	27	27	27	27	27	27	27
9	CATHAY PACIFIC	206	206	206	206	206	-	206
10	CHINA EASTERN	470	470	470	470	470	-	470
11	MALAYSIA AIRLINES	84	84	84	84	84	84	65
12	Thai Airways	82	82	82	82	82	-	82
13	AIR Asia Malaysia	97	97	97	97	97	97	97
14	Thai Asia	62	62	62	62	62	62	62
15	Go Air	49	49	49	49	49	49	-
16	Indigo	227	227	227	227	211	211	-
17	Vistara	28	28	28	28	23	28	-
18	Blue Dart	6	6	6	6	2	2	-
19	Air Asia India	21	21	21	21	21	21	-
20	Air India	172	172	172	172	172	172	172
21	Spice jet	97	97	97	67	97	97	-
22	Kuwait Airways	25	25	25	25	25	-	-

** data from Lufthansa is of Capability only*

2.10 After 2002, many changes and upgradations to airspace were progressively made in ICAO Annexes and Documents and major thrust was given for ADS-C/CPDLC implementation by ANSPs and PBN. However, **no changes to separation standards** were made for Oceanic airspace till 2016. It is also noted that in compliance with the Amendment 7 to Doc 4444 in 2016 and APANPIRG conclusion 27/9 on "APAC Region PBCS Transition Strategy" India suspended application of 30NM longitudinal separation that was being applied between RNP 4 equipped aircraft in BOB airspace.

2.11 Major traffic flows over Indian continental airspace:



3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) discuss any relevant matters as appropriate.

……