

Bay of Bengal - Arabian Sea - Indian Ocean (BOBASIO)

7th ATS Coordination Meeting,

18th - 19th September 2017, New Delhi, India

1 HISTORY OF THE MEETING

Introduction

The Seventh ATS Coordination Meeting of the Bay of Bengal Arabian Sea and Indian Ocean (BOBASIO) Region was held at New Delhi, India on 18th and 19th September 2017. The meeting was combined with Fifth meeting of Bangladesh, India, Myanmar, Thailand ATM Coordination Group (BIMT/5 on 19th September), Twelfth meeting of Arabian Sea Indian Ocean ATS coordination Group and Eighth meeting of Indian Ocean Strategic Partnership to Reduce Emissions (ASIOACG/12 & INSPIRE/8 on 20th and 21st September 2017)

Officers, Secretariat and Participants

The first session of the meeting was chaired by Ms Esmee Samson, General Manager (Air Navigation Services, Seychelles Civil Aviation Authority (SCAA) and other sessions were chaired by Mr Mukesh Chand Dangi, Executive Director (Air Space Management), Airports Authority of India (AAI). Mr. A j a y B h a s k a r J o s h i, Joint General Manager (ATM), Airports Authority of India acted as the Secretary to the meeting.

The meeting was attended by XX delegates from Bangladesh, Nepal, Myanmar, Seychelles (SCAA), Mauritius, Thailand (Aerothai), Singapore (CAAS), IATA, India a n d A A I . A list of delegates is attached in Annexure -1.

Documentation and Working Language

The meeting was conducted and the documentation prepared in English. Seventeen (17) Working Papers (WPs) and three (03) Information Papers (IPs) and three power point presentations were considered by the meeting. The papers were made available by AAI on the website, aaians.org. A list of the papers presented in the meeting is provided in Annexure-2

The plan for the meeting

The meeting was divided into five sessions over a period of One and a half day. The Order of Business of the meeting is given in Annexure-3.

Inauguration of the meeting.

An inaugural session was held on 18th September 2017 at 0930 Hrs. Dr Guruprasad Mohapatra, Chairman, Airports Authority of India inaugurated the meetings. . Mr A K Dutta, Board Member (Air Navigation Services), AAI was also present in the inaugural session. At the beginning of the session, Mr Mukesh Chand Dangi, ED ASM, AAI gave information about all the four groups, their background, purpose and achievements. Mr A K Dutta welcomed all the delegates to the meetings and expressed pleasure that first ever combined meetings of all four groups are being hosted by AAI. He expressed hope that the combined meetings will generate synergy that would help in improving the safety and efficiency of traffic flows. He drew attention of the delegates towards spike in LHDs and emergence of hotspots in airspace and urged them to work towards reducing the

LHDs and on their mitigation strategies that would help to achieve the target levels of safety for the air space. He also expressed satisfaction about participation of two safety agencies MAAR and BOBASMA and their work towards safety analysis. Dr Guruprasad Mohapatra, Chairman AAI in his inaugural address mentioned the good work done by all the groups and the worldwide recognition the groups had received. He said that with the success, the expectations of the aviation community from the groups have increased and he expressed confidence that with the collaborative efforts BOBASIO, BIMT, ASIOACG & INSPIRE will scale new heights in their field of work. Dr Mohapatra, also encouraged delegates to find some time to experience the sights and sounds of historical city of Delhi and its environs.

2 REPORT OF THE MEETING

AGENDA ITEM NO. 1 – ADOPTION OF AGENDA

WP/01: Adoption of Agenda

The Secretary presented the working paper and informed the meeting that the proposed agenda had been circulated along with the invitation. There were no further suggestions towards the agenda items and the proposed agenda was accepted as the Agenda for the BOBASIO/7 meeting.

AGENDA ITEM NO. 2: REVIEW OF PROGRESS ON ACTION ITEMS OF BOBASIO/5.

WP/02: Review of actions items from BOBASIO/5

The secretary presented the working paper. It was informed to the meeting that though in BOBASIO/6 it had been decided that States/ANSPs/Organizations will provide updates to the secretariat via email, none has been received. The meeting, at the conclusion, discussed action items from BOBASIO/7. The secretariat informed the meeting that the table will be updated based on discussions and papers presented to BOBASIO/7 and the updated table along with action items arising out of BOBASIO/7 will be attached to the report of BOBASIO/7. The States/ANSPs/Organizations were requested to provide update to the action items via email on email id bobasiosecretariat@aai.aero.

BOBASIO/7 CONCLUSION 1: BOBASIO States/ANSPs/Organizations to update the secretariat whenever there is some progress in resolving the action items pertaining to them,

AGENDA ITEM NO. 3: OUTCOME OF RELATED MEETINGS IN THE REGION AND ACTION ITEMS FOR BOBASIO STATES

WP/03: Outcome of related meetings

The paper was presented by Secretariat.

The paper informed the meeting in detail about ASIOACG/11 INSPIRE/7 meeting held in November 2016 at Magaliesberg, South Africa. The paper also mentioned about AAMA-SCM meetings in January 2017 at

Mumbai, India and then in May 2017 at ICAO MID Office, Cairo, Egypt and that the details of the meetings will be presented via WP in AIOSACG/12 INSPIRE/8 meetings being held on 20th and 21st September 2017.

The combined eleventh meeting of Arabian Sea Indian Ocean Air Traffic Services Coordination Group (ASIOACG) and seventh meeting of Indian Ocean Strategic Partnership to Reduce Emissions were hosted by ATNS, SA at Magaliesberg from 16th to 18th November 2016. The meeting was attended by representatives from ICAO Africa Office, participants from ANSPs of South Africa (ATNS), ASECNA – Madagascar, ASECNA Headquarters, India, Kenya, Maldives, Mauritius, and Seychelles. The member airlines Air Madagascar, Air Mauritius, Kenya Airways, South African Airways and IATA also attended the meeting, The paper presented a brief summary of outcomes of the meeting which included decision to implement 50 Nm longitudinal separation and to allow UPRs through half degree waypoints at Male/Mumbai FIR boundary and the decision to review FLAS with reservation of FL350 and FL340 for traffic from/to Africa instead of FL330 and FL320.

CAAS, Singapore gave a presentation about Distributed Multimodal ATFM Network. The presentation gave an overview about the different phases of the project, the tiered participation model and the achievements. The PPT explained how the network can help to supplement the existing flow restrictions like those on route M771 and A581. The presentation also emphasized the importance of harmonization of ATFM networks for harmonization of airspace and gave information about harmonization efforts of North Asia ATFM Harmonization group (NAHRAG). It was informed to the meeting that it is the view of core ANSPs in Asia- Pacific that cross-border ATFM initiatives within the region need to be aligned in their concept of operations and harmonized in their operational procedures, thus allowing for scalability and integration with other regions globally. A regional document, the Asia-Pacific Regional Framework for Collaborative ATFM, has been created by ICAO Asia-Pacific ATFM Steering Group (ATFM/SG) and thus forms a common guiding document for the work ahead. The meeting welcomed the information about Distributed Multimodal ATFM Network.

AGENDA ITEM 4: STRATEGIC ATM PLANS OF PARTICIPATING STATES

WP/04: Need of Establishment of Two additional entry points on the Indo-Nepal boundary.

Nepal presented a WP which proposed establishment of two additional entry points at Indo Nepal boundary.

The first waypoint proposed is NEPALGUNJ that will help in reducing the traffic congestion over SIMARA Area and will support for the smooth and expeditious operation of future Gautam Buddha and Pokhara Regional International Airports, and Second International Airport, Nijgadh. The paper stated that the NEPALGUNJ waypoint will help in saving the flight distance by about 25 NM for the International Traffic from Delhi to Paro (Bhutan) overflying Kathmandu; 185 NM for the International Traffic from Delhi and from West to Gautam Buddha Regional International Airport (under construction); and 150 NM for the International Traffic from Delhi and from West to Pokhara Regional International Airport (under construction).

The paper also proposed JANAKPUR Entry Point to reduce the traffic congestion over ROMEO. JANAKPUR will support for the smooth and expeditious operation of planned Second International Airport (SIA), Nijgadh which is about 34 nm south of Kathmandu and will provide better entry option for SIA, rather than SIMARA or ROMEO, as it allows relatively wider airspace for descend. The entry point will serve inbound route to existing and planned International Airports, segregating outbound traffic exiting via BIRATNAGAR on R344. The paper expressed satisfaction over progress made by India in FUA implementation and hoped FUA will support this initiative.

The meeting welcomed the proposal. AAI agreed in principle to the creation of entry points but said would require more analysis before implementation. In the discussion that followed, IATA suggested some more improvements in departure route of Delhi/Kathmandu flights. It was agreed that AAI will host a workshop to discuss route structure between India and Nepal and also to conduct safety assessments of agreed initiatives.

BOBASIO/7 CONCLUSION 2: AAI and CAAN to work towards establishment of two new entry points, i.e NEPALGANJ and JANAKPUR.

BOBASIO/7 CONCLUSION 3: AAI to host a workshop for discussing traffic flows between India and Nepal and carry out safety assessment.

IP/05: PBN Implementation in Nepal

The paper presented by Civil Aviation Authority of Nepal, explained progress made by Nepal in PBN initiatives. The paper presented information about terminal, approach and enroute PBN initiatives over short term (2010-12), medium term (2013-16) and long-term phases (2017-25). In the Long-term plan, L626 is planned to be connected to proposed Himalayan-2 Route between Kathmandu and Kunming, and will be proposed to make bidirectional in consultation with authorities of adjacent FIRs. This route will connect West and Far East which once agreed and implemented will significantly reduce the flying time, track miles and CO2 emissions.

CAAN in-house capability has been utilized in developing all the domestic RNAV SIDs, STARs and APCHs. CAAN is educating Air Traffic Controllers regarding PBN concept, its applications and benefits and PBN flight procedures that have been introduced. The initiatives would contribute towards the safer, economically viable, cost-effective and environment friendly air transportation system.

BOBASIO/7 CONCLUSION 4: BOBASIO/7 agreed to study further for connecting L626 with proposed Himalayan-2 route.

PT03 Myanmar's CNS/ATM development master plan.

The presentation made by Myanmar informed the meeting about the plan being developed by DCA, Myanmar with assistance by JICA. The name of the Project is "Capacity Development on Communication, Navigation, Surveillance/ Air Traffic JICA—Management (CNS/ATM) Systems".

The purpose of CNS/ATM Master Plan is to produce a plan to smoothly transfer from existing CNS/ATM systems based on ground systems to new CNS/ATM systems based on new technologies. This Plan is the same as Phased Long-term Development Plan and consists of Short-term Development Plan which lasts until 2018, Medium-term Development Plan which is from 2019 to 2023, Long-term Development Plan which is from 2024 to 2028.

The project has already started delivering some outputs like enhanced capability of DCA to produce CNS/ATM Development Master, enhanced capability to introduce and implement PBN flight procedures is enhanced, a system to analyze problems of ADS-C/ CPDLC being developed for DCA, improvement in ATM and CNS Training Courses. The Master Plan for new CNS/ATM Systems has been prepared in accordance with the ICAO's GANP, ASBUs, Roadmap for the transition from AIS to AIM, Asia/Pacific Seamless ATM Plan, plans of advanced countries and situation of neighboring countries. Short-term Development Plan will target to end by FY2018 and DCA will implement new CNS/ATM Systems based on this Plan from now. The meeting appreciated the efforts of DCA, Myanmar.

AGENDA ITEM 5: AIRSPACE SAFETY

WP/05 Action plan to update ICARD database and resolution of duplicated 5LNCs.

The WP presented by AAI, brought to the notice of meeting the state letter AN 11/45.5-17/101 dated 11 August 2017 issued by ICAO APAC office on the subject. ICAO has identified a number of issues related to the five-letter name-code (5LNC) uniqueness, continuing to create difficulties causing potential safety-related issues, which include:

- a) Significant number of duplicated codes,
- b) Similar sounding codes in close proximity or on the same flight plan route,
- c) Differences between 5LNC data registered in ICARD and published in national Aeronautical Information Publications (AIPs).

ICAO urges States to implement the five-letter name-code (5LNC) Duplicate Resolution Rules and submit updated information on 5LNCs on priority basis.

The WP informed the meeting that as ANSP of India, AAI has initiated action to correct anomalies mentioned above within its airspace. The WP also proposed an action plan to resolve anomalies regarding waypoints on FIR boundaries with neighbouring states. A total number of 89 waypoints have been established between India and the neighbouring FIR States, out of which 9 5LNCs have not been registered in ICARD, 13 5LNCs have been duplicated in other regions, and most of the 5LNCs need synchronization between AIPs of the concerned States and/or ICARD.

The WP proposed the following action plan to update ICARD in respect of common FIR waypoints:

- a) States may nominate a Point-Of-Contact (POC) who will be vested with authority to coordinate directly with the POC of other affected States in matters related to ICARD updating.
- b) Assess coordinates of FIR boundary waypoints which are found to be different in the AIP of the affected States and agree on a common set of coordinates.
- c) Approach ICAO RO for correction of waypoint coordinates in ICARD, where required.
- d) Agree on common AIRAC date(s) for publication of the revised waypoint 5LNC and/or coordinates

It was proposed to complete the synchronization process before 30 June 2018. The meeting agreed to the proposed action plan. It was agreed that ANSPs will nominate POC by 15th October 2017 and complete the synchronization process by 30th June 2018. From AAI Mr D Dilip kumar (Email ID ddilipkumar@aai.aero) was nominated as POC and states were to inform POC to him via email.

BOBASIO/7 CONCLUSION 5: India's Neighbouring states to nominate POC for resolving 5LNC issues

WP/06: Analysis of LHDs in BOBASIO airspace.

The WP presented by Bay of Bengal Arabian Sea Indian Ocean Safety Monitoring Agency presented an analysis of the Large Height Deviation reports filed by Chennai, Delhi, Kolkata and Mumbai FIRs during the period January to June 2017. The paper also presented the initiatives taken by BOBASMA/AAI to reduce the occurrence of LHDs due to errors in coordination between ATC Units. BOBASMA being the nodal point for collection and submission of LHD reports from the Indian ACCs/OCCs had collected and submitted 176 reports of Large Height Deviation that occurred during the period January to June 2017. The reports were as follows,

No	Area Control Centre	Number of LHD Reports	LHD Categories	
			B	E
1	Chennai	47		47
2	Delhi	1	1	
3	Kolkata	20		20
4	Mumbai	108		108
Total		176	1	175

The paper provided analysis of errors with time duration, interfaces at which the LHDs have been reported and the categories of error. The WP also presented the efforts being made by BOBASMA/AAI towards reducing the LHD occurrences. These efforts include,

A) Hosting and participating in Special Coordination meetings. AAMA-SCM at Mumbai and Cairo, MIDPIRG ATM SG meeting at ICAO Cairo and IIM-SCM at Chennai.

B) Engaging AIDC capable centers like Male, Muscat, Kuala Lumpur for AIDC implementation

C) Forming LHD taskforce at Mumbai to coordinate with similar taskforce at Muscat in resolving LHDs.

The future plans include,

A) Improving surveillance over oceanic airspace through ADS-B at Agatti and Campbell Islands

B) Provide surveillance over the remote oceanic airspace of Mumbai, Chennai and Kolkata FIRs using space based ADS-B surveillance technology

WP/07: 2017 Preliminary BOBASIO airspace risk analysis.

The paper by Monitoring Agency for Asia Region (MAAR) presented a preliminary airspace risk analysis for BOBASIO, which covers the period of January – June 2017. The paper stated that the accumulated risk over the period of 6 months exceeds the annual target level of safety. The data on risk was tabulated as below

BOBASIO (JAN - JUN 2017)			
Source of Risk	2016 (Jan-Jun)	2017 (Jan-Jun)	Annual Target Level of Safety (TLS)
Technical Risk	0.87x10	0.87x10	2.5x10 ⁻⁹
Operational Risk	9.94x10	14.73x10	

Total Risk	10.81x10	15.60x10	5x10
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MAAR presented the methodology of analysis and the results of analysis in details. The western boundary of Mumbai FIR remained a hotspot in the region, contributing 79% of operational risk in the region. Risk near the TCPs along Kolkata-Chennai and Yangon-Kuala Lumpur FIRs, earlier identified as a hotspot, significantly decreased when compared to the same period of 2016.

Due to continuing problems of LHDs, States/ANSPs are encouraged to conduct further investigation, provide further LHD analysis, identify and implement mitigations. Since BOBASIO has undertaken a responsibility of a scrutiny group of the region, the MAAR proposed that BOBASIO adopted a conclusion that BOBASIO States inform the MAAR, of analysis of LHDs and action taken to reduce risk. The paper had the two forms as attachment termed Form A for analysis and Form B for LHD preventive/mitigation measures. The WP proposed that MAAR will compile the information and report to appropriate bodies including BOBASIO and Regional Airspace Safety Monitoring Advisory Group (RASMAG). The MAAR also informed the meeting that the RASMAG typically meets before BOBASIO, which is the reason why the MAAR offers to compile the information so that it can be reported to the RASMAG in a timely manner. The meeting discussed the proposal of reporting to MAAR through Form A and B. Some participants were of the view that such reporting should be done by states directly to RASMAG. The MAAR confirmed that States can certainly do so by attending and presenting a WP to the RASMAG. As no conclusion could be reached it was decided States should consider the MAAR's proposal and inform the MAAR of their decision by December 2017. Regardless of the meetings' conclusion, States who agree to the proposal can send the analysis and mitigation/prevention reports to MAAR.

WP/08: Management of airspace during airspace closures over Bay of Bengal.

The WP presented by AAI gave information about the procedures being followed by Kolkata ATC to manage airspace during closures over Bay of Bengal. It included the procedures for planning, promulgation and then for dynamic airspace management. It was informed that even with closure Kolkata ATC provides shortest possible routings with the help of RADAR. This has sometimes resulted in savings of 189/167 NMs on some of the routes. The meeting appreciated the information provided by the paper.

WP/09: Creation of BOBASIO airspace safety hazard data library.

The WP presented by AAI proposed creation of an e-library of data regarding safety hazards in BOBASIO airspace. The paper brought to the notice that Global Aviation Safety Program (GASP) objectives call for States to put in place robust and sustainable safety oversight systems and to progressively evolve them into more sophisticated means of managing safety. These objectives align with ICAO requirements for the implementation of State Safety Programmes (SSP) by States and Safety Management Systems (SMS) by service providers. BOBASIO is evolving as an effective informal group that is harmonizing number of activities commonly affecting the involved states. Hence it was proposed to BOBASIO by AAI to consider utilization of common risk assessment database among BOBASIO states to implement predictive risk management and to consider to

create a BOBASIO Safety Hazard Identification Library (BSHIL) that would enable Safety Managers to effectively identify Safety Hazards for various changes that will be introduced by BOBASIO states in the quest of enhancing airspace safety both individually and collectively. The Safety Risk information, accumulated through their respective safety management processes will benefit all stakeholders and reducing the need for “reinventing the wheel”. The paper proposed to the BOBASIO/7 to consider establishment of a voluntary Task Force for realization of the project. The meeting accepted the proposal and it was agreed that states will forward POC for the purpose by 15th October 2017.

BOBASIO/7 CONCLUSION 6: BOBASIO states would create a BOBASIO Safety Hazard Identification Library (BSHIL)

AGENDA ITEM 06: ATM COORDINATION (AIRSPACE RESTRUCTURING, AIDC IMPLEMENTATION, AIS, ATM CONTINGENCY PLAN- LEVEL 1 AND LEVEL 2 AND SAR AGREEMENTS)

WP/10: Enhancing enroute capacity over Bay of Bengal

The paper by CAAS, presented before the meeting the proposal to explore the enhancement to capacity over the Bay of Bengal area to cope with the increasing demand of flights operating through the region. One of the key enablers to enhance safety and capacity is through the implementation of surveillance control services. The paper proposed that with deployment of ADS-B and surveillance data sharing at least two routes, i.e. L507 and P646 can be provided with surveillance services for entire route length and would enable enhanced capacity through reduced separations increasing safety at the same time. The same possibility is for the airspace at intersection of routes N571 and N877. It was proposed that the airspace capacity can be enhanced with implementation of RNP4 routes in the airspace. The paper also put forward suggestion to look at further optimizing the available flight levels instead of only applying the no pre-departure coordination (NPDC) levels agreed for the routes over the Bay of Bengal. Thus augmented surveillance control services throughout the whole route of flight, the reduction of longitudinal and lateral separation, increase in number of ATS routes and usable flight levels will enhance safety and efficiency for ATC and flight operations. The meeting welcomed the proposals and in the discussions that followed deployment of ADS-B in oceanic airspace and ADS-B data sharing between states were identified as key areas. Work ongoing in this area should bring desired results.

WP/11: ADS-B implementation/operationalization in India

This paper by AAI presented the status update about ADS-B implementation in India.

The paper presented by India informed the meeting about the implementation of ADS-B sensors in India. It provided various technical information which are required for sharing the ADS-B data with adjacent states that will help neighboring states to determine technical feasibility of ADS-B data integration with their Automation systems.

The paper informed the meeting that 21 ADS-B sensors and ground receivers installed in India out of which 20 are in mainland and one in Port Blair Island in Bay of Bengal. India is also contemplating additional ground receivers in 10 more locations which include Agatti Island in Arabian Sea and Campbell bay in the Bay of Bengal near the FIR boundaries of Chennai, Jakarta and Kuala Lumpur. It was informed that India already has ADS-B data sharing agreement with Myanmar and both states are working towards issues being faced. India will be installing an ADS-B at the Campbell bay Naval station in the South Andaman Sea for data sharing purpose. ADS-B data from ADS-B stations at Langkawi in Malaysia and Aceh in Indonesia can be shared with India. ADS-B data sharing with Malaysia and Indonesia will help to reduce the LHDs and LLDs in the FIR boundary. Since India is committed to the timely implementation of APANPIRG & DGCA Conference conclusions, the regulator (DGCA, India) is considering the issuance of a regulatory instruction for mandating the carriage of ADS-B OUT equipage in Indian FIR. India is also contemplating to utilize the modern technology of Space based ADS-B for surveillance on its vast oceanic airspace. The paper also sought feedback from other states for ADS-B data sharing agreements. Nepal and Bangladesh indicated in-principle agreement for surveillance data sharing. India welcomed the steps and agreed to work towards data sharing. In the discussions for enhancing ADS-B coverage over Arabian Sea and ADS-B at Dwarka, on western coast of India was proposed. AAI agreed to consider the same.

BOBASIO/7 CONCLUSION 7: India, Nepal and Bangladesh to discuss and implement ADS-B data sharing.

BOBASIO/7 CONCLUSION 8: India to consider installing ADS-B sensor at Dwarka.

WP/12: Realignment of N877 from DOTEN to AGEGA

The WP by AAI proposed a realignment of ATS route N877 in BOB airspace. At present East bound aircraft on N877 create traffic conflict with aircraft on N571 over LAGOG requiring controllers to either climb or descend either of the two aircraft to provide standard separation over LAGOG. Though the number of aircraft using N877 is less they often come during peak traffic period. Rerouting such traffic via L510 would enable aircraft to get optimum flight levels. Also the aircraft would remain well within the coverage area of ADS-B ground station at Port Blair.

The meeting agreed to the proposal.

BOBASIO/7 CONCLUSION 9: BOBASIO endorsed the realignment of ATS route N877

WP/13: AIDC implementation in India with adjacent ATS units.

AAI presented the WP that summarized the present status of AIDC implementation in India & with adjacent ATSUs in the sub Region. The annexure to the paper gave exhaustive information about AIDC implementation considerations from the report of the third meeting of ATS inter-facility data communication task force meeting (APA TF/3) 26 – 28 April 2017. The status of AIDC in India is as follows,

LOCATION OF AIDC SYSTEM	ATSU 1 AIDC SYSTEM PAIR	TARGET DATE OF IMPLEMENTATION
Chennai ACC	Kualalumpur ACC	With effect from 15-May-2017, AIDC has been implemented between Chennai And Kualalumpur with ABI and EST messages without voice confirmation CDN is done with voice confirmation. TOC/AOC will be implemented later.
Chennai ACC	Male ACC	AIDC trials from 16 th October.
Chennai ACC	Yangon ACC	4Q2018 The partner yet to communicate readiness
Delhi ACC	Karachi ACC	4Q2018
Delhi ACC	Lahore ACC	4Q2018
Kolkata ACC	Dhaka ACC	4Q2018
Kolkata ACC	Yangon ACC	-
Kolkata ACC	Kathmandu ACC	-
Mumbai OCC	Karachi ACC	2018
Mumbai OCC	Male ACC	16 th October 2017
Mumbai OCC	Muscat ACC	-
Mumbai OCC	Seychelles ACC	-
Varanasi ACC	Kathmandu ACC	-

WP/14: Indian aviation search and rescue system.

The WP by AAI presented overview of the Aviation Search and Rescue System in India. The paper detailed the SAR area, SAR organization, Training Process and conduct of SAR exercises in India. The SAR Exercise Schedule until 2020 was provided to the meeting.

WP/15 SAR agreements between India and neighbouring states.

The WP presented by AAI emphasized the need for establishment of Search and Rescue agreements with the neighbouring States and the establishment of Letter of Agreement/Arrangement on Operational matters between Search and Rescue Service Providers of neighbouring State. The paper noted that perhaps due to different administrative set-ups to deal with SAR activities in the neighbouring countries for the purpose of Search & Rescue and the complexity for consolidating the procedures involving all SAR agencies may be the cause for delay in SAR Agreements. In the fourth and concluding meeting of the Asia/Pacific Regional Search and Rescue Task Force meeting held in July 2015, it was discussed that a SAR agreement can be in the form of 'Letter of Agreement' (LOA) or a Memorandum of Understanding or other acceptable term indicating a lower form of arrangement for operational matters between SAR service providers (such as RCCs and/or RSCs) or a more formal agreement for arrangements between governments concerned. The two draft templates on the Search and Rescue Agreements with neighbouring States and Letters of

Agreement for Operational Matters between SAR Service Providers were proposed through the paper.

India invited its SAR neighbours to review and take initiatives to formalize on mutually agreed basis the draft Letters of Agreement between neighbouring States and on Co-operation between RCCs/RSCs.

BOBASIO/7 CONCLUSION 10: BOBASIO/7 endorsed the proposal for two tier agreement/arrangements for Search and Rescue between neighbouring states.

WP/16: Transfer of responsibility for provision of ATS on route L759

The WP was presented by AAI. It was proposed to transfer the responsibility for provision of Air Traffic Control Service for a portion of L759 that was delegated to Kolkata ACC back to Chennai OCC for efficient Air Traffic Management within Chennai FIR.

With the availability of both VHF RCAG and ADS-B at Port Blair, Chennai can provide surveillance based separation over waypoint LADER between aircraft on same level on L759 & P762, thereby increasing the availability of economical flight levels for aircraft on P762. Thus Chennai providing Air Traffic Service to aircraft on L759 between NISUN and MIPAK would result in efficient allocation of economical flight levels to aircraft on both the routes.

The meeting endorsed the proposal.

BOBASIO/7 CONCLUSION 11: The meeting endorsed the proposal of restoring responsibility of providing ATS on route L759 to Chennai Oceanic Control Centre from Kolkata Area Control Centre.

PT03: Thailand contingency routes.

The power point presentation by Aerothai gave information about Thailand contingency routes

PT04: ATS contingency planning in Myanmar

The PowerPoint presentation gave information about contingency routes in Myanmar

Myanmar and Thailand agreed that the contingency routes are not exactly aligned. In the discussion it was opined that exact realignment is not possible and Thailand and Myanmar would hold a sideline meeting to discuss harmonization of contingency routes at the boundary.

AGENDA ITEM 07: SBAS IMPLEMENTATION IN THE REGION AND POSSIBILITIES OF ENTERING INTO MOU WITH THE CONCERNED STATES OF BOBASIO REGION.

WP/17: GAGAN application for BOBASIO region.

This paper by AAI presented the status and potential of Indian SBAS – GAGAN for providing services in aviation and non-aviation applications over the concerned state of BOBASIO region.

Presently GAGAN system consists of 15 Indian Reference Stations (INRES), 3 Indian Master Control Centers (2 primary and 1 backup), 3 Uplink stations, and 3 geostationary satellites (2 operational and 1 is under integration process). Additionally, 25 dual- frequency GPS receivers are deployed for monitoring of the Ionospheric Total Electron Content and Scintillation.

India has planned to utilize GAGAN signals for broadcasting short service messages with suitable changes in the message structure via GEO satellites. This service is named as GAGAN Message Service (GAMES) and will be used to broadcast early warning messages on the occurrence of natural disaster, calamity, danger, search & rescue, relief & humanitarian related message for the safety of life within GAGAN coverage area.

By analyzing the potential of GAGAN, Ministry of Civil Aviation in coordination with AAI in coordination with KPMG has worked out a cost benefit analysis of GAGAN utilization in Indian aviation sector. The analysis is based on data, information, assumptions and prevailing market and aviation sector conditions as of 1st January 2017.

The WP encouraged states to consider GAGAN applications / usages for RNP 0.1 and APV 1 service by BOBASIO States taking note of the India's efforts towards cost benefit analysis of GAGAN implementation for Indian aviation sector and proposed GAGAN mandate by Government of India for new aircraft being registered in India after 1st January 2019 and retrofit mandates from 2024-25.

AGENDA ITEM 09: SIDE LINE WORKING GROUP MEETINGS COMPRISING OF STATES AND ORGANISATIONS (DISCUSSION AND ADOPTION OF LOAS)

The following sideline meetings took place;

Sideline working Group -1 meeting: India (Mumbai), Seychelles.

Side-line Working Group-2 meeting between Myanmar and Thailand:

Side line Working Group-3 meeting between India and Bangladesh

Sideline Working Group-4 meeting between India and Nepal.

Side line Working Group -5 meeting between Myanmar and India (Kolkata)

The reports of the sideline meetings are appended as Annexure – 4.

AGENDA ITEM 9: ANY OTHER BUSINESS

No other business was discussed in the meeting

AGENDA ITEM 10: FUTURE MEETINGS

The conclusion for future meetings could not take place during the meeting. A decision will be taken later by consulting all stakeholders.

3. CONCLUSION.

The meeting was successful in achieving the agenda set out before it. There were eleven conclusions and nine open action items from the meeting.

The meeting concluded with thanks to host and organizers by all participants. Chairpersons thanked all the participants for their contribution to the forum.

ANNEXURE -1

List of Participants.

LIST OF PARTICIPANTS

BOBASIO7/BIMT5/ASIOACG12 & INSPIRE8

S. No	Name/Designation	Contact Details	Country/ Organization
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Annexure 2

List of Working and Information Papers

WORKING PAPERS

No:	Agenda Item	Subject	Presented By
1	1	Provisional Agenda	Secretariat
2	2	Review of progress on action items of BOBASIO/6	Secretariat
3	3	Outcome of Related Meetings in the Region	Secretariat
4	4	Need of Establishment of Two Additional Entry Points in the Indo-Nepal FIR Boundary for the efficient use of Airspace	Nepal
5	5	Action Plan to Update ICARD Database and Resolution of Duplicated 5LNCS	India
6	5	Analysis Of Large Height Deviations In BOBASIO Airspace	BOBASMA
7	5	2017 Preliminary BOBASIO Airspace Risk Analysis	MAAR
8	5	Management Of Airspace During Airspace Closures Over Bay Of Bengal	India
9	5	Creation of BOBASIO Airspace Safety Hazard Data Library	India
10	6	Enhancing Enroute Capacity Over The Bay Of Bengal Area	Singapore
11	6	ADS-B Implementation / Operationalization in India	India
12	6	Realignment of N877 from DOTEN TO AGEGA to Join L510 Within Chennai FIR	India
13	6	AIDC Implementation in India With Adjacent ATS Units in the Sub-Region and the Issues Thereof	India
14	6	Indian Aviation SAR System	India

15	6	SAR Agreements between India and Neighbouring States	India
16	6	Transfer of Responsibility for provision of ATS on Route L759	India
17	7	GAGAN Application for BOBASIO Region	India

INFORMATION PAPERS

No:	Agenda Item	Subject	Presented By
1	1	Tentative List of Papers	Secretariat
2	4	PBN Implementation in Nepal	Nepal

PRESENTATIONS

No:	Agenda Item	Subject	Presented By
1	3	Distributed Multi-Nodal ATFM Network	Singapore
2	6	Thailand Contingency Routes	Thailand
3		Myanmar's CNS ATM Development Plan	Myanmar

Annexure – 3

Order of Business

(To be uploaded)

Annexure 4

Reports on sideline meetings

Sideline working Group -1 meeting: India (Mumbai) and Seychelles.

The revised LOA was discussed between India and Seychelles and at the end of the meetings the revised LOA was signed between India and Seychelles. Amongst other discussion points, Seychelles pointed out that still FL330 and not requested FL was being assigned to Air Seychelles route. India pointed out that the flight is taking a zig-zag route and not the standard ATS route in a UPR airspace when the flight is not equipped with ADS-C/CPDLC equipped. Hence the flight is assigned level other than requested to avoid conflicts. However, India assured to try assign desired level to the flight.

Side-line Working Group -3 meeting between Nepal (Kathmandu) and India (Kolkata)

Kathmandu presented the following proposals:

1. R325 will be bidirectional route between JANAK and CEA.
2. R581 will be withdrawn, if necessary

Kolkata agreed in principle and advised that PCL at JANAK on R325 is required to be removed or revised for R325 to be used as bidirectional route. The matter will be finalized in the next bilateral meeting.

Kathmandu informed that there is noise in the DSC line with Kolkata. Kolkata promised to look into the matter.

Side-line Working Group -4 meeting between Bangladesh (Dhaka) and India (Kolkata).

Kolkata pointed out that the coordination procedure in respect of requirement of estimate and change messages to be passed via direct speech circuit/ ISD as per existing LOA is not being followed by Dhaka. Kolkata stressed on the importance of manning the DSC/ ISD in the interest of safety.

Annexure A of Letter no CAAB/A-A/ATS/1501/36/10/Coll-4/1554 dated 20.07.2017 from CAAB, Bangladesh proposes amendment in LOA between Bangladesh and Kolkata in respect of change in delegation of airspace between AVPOP and ESDOT on route L507 from the level band FLFL50 to FL460 to level band FLFL285 to FL460 to Kolkata ATC for the provision of Air Traffic Services.

Kolkata informed that AIP India ENR section 2.1. does not reflect this change and hence Kolkata ATC continues to provide ATS Service in the concerned area from FLFL50 to FL460. Dhaka conveyed that they had no objection in continuing the existing procedure. Kolkata advised

responsibility of provision of ATS Services should be as per documentation and coordination procedure must be formulated for climb/ descent of departures/arrivals at VECC via L507 between AVPOP and ESDOT, to implement the change.

Kolkata suggested that Dhaka may coordinate with the country's defense authorities to plan city-pair routes between Dhaka and Kolkata and unidirectional routes in place of the busy route B593.

It was decided that all the issues will be taken up and finalized in the bilateral meeting at Kolkata in November, 2017.

Side line Working Group -5 meeting between Myanmar and India (Kolkata)

Myanmar conveyed to Kolkata their reservation to the proposal of realignment of route L507 by Dhaka.

Kolkata explained to Myanmar the requirement of coordination with WSO Kolkata before filing a LHD report and requested them to ensure that it is followed.