International Civil Aviation Organization

The First Meeting of the South Asia, Indian Ocean and Southeast Asia ATM Coordination Group (SAIOSEACG/1)

Video Teleconference, 28 March – 01 April 2022

Agenda Item 8: ANSP coordination and Civil/Military Cooperation

BENEFITS OF DIRECT ROUTING IN KOLKATA FIR

(Presented by Airports Authority of India)

SUMMARY

This paper presents benefits of provision of direct routing in Kolkata FIR in terms of fuel, money and carbon reduction which can be of importance in revival of aviation sector after the pandemic.

1. INTRODUCTION

1.1 The considerable growth of traffic in the last decade had prompted India to increase surveilled airspace by installing RADARs and ADS-B ground stations at various locations and equipped major ATC Centers with state-of-the-art ATM Automation Systems so as to increase airspace capacity, safety and efficiency as well as providing direct routing, thus saving fuel and reduce carbon emission.

1.2 However, the outbreak of the COVID-19 pandemic has been a major setback for aviation in general and airlines in particular. This economic setback has demanded actions by all agencies to reduce operational costs for airlines. India has taken initiative to establish many conditional routes under FUA, which contribute to reduction of operational cost. However, the fully surveilled airspace and VHF coverage have helped in providing additional direct routings through controller initiative. This paper presents such an initiative within Kolkata FIR.

2. DISCUSSION

2.1 The following factors generate confidence in controllers to provide direct routing:

a) Surveillance Network: Kolkata FIR is served by 11 RADARS and 11 ADS-B sensors which provide redundant surveillance coverage throughout the continental and parts of oceanic airspace.

b) VHF network: Kolkata FIR has one of the largest IP based VHF network which provides VHF coverage throughout continental and parts of oceanic airspace.

c) ATM Automation System: Kolkata ATCC has a modern ATM Automation System with ADS-C/CPDLC, safety nets and other features.

d) FUA: The effective coordination between civil and military, and the AMC managed airspace makes military airspace available for civil use.

2.2 Major direct routings from 1 January to 31 January 2022 were considered for this paper. Within the mentioned period the traffic volume has reasonably increased. Despite many CDR routes established in the preceding year, which are activated through AUP and available most of the days for a certain period and level, but still there are scope to give direct routing in dynamic coordination with

IAF units /other sectors considering the traffic conflict. The direct routings accounted in this paper are taken in a conservative manner. The actual total would be higher than the samples considered here.

2.3 The following table depicts distance saved by major direct routings in Kolkata FIR.

DEP-DEST	SECTOR	DCT DISTANCE (NM)	FPL DISTANCE (NM)	NM SAVED /ACFT	NO. OF ACFT	NM SAVED BY DCT
VEBD-VOMM	KHR-LEGOS	240	248	8	4	32
	KHR-SURUP	313	364	51	6	306
VEGT-VOMM	CEA-KAKID	146	150	4	56	224
	AGODA-SURUP	259	280	21	31	651
VEPT-VOMM	GGC-ENTAP-XOPOX	500	585	85	26	2210
VERC-VOMM	DADSO-XOPOX	374	444	70	30	2100
VH-VG-ZZ-VOMM	SUMAG-LEGOS	74	93	19	76	1444
VOMM-VEBD	BIXON-KHR	344	379	35	2	70
	LEGOS-KHR	240	248	8	8	64
VOMM-VEGT	BUMRO-CEA	149	153	4	86	344
VOMM-VEPT	VVZ-ENTAP-GGC	425	514	89	26	2314
VOMM-VERC	VVZ-DADSO	313	380	67	32	2144
VOMM-VH-VG-ZZ	LEGOS-SUMAG	74	93	19	109	2071
VEBD-VOHY	KHR-MEPIP	585	678	93	9	837
	ENTAP-MEPIP	268	283	15	11	165
VEGT-VOHY	AGODA-NOLOV	518	567	49	8	392
	CEA-KAKID	146	150	4	14	56
VEPT-VOHY	GGC-ENTAP-MEPIP	447	500	53	29	1537
VERC-VOHY	DADSO-MEPIP	339	356	17	29	493
VG&VH-VOHS	LEGOS-SUMAG	74	93	19	17	323
VOHS-VEBD	MEPIP-KHR	585	639	54	16	864
	MEPIP-ENTAP	268	283	15	16	240
VOHS-VEGT	KAKID-CEA	146	150	4	16	64
	NOLOV-AGODA	518	567	49	14	686
VOHS-VEPT	MEPIP-ENTAP-GGC	447	500	53	47	2491
VOHS-VERC	MEPIP-DADSO	339	356	17	33	561
VOHS-VH-VG-ZZ	LEGOS-SUMAG	74	93	19	06	114
VEBD-VOBL	KHR-LEGOS	240	248	8	36	288
	KHR-BITEM	590	682	92	41	3772
VEGT-VOBL	CEA-KAKID	146	150	4	61	244
	KAKID-BITEM	346	349	3	53	159
VEPT-VOBL	GGC-ENTAP-BITEM	483	592	109	107	11663
VERC-VOBL	DADSO-BITEM	362	451	89	73	6497
VEAT-VOBL	NOKAT-LEGOS	84	93	9	07	63
	KAKID-BITEM	346	349	3	07	21
VHXX-VOBL	SUMAG-LEGOS	74	93	19	23	437
VOBL-VEBD	LEGOS-KHR	240	248	8	34	272

	VVZ-KHR	532	611	79	41	3239
VOBL-VEGT	KAKID-CEA	74	93	19	87	1653
	VVZ-AGODA	498	527	29	26	754
VOBL-VEPT	VVZ-ENTAP-GGC	483	521	38	120	4560
VOBL-VERC	VVZ-DADSO	313	380	67	73	4891
VOBL-VEAT	LEGOS-NOKAT	84	93	9	12	108
VOBL-VH-VG-ZZ	LEGOS-SUMAG	74	93	19	49	931
WXXX-VNKT	BUBKO-MONDA	389	409	20	84	1680
VNKT-WXXX	SALOR-BUBKO	376	393	17	83	1411
VECC-VOMM	CEA-KAKID	146	150	4	215	860
VECC-VOBL	CEA-KAKID	146	150	4	210	840
	KAKID-BITEM	346	349	3	211	633
VECC-VOHS	CEA-KAKID	146	150	4	217	868
VOMM-VEBN	XOPOX-VVZ-LAPAN-BBN	536	583	47	21	987
VEBN-VOMM	BBN-LAPAN-VVZ-XOPOX	536	583	47	21	987
AIRSPACE CLOSURE=4 DAYS : ABOUT 20% AIRCRAFT TO VOxx ARE REROUTED VIA JJS						
VECC-VOMM-HS-BL	JJS-VVZ	418	463	45	56	2520
			TOTAL DISTANCE (NM) SAVED=			**69628**

2.4 The majority of aircraft operating on these routes are of A320 and B738 family. Considering 1000 NM travel distance, the A320 and B738 family aircraft consumes an average of 3 Kg/Km or 5.5Kg/NM (Source Internet) as follows:

Total fuel saved = 382954 Kg or 478693 liters

Total Money saved = 189,562 USD (1 Kilo liter Jet A1 costs $396 on average)

Total Carbon reduction = 1206305.1 Kg (3.15 Kg CO2 / 1Kg of fuel burn)

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

e) note the information contained in this paper; and

f) discuss any relevant matters as appropriate.

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