THIRTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 9 to 19 October 2018

REPORT OF COMMITTEE A TO THE CONFERENCE
ON AGENDA ITEM 3

The attached report has been approved by Committee A for submission to the Plenary.

Alexis Brathwaite
Committee Chairperson

Note.— After removal of this covering sheet, this paper should be inserted in the appropriate place in the Report Folder.[*]

Agenda Item 3: Enhancing the global air navigation system
3.1: System-wide information management (SWIM)

3.1   The Committee discussed AN-Conf/13-WP/4, presented by the Secretariat, which focused on developments regarding system-wide information management (SWIM). It outlined the work still to be achieved to improve the efficiency and safety of the aviation system through the application of globally harmonized information management enabling a seamless system. It emphasized the importance of a robust foundation of provisions, together with relevant industry standards and detailed guidance material. AN-Conf/13-WP/4 further mentioned some of the elements of what may constitute SWIM-compliant solutions, including an implementation toolbox to ensure the global interoperability of systems and the harmonization of procedures for the exchange of information.

3.2   AN-Conf/13-WP/236 presented by the Republic of Korea and AN-Conf/13-WP/291 presented by South Africa highlighted the role of ICAO in supporting the establishment of a regulatory framework for global information exchange. The Committee was informed that the future SWIM global platform would provide information to the users via internet protocols and would need to ensure global interoperability including, in particular, the harmonization of information exchange models. The Committee noted that it will be necessary, when there is a major change or update to the exchange models, that the international communities which maintain information exchange models provide mapping guidance for the implementation of a converter when required.

3.3   AN-Conf/13-WP/73, presented by the United States, informed the Committee that a global and secure SWIM framework was necessary to provide the information exchange capabilities needed to support, for example, air traffic flow management (ATFM), unmanned aircraft systems (UAS) traffic management (UTM) and high-level operations, while noting that today's point-to-point legacy system would not meet future performance requirements. It was highlighted that to foster innovation, both aviation and non-aviation industries should be consulted for the development of global SWIM Standards. The Committee recognized that SWIM laid out the digital foundation for future aviation concepts, thereby increasing predictability, efficiency and system automation.

3.4   AN-Conf/13-WP/75, presented by Australia and New Zealand, reminded the Committee of the interoperability challenges to be overcome in order to achieve a globally harmonized SWIM, including cyber resilience, controlled user access and authentication, federated architecture for registries, SWIM compliance, definition of common information services, transition from aeronautical fixed telecommunication network (AFTN)/ATS message handling system (AMHS) to SWIM, and coordination of multiple SWIM efforts around the world. The Committee recognized the need to keep the transition period from AFTN/AMHS to Internet Protocol-based SWIM as short as practical. In this context, the Committee was informed on the notion of a single SWIM access point via interconnected registries including the view that this could be considered as an important mechanism of global SWIM governance to facilitate compliance with SWIM Standards and policies.

3.5   AN-Conf/13-WP/106, presented by Kenya, discussed the programme for establishing a seamless upper airspace in the Common Market for Eastern and Southern Africa (COMESA) region requiring a strong foundation of global Standards to ensure interoperability of different system implementations. Specific examples were mentioned related to the aeronautical information management (AIM) domain of how interoperability needed to be improved to facilitate cross-border information exchange. The benefits of defining basic information services and adhering to the principles of service-oriented architecture were stressed. AN-Conf/13-WP/70, presented by New Zealand, highlighted that SWIM solutions should be of the appropriate scale, cost and effectiveness for the benefits to be

obtained. SWIM solutions would therefore respond to the operational and economic needs of small States. It was acknowledged that SWIM also needed to accommodate new entrants such as UAS and high-altitude balloons. In addition, it was discussed that harmonization and the definition of data content would foster interoperability.

3.6   AN-Conf/13-WP/98, presented by the United Arab Emirates, informed the Committee that pioneering pilot implementations bear the risk of creating technology islands which may cause interoperability challenges with other regional implementation initiatives. The need to align SWIM national implementation plans with regional strategies and priorities was also highlighted. AN-Conf/13-WP/85, presented by Brazil, recognized the important role of ICAO regional groups in SWIM implementation and discussed how regional SWIM demonstrations are a valuable means to encourage collaboration and showcase SWIM benefits to Member States. The Committee, recognizing that advanced collaborative decision-making (CDM) processes require quality information, noted that SWIM demonstrations could support States in making decisions to invest in SWIM technologies and to identify potential synergies.

3.7   AN-Conf/13-WP/107 Revision No. 1, submitted by the International Federation of Aeronautical Information Management Associations (IFAIMA), underscored the need for support in the implementation of Annex 15 — *Aeronautical Information Services* and the *Procedures for Air Navigation Services — Aeronautical Information Management* (Doc 10066, PANS-AIM). The Committee recognized that the impact of the new provisions was significant and States required assistance through guidance material, training activities, workshops, seminars, go-teams, etc. The Committee agreed that ICAO continue the work in the AIM domain, including on alignment of the aeronautical information service (AIS) to AIM roadmap with the *Global Air Navigation Plan* (Doc 9750, GANP), and was informed that the subject would be progressed by the appropriate ICAO technical expert group.

3.8   Information papers provided by India (AN-Conf/13-WP/208), the Republic of Korea (AN-Conf/13-WP/242), Singapore, Thailand and United States (AN-Conf/13-WP/110) and the United Arab Emirates (AN-Conf/13-WP/263) were noted.

3.9   As a result of the discussion, the Committee agreed on the following recommendation:

Recommendation 3.1/1 – System-wide information management (SWIM)

That States:

a)   support developments and implementation of system-wide information management;

b)   via the mechanism of the planning and implementation regional groups (PIRGs), showcase regional system-wide information management (SWIM) demonstrations, highlighting the operational and economic benefits of SWIM, and evaluate possible transition and mixed-mode scenarios;

c)   share information, lessons learned and observations regarding SWIM development and implementation;

d)   develop national implementation plans in alignment with regional strategies and priorities and in accordance with the strategy outlined in the *Global Air Navigation Plan* (Doc 9750, GANP) which would include SWIM;

That ICAO:

e) while making use of already developed Standards and best practices, continue the development of provisions related to information services, while including relevant guidance, governance aspects, information content and related information exchange models, and supporting technical infrastructure and governance for SWIM in sufficient detail to ensure safe, efficient and secure globally seamless operations;

f) consider the concept of a global SWIM framework as part of the GANP and the aviation system block upgrades (ASBUs);

g) consider security-by-design principles when developing interconnected trusted global SWIM frameworks;

h) develop provisions related to the harmonization of information exchange models and globally interconnected registries;

i) through regional events, and in collaboration with States and industry, promote SWIM and its benefits, as described in the *Manual on System-wide Information Management* (Doc 10039), as well as implementation best practices to the aviation community; and

j) provide assistance to States to support the implementation of Annex 15 — *Aeronautical Information Services* and *Procedures for Air Navigation Services — Aeronautical Information Management* (Doc 10066, PANS-AIM).

Agenda Item 3: Enhancing the global air navigation system
          3.2: Flight and flow information for a collaborative environment (FF-ICE) and trajectory-based operations (TBO)

3.10   The Committee reviewed AN-Conf/13-WP/7, presented by the Secretariat, which outlined the ongoing efforts and planned work of ICAO concerning the development of a global concept and ICAO provisions to support an evolutionary transformation into a trajectory-based operation (TBO) environment which was one of the key conceptual changes envisaged in the Global Air Traffic Management Operational Concept. The paper also highlighted multidisciplinary issues that needed to be addressed to ensure that TBO delivers anticipated performance benefits.

3.11   The Committee noted the broad support for the proposed actions contained in AN-Conf/13-WP/7 and reinforced by AN-Conf/13-WP/38 presented by Austria on behalf of the European Union and its Member States[1], the other Members States of the European Civil Aviation Conference (ECAC)[2] and the European Organisation for the Safety of Air Navigation (EUROCONTROL), AN-Conf/13-WP/87 presented by Brazil, AN-Conf/13-WP/191 presented by China,

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[1] Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom.

[2] Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Iceland, Republic of Moldova, Monaco, Montenegro, Norway, San Marino, Serbia, Switzerland, The former Yugoslav Republic of Macedonia, Turkey and Ukraine.

AN-Conf/13-WP/271 presented by Singapore and Thailand and AN-Conf/13-WP/52 presented by the United States.

3.12   The Committee recognized the need for an increased level of automation to enable TBO, taking into account the role of the human, and noted the potential performance benefits that TBO could bring to all operational environments, integrating new types of operations and bridging gaps between existing air traffic management (ATM) operations (e.g. A-CDM, ATFM and air traffic control (ATC)). The Committee recognized the importance of a global concept and transitional path towards the TBO environment to ensure that all stakeholders have a common understanding of TBO in its entirety, and required interactions among the supporting capabilities and processes. In this respect, the Committee agreed that the global TBO concept and transitional path integrated in the updated GANP and ASBU framework would provide high-level direction and guidance for the harmonized development and deployment of key TBO enablers.

3.13   The Committee also noted the need for additional guidance on a TBO transition roadmap, in the context of on-going ATM initiatives, to address all domains of the ATM system and to take into consideration the new types of airspace users. The Committee recognized the importance of involving non-traditional aviation community (e.g. manufacturers of UAS) in the discussions to identify and address issues for a successful TBO development and implementation. Also highlighted by the Committee for inclusion in the future work to support the further development of TBO was: improved global ATFM through a global network-centric approach; increased level of automation; and enhanced airspace management.

3.14   With respect to the development and deployment of key TBO enablers, the Committee was presented with the validation, testing and transition activities of several States, regions and subregions concerning flight and flow information for a collaborative environment (FF-ICE), SWIM, ATFM and air-ground data link communications. Noting that the development of ICAO provisions on these key enablers was well underway as part of the approved work programmes, the Committee reiterated the importance of timely feedback from these activities for consideration by the appropriate ICAO technical expert groups.

3.15   The Committee acknowledged that the varying levels of maturity in the implementation of key TBO enablers would continue, resulting in mixed mode operations for a prolonged period of time. In this connection, a critical role of the ICAO planning and implementation regional groups (PIRGs) would be the integration of multiple and interrelated initiatives into a regional plan in accordance with the relevant global concepts and associated ICAO provisions. Also emphasized was the need for global guidance on a transition strategy that minimizes any potential negative impacts during the mixed mode operations.

3.16   As a result of the discussion, the Committee agreed on the following recommendations:

Recommendation 3.2/1 —Trajectory-based operations (TBO)

That States, along with stakeholders:

a)   continue to provide ICAO with the developments and lessons learned from air traffic management (ATM) modernization programmes;

b)   work through ICAO to identify and address, not only potential issues, but also opportunities such as the improved management of global traffic flows through a global network-centric approach to ensure the successful development and implementation of trajectory-based operations (TBO);

c)   through the mechanism of the planning and implementation regional groups (PIRGs), integrate current implementation efforts with regional transition plans for flight and flow information for a collaborative environment (FF-ICE), system-wide information management (SWIM) and TBO;

That ICAO:

d)   finalize the global TBO concept and its elements in the Sixth edition of the *Global Air Navigation Plan* (Doc 9750, GANP) and the aviation systems block upgrade (ASBU) framework; and

e)   develop guidance on transitioning to a globally interoperable TBO environment in the context of on-going ATM initiatives while addressing all domains of ATM systems and taking into consideration existing and new types of airspace users.

Recommendation 3.2/2 — Flight and flow information for a collaborative environment (FF-ICE)

That States, along with stakeholders:

a)   work through ICAO to finalize ICAO provisions and guidance material, in support of the initial implementation of flight and flow information for a collaborative environment (FF-ICE) by providing the results of operational and technical performance validation and cost-benefit analysis (CBA);

That ICAO:

b)   develop a robust transition strategy to minimize any potential negative impacts during the mixed mode operations of current ICAO flight plan processing and FF-ICE; and

c)   continue its work concerning the investigation of necessary information exchange content and supporting processes for the next evolution of FF-ICE.

Agenda Item 3:   Enhancing the global air navigation system
**   3.3: Air traffic flow management (ATFM)**

3.17   AN-Conf/13-WP/8, presented by the Secretariat, recalled the importance of CDM and of regional cooperation to implement ATFM and efficient capacity management. With broad support for this paper, the Committee emphasized, in the context of international cooperation, the importance of information exchanges between airspace users and ground-based stakeholders to support trajectory-based operations (TBO).

3.18   AN-Conf/13-WP/207, presented by India, outlined a method for capacity determination for the facilitation of ATFM. The Committee, in noting the importance of airspace and aerodrome capacities as an acknowledged enabler for ATFM, agreed that the information would be brought to the attention of the appropriate ICAO technical expert group.

3.19   AN-Conf/13-WP/40 presented by Austria on behalf of the European Union and its Member States[3], the other Member States of ECAC[4] and EUROCONTROL, AN-Conf/13-WP/86 presented by Brazil, AN-Conf/13-WP/109 presented by China, Thailand and Singapore, AN-Conf/13-WP/237 presented by the Republic of Korea, China and Japan, presented examples of State cooperation in providing ATFM. The Committee acknowledged that such collaboration would enable the rapid implementation of cooperative network solutions. The Committee agreed on the importance of regional cooperation, including the need to share best practices. The Committee further agreed on the importance of interconnectivity between regions to achieve a global network.

3.20   The Committee also agreed that ATFM initiatives increased the efficiency of the network in normal operations, but were also instrumental to the effective management of large-scale crises.

3.21   Recalling the importance of the current work programme in the development of ATFM-related provisions and guidance material, the Committee recognized the need to focus on the wider issue of airspace sectorization.

3.22   In concluding its discussion, the Committee, bearing in mind the SWIM framework, agreed that information exchange would be essential to further improve communication capabilities and enable States to manage flows in a collaborative manner, both within and across ICAO regions, thereby providing opportunities for the further enhancement of efficient air traffic services.

3.23   Information papers provided by Austria on behalf of the European Union and its Member States[3] and the other Member States of ECAC[4] and EUROCONTROL (AN-Conf/13-WP/50), China (AN-Conf/13-WP/202), India (AN-Conf/13-WP/209 and AN-Conf/13-WP/210), and the Republic of Korea (AN-Conf/13-WP/243), were noted.

3.24   As a result of the discussion, the Committee agreed on the following recommendation:

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[3] Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom.

[4] Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Iceland, Republic of Moldova, Monaco, Montenegro, Norway, San Marino, Serbia, Switzerland, The former Yugoslav Republic of Macedonia, Turkey and Ukraine.

Recommendation 3.3/1: Network operations (NOPS):

That States:

a) implement collaborative decision-making (CDM) processes in support of effective airspace management in the provision of air navigation services, including cross-border operations and resource management;

b) plan and implement, according to their operational needs, operational improvements related to network operations in a coordinated manner within and across regions;

That ICAO:

c) develop further provisions and guidance material on air traffic flow management (ATFM), supporting a global collaborative network management in support of trajectory-based operations (TBO); and

d) support, through its Regional Offices, the sharing of best practices and the advancement of technical cooperation agreements between States in order to implement ATFM.

Agenda Item 3:   Enhancing the global air navigation system
3.4: Civil/military cooperation

3.25   The Committee reviewed AN-Conf/13-WP/9, presented by the Secretariat, which underlined the need to enhance civil-military collaboration at the global, regional and national levels to reduce the need for segregation, improve safety, enable cost-efficient operations and provide States with the opportunity to protect their national security. AN-Conf/13-WP/39, presented by Austria on behalf of the European Union and its Member States[5], the other Member States of ECAC[6] and EUROCONTROL, and AN-Conf/13-WP/53, presented by the United States, also promoted the mutual benefits of civil and military aviation gradually moving from coordination to collaboration. A total systems approach to aviation, ensuring the consideration of all technical, organizational, procedural and human factors elements, was also promoted. The Committee recognized that ATM system performance would benefit when the opportunities associated with civil-military cooperation were maximized, and therefore supported the need to go beyond cooperation and embrace collaboration with military authorities at the global, regional and national levels. Civil-military consolidation was also recognized by the Committee as an effective means of supporting typical ATS, aerodrome, and search and rescue (SAR) operations, as well as disaster relief and humanitarian assistance.

3.26   The Committee noted that with the on-going modernization of the air navigation system through new concepts such as TBO and SWIM, there was the potential for civil-military cooperation to

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[5] Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom.

[6] Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Iceland, Republic of Moldova, Monaco, Montenegro, Norway, San Marino, Serbia, Switzerland, The former Yugoslav Republic of Macedonia, Turkey and Ukraine.

decline. The Committee recognized that key areas for further collaboration with the military authorities included increased dependence on inter-connected ATM systems, UAS, information exchange and associated cyber vulnerabilities. The Committee recognized that it is paramount for military authorities to plan in advance of the evolution of their fleets, equipage or control systems, to consider global interoperability and airspace capacity and efficiency. In this regard, the Committee recognized that a performance-equivalence process for the military community could facilitate the demonstration of their systems performance.

3.27   The Committee also recognized that military authorities continued to be key partners with civil aviation and that ICAO should play a pivotal role in this collaboration with the military community at the global and regional levels. The Committee acknowledged that military requirements for civil-military cooperation are specific and should be considered through consultation at all levels, taking note that at the global level, efforts were underway to facilitate military attendance at ICAO meetings. The Committee reaffirmed that implementation support to States should remain an ICAO priority to increase the effective implementation of existing provisions and increase the awareness of civil-military cooperation guidance material for States. The Committee supported the incorporation of the military aviation dimension in future editions of the *Global Air Navigation Plan* (Doc 9750, GANP) and the involvement of the military community from the beginning when developing new ICAO provisions and guidance.

3.28   AN-Conf/13-WP/84, presented by Brazil, discussed the need to consider the regional specificities of civil-military cooperation, including the application of SWIM. The Committee recognized the importance of regional symposiums to exchange best practices and enable regional incentives such as resource pooling.

3.29   AN-Conf/13-WP/140 Revision No. 1, presented by China, discussed the national strategy of the State with regard to the implementation of civil-military cooperation and coordination at joint civil-military aerodromes and described the mechanism, components, and national documents pertaining to this cooperation. The Committee paid particular attention to the proposal that ICAO consider the development of guidance material concerning operations at joint civil-military aerodromes.

3.30   The Committee reviewed AN-Conf/13-WP/295, presented by the International Air Transport Association (IATA) and the International Federation of Air Line Pilots' Associations (IFALPA), which discussed the challenges encountered by airlines to plan flights across and to obtain access through certain air defence identification zones (ADIZs). The Committee recognized the need for appropriately clear procedures for airspace access requirements and that ICAO should provide guidance in this regard.

3.31   An information paper provided by Austria on behalf of the European Union[7] and its Member States, the other Member States of ECAC[8] and by EUROCONTROL (AN-Conf/13-WP/49), was noted.

3.32   As a result of the discussion, the Committee agreed on the following recommendations:

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[7] Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom.

[8] Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Iceland, Republic of Moldova, Monaco, Montenegro, Norway, San Marino, Serbia, Switzerland, The former Yugoslav Republic of Macedonia, Turkey and Ukraine.

Recommendation 3.4/1 – Civil-military collaboration

That States:

a) actively collaborate with their military authorities, including at the regional level, and encourage greater civil-military interoperability and appropriate use of performance equivalence;

b) continuously inform their military authorities of the improvements to air navigation capacity and efficiency, safety, cyber threats and system resilience put forth by ICAO and advocate collaboration with ICAO at the global and regional levels;

That ICAO:

c) identify potential opportunities for civil-military collaboration, develop a mechanism to collaborate with the military community early in the development of global provisions and guidance, and establish guidance for collaboration with the military community at global and regional levels;

d) incorporate the military dimension, including civil-military cooperation and collaboration, in future editions of the *Global Air Navigation Plan* (Doc 9750, GANP);

e) consider, with urgency and in collaboration with the military community, the interoperability and governance principles for the military community in system-wide information management (SWIM) and in the development of the ICAO trust framework; and

f) consider, where possible, the inclusion of civil-military cooperation and collaboration subjects at ICAO events, and highlight the participation of military authorities in relevant State letter invitations.

Recommendation 3.4/2 – Civil-military cooperation implementation

That States:

g) encourage their military authorities to cooperate and coordinate with civil aviation authorities and air navigation services providers (ANSPs) on airspace use, including airspace access requirements, to achieve the most efficient use of airspace based on actual needs and, when possible, avoid permanent airspace segregation;

 That ICAO:

h) promote civil-military coordination and cooperation of best practices, and provide forums and other opportunities, such as regional symposiums, for States to exchange best practices; and

      i)   explore opportunities to provide guidance to enhance safety at joint civil-military aerodromes and to assist States in the promulgation of clear procedures for airspace access requirements.

Agenda Item 3:   Enhancing the global air navigation system
**   3.5: Other ATM issues**

3.33   The Committee reviewed AN-Conf/13-WP/31 and AN-Conf/13-WP/32 presented by Germany, and AN-Conf/13-WP/112 from Ireland, which identified limitations in both the ICAO location indicator system and the provisions governing the identification of significant points, as well as the pronounceability of the generated codes. The Committee, in noting that work was already in progress regarding the availability of codes in each region, requested ICAO to continue its current work relating to addressing the highlighted limitations in the short term and recommended regular reviews of the use of pronounceable codes to ensure these were available where they were needed. The Committee supported the proposal to develop a long-term solution which would consider the requirement for globally harmonized and interoperable solutions and the increasing need for machine-to-machine interactions. Such interactions, however, were also considered likely to alleviate the demand for codes due to the increasing use of solutions such as user preferred routes. The Committee further noted that many of the generated codes were not useable due to either the combinations of letters that could not be pronounced, or similarity of the codes to existing codes when spoken. Understanding that an accurate record of five letter name codes (5LNCs) currently in use was also vital in order to prevent ambiguity, the Committee requested States to ensure that the ICAO International Codes and Routes Designators (ICARD) database was complete and encouraged ICAO to continue with efforts to raise awareness of the use of this tool, as well as to continue work towards the removal of duplicates and codes which sound alike. Further refinements to the ICARD database to improve the functionality were also proposed.

3.34   AN-Conf/13-WP/74, presented by China, AN-Conf/13-WP/206, presented by India and AN-Conf/13-WP/174, presented by the Civil Air Navigation Services Organisation (CANSO), the International Federation of Air Traffic Controllers' Associations (IFATCA) and the International Federation of Air Traffic Safety Electronics Associations (IFATSEA), recalled that digital and remote technologies were increasingly used in air traffic control tower operations. The Committee noted that the variety of operational requirements made it challenging to ensure a harmonized approach to all implementations of digital or remote tower operations. The Committee further noted the importance of striking the right balance between a specification-based and a performance-based approach to ensure that innovation would not be stifled. The Committee, recalling that industry standards and guidance should be used where possible, agreed that the information in the working papers would be referred to the relevant ICAO technical expert group to continue the development of provisions and guidance material, as necessary. The Committee noted AN-Conf/13-WP/214, presented by the International Transport Federation (ITF), which suggested that ICAO carry out a study on the potential added value of remote towers. It was recalled that this was largely the task of the ATS provider in making specific investments based on individual cases. The Committee therefore agreed that ICAO would continue to monitor the progress of States in implementing digital and remote towers in the context of the existing work programme.

3.35   AN-Conf/13-WP/175, presented by CANSO, highlighted the importance of investments in the ATM infrastructure and encouraged States to support air navigation services providers (ANSPs) for more efficient and effective management of their investments. It was noted by the Committee that promoting the important role of the aviation industry and the necessary investment in the ATM infrastructure on a national and regional level was an ongoing effort of ICAO and that investment in

ATM was fundamental to improvements to the global air navigation system. The Committee was informed that such effort would continue as part of various initiatives, including those described in AN-Conf/13-WP/24, presented by the Secretariat, under Agenda Item 4.1. AN-Conf/13-WP/176, also presented by CANSO, provided an update on global ATS surveillance technology. The Committee recognized the significant potential safety and operational benefits of introducing ATS surveillance services into areas where they have not previously been available and the need to continue the work of ICAO on the provision of space-based automatic dependent surveillance — broadcast (ADS-B) solutions. It was recalled by the Committee that various ATS surveillance technologies were key enablers of the *Global Air Navigation Plan* (GANP, Doc 9750) and were being progressed by the appropriate ICAO technical expert groups.

3.36   AN-Conf/13-WP/82 presented by Brazil, provided the Committee with information on the successful completion of an airspace improvement project, enabled by collaborative decision-making (CDM), following the guidelines provided in the *Manual on Global Performance of the Air Navigation System* (Doc 9883). The Committee then reviewed AN-Conf/13-WP/89, also presented by Brazil, which outlined challenges in the planning and implementation of controller-pilot data link communications (CPDLC) over very high frequency (VHF) data link in continental airspace and requested the development of additional guidance in this regard. The Committee was informed that the request was already being progressed by the appropriate ICAO technical expert group.

3.37   Upon the review of AN-Conf/13-WP/93, presented by the United Arab Emirates, which outlined the importance of establishing an air navigation services business continuity framework, the Committee was informed that different business continuity management best practices existed within the aviation community and noted that while Annex 11 — *Air Traffic Services* requires States to develop contingency plans for implementation in the event of disruption of air traffic services and related supporting services, specific guidance by ICAO pertaining to business continuity was not available.

3.38   It was therefore considered that, while business continuity may be maintained by the establishment of a contingency plan in accordance with the various Annexes, States would benefit from additional ICAO guidance on this subject.

3.39   The Committee reviewed AN-Conf/13-WP/298, presented by IATA, which provided support for a sustainable and resilient aviation infrastructure and the value of post-contingency event reviews. The Committee also recalled AN-Conf/13-WP/40, presented by Austria on behalf of the European Union, its Member States[9], the other Member States of ECAC[10] and by EUROCONTROL, under Agenda Item 3.3, which outlined the key role of ATFM in case of a major loss of capacity. The Committee recognized the importance of ATFM to support crisis management arrangements using data exchanges, processes and tools to deliver early warnings, situation awareness and effective recovery. The Committee also recognized the importance of enhanced preparedness for disasters and resilience after disasters. Recalling that crisis management could include, but was not limited to, contingency planning, the Committee acknowledged the benefits of the inclusion of all stakeholders, both within the aviation community and beyond, to ensure a regionally coordinated approach to the development and continued efficacy of contingency plans and post crisis reviews. The Committee advocated that ICAO facilitate such an approach.

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[9] Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom.

[10] Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Iceland, Moldova, Monaco, Montenegro, Norway, San Marino, Serbia, Switzerland, The former Yugoslav Republic of Macedonia, Turkey and Ukraine.

3.40   AN-Conf/13-WP/68 Revision No. 1, presented by South Africa, proposed that the *Air Traffic Services Planning Manual* (Doc 9426) be updated. The Committee noted that, while some sections of Doc 9426 remained useful, the 35-year old document had not kept pace with technological, institutional and infrastructure advancements. Consequently, it was agreed that for Doc 9426 to remain in the catalogue of current ICAO guidance, there was a need for an comprehensive amendment. The Committee was informed that this task was already on the work programme of the Organization and agreed that the contents of the working paper would be brought to the attention of the appropriate ICAO technical expert group.

3.41   The Committee discussed AN-Conf/13-WP/95, presented by the United Arab Emirates, which outlined the introduction of its certification of ANSPs and proposed that ICAO provisions be developed for certification of ANSPs, accompanied by guidance material. The Committee, while supporting that work was necessary in the area, acknowledged that many ATM systems and ANSPs were already well regulated and there was concern that with the implementation of global provisions costs might be incurred by those States. The Committee therefore agreed that a reasonable compromise might be needed, especially in the context of existing ICAO provisions, such as those in Annex 19 — *Safety Management*, which support aspects of safety, capacity and efficiency in ATS provision.

3.42   The Committee also agreed that ICAO should investigate the potential benefits from development of provisions and processes for certification of ANSPs while remaining mindful of the costs incurred in doing so. Furthermore, it was incumbent upon ICAO to balance the benefits achievable through effective implementation of existing ICAO provisions against any substantive need to develop harmonized certification provisions.

3.43   AN-Conf/13-WP/229, presented by IFATSEA, proposed that the successful achievement of basic training objectives for all Air Traffic Safety Electronics Personnel (ATSEP) should be an ICAO requirement. In this respect, the increasing roles and responsibilities of ATSEP for maintaining a safe communications, navigation, and surveillance/ATM) infrastructure was recognized by the Committee. The Committee was reminded that ICAO had developed competency-based procedures for ATSEP in the *Procedures for Air Navigation Services — Training* (PANS-TRG, Doc 9868), along with supporting guidance in *The Manual on Air Traffic Safety Electronics Personnel Competency-based Training and Assessment* (Doc 10057), that would raise and harmonize the level of competencies while allowing States to implement a flexible approach to competency-based training. It was noted that, whilst Doc 10057 currently stated that all ATSEP should successfully complete basic training, defining this or any other element of ATSEP training as mandatory would remove such aforementioned flexibility. However, it was recalled that Doc 10057 was a relatively new document and, when developing guidance material, it may be the case that there is a need for additional training requirements. Consequently the Committee agreed that the contents of the working paper would be brought to the attention of the appropriate ICAO technical expert group.

3.44   AN-Conf/13-WP/114, presented by Canada, outlined a proposal regarding the adoption of "True North" as a reference for all operations, citing the ongoing costs of applying magnetic variation to both charts and aircraft systems. The Committee was informed that the Twelfth Air Navigation Conference (2012) had called upon States interested in the matter to conduct further studies on the technical and operational impact of the proposal, as well as on the expected costs and benefits to all aviation stakeholders. The Committee agreed that, in light of the lack of such studies being carried out or reported to ICAO, ICAO should investigate the technical and operational impact and/or merits, as well as the potential cost of the proposed change across the spectrum of aviation activities and across all regions prior to progressing on adoption of "True North" as a global reference.

3.45   The Committee reviewed AN-Conf/13-WP/115, also presented by Canada, which outlined the importance of the use of standardized phraseology and proposed that ICAO provisions would be strengthened, to ensure reliable operational communications. The Committee was informed that the development of guidance material on standardized phraseology was already included in the active work programme of ICAO. While some individual parts of the working paper did not meet universal appeal, the Committee agreed that the contents of AN-Conf/13-WP/115 would be brought to the attention of the appropriate ICAO technical expert group.

3.46   AN-Conf/13-WP/245, presented by Ukraine, provided an overview of ATM aspects within Dnipropetrovs'k and Simferopol flight information regions (FIRs), which are under the responsibility of Ukraine, relating to the safety of international civil flights. The working paper recalled the overarching need for all States to comply with the *Convention on International Civil Aviation* (Doc 7300, Chicago Convention) and the provisions of its Annexes. The Committee was informed of the ongoing work of the ICAO European Air Navigation Planning Group (EANPG) Black Sea Task Force (BSTF) being used to further explore potential solutions for the normalization of flight operations. This included a potential phased approach to help ease the traffic flows, capacity and ATC workload issues in the adjacent FIRs, especially in view of the ongoing airspace optimization projects in these areas and the opening of the new Istanbul Airport. The working paper also noted that the EANPG had issued a deficiency to the Russian Federation for aeronautical publications that were not compliant with ICAO provisions, in which the corrective action is the removal of these publications. In supporting this action, The Committee appreciated the commitment of all States to comply with the Chicago Convention and its Annexes, to cooperate to ensure the safety of flight operations in the high seas airspace over the Black Sea and to refrain from any actions that may directly or indirectly affect the safety of operations. The Committee expressed support for the EANPG Decision in the working paper and urged ICAO to step up efforts to work with all States to identify potential solutions. The Committee also noted that the EANPG was scheduled to discuss the report of the most recent BSTF meeting, at its 60th meeting, in November 2018.

3.47   Information papers, provided by China (AN-Conf/13-WP/197), India (AN-Conf/13-WP/233), Indonesia (AN-Conf/13-WP/288), the United Arab Emirates (AN-Conf/13-WP/256, AN-Conf/13-WP/257 AN-Conf/13-WP/259, AN-Conf/13-WP/261 and AN-Conf/13-WP/264) and Saudi Arabia (AN-Conf/13-WP/268) were noted.

3.48   As a result of the discussion, the Committee agreed on the following recommendations:

Recommendation 3.5/1 – ICAO location indicator system and database of significant points

That States and industry stakeholders:

a)   urgently complete the population of the ICAO International Codes and Routes Designators (ICARD) database with all five-letter name codes (5LNC) used worldwide to ensure the accuracy of the database;

b)   ensure that whenever a 5LNC that is used for military purposes is published in an ICAO Aeronautical Information Publication (AIP) and consequently coded into aircraft flight management system (FMS), such 5LNCs are coordinated through the ICARD process;

That ICAO:

c) continue to address the limitations of both location indicator and 5LNC availabilities in the short-term and determine a long-term solution;

d) consider, when developing such solutions, the need for global harmonization and interoperability;

e) continue with its efforts to improve awareness and training on the use of ICARD in the regions that do not actively use ICARD;

f) continue to work towards removing duplicated 5LNCs and sound-like conflicts; and

g) implement improvements to the ICARD database functionality, including the use of maps depicting flight information regions (FIRs), more information regarding 5LNC history and sound-like proximity checks for codes held in reserve but not yet allocated to a region.

Recommendation 3.5/2 – Coordinated crisis management

That States:

a) along with industry stakeholders, engage in an active and coordinated manner when dealing with crisis management, enhanced preparedness for disasters, contingency planning and post crisis reviews; and

That ICAO:

b) develop guidance on a coordinated approach to crisis management, including subjects such as business continuity, the role of air traffic flow management (ATFM) in support of crisis management and the importance of post crisis reviews.

Recommendation 3.5/3 — Certification of ANSPs

That ICAO investigate the potential benefits, balanced against the associated costs of the development of provisions and guidance material for certification of air navigation services providers (ANSPs).

Recommendation 3.5/4 — True North

That ICAO conduct a detailed study into the technical, operational, and economic feasibility of changing to a "True North" reference system.

3.49   **Statement by the Russian Federation**

The delegation of the Russian Federation regretfully states that paragraph 3.46 of the proposed draft report of Committee A on Agenda Item 3 did not reflect the course of the discussion. Namely, there is no mention of the statement of the Russian Federation, which did not support WP/245, presented by Ukraine, regarding the termination of Aeronautical Information Publication (AIP) concerning the Simferopol flight information region (FIR). In such circumstances, the Russian Federation considers it necessary to make the following statement:

Since the Russian Federation is an active user of the Simferopol FIR airspace, the safety situation in the region is of serious concern to us, to which we have repeatedly drawn attention of all States participating in the work of the Black Sea Task Force. To date, the interaction between the air traffic control (ATC) authorities of the Russian Federation and Ukraine in servicing air traffic in the Simferopol FIR has been non-existent. In violation of Standards 3.5.1 and 3.5.2 of Annex 11 — *Air Traffic Services* to the *Convention on International Civil Aviation* (Doc 7300), the air traffic services for civil flights in the Simferopol FIR have been provided simultaneously by various ATC units for a long time. So, in parallel with the Simferopol regional ATC Centre, air traffic services are provided by Odessa and Dnepropetrovsk ATC Centres. Obviously, this situation poses a huge threat to the safety of international civil aviation in the area, and the absence of a constructive solution in the near future can lead to disastrous consequences.

In addition, the irresponsible actions by EUROCONTROL, confirming the possibility of ATC units of Ukraine to provide air traffic services for four routes within the Simferopol FIR and authorizing flights by airlines on those routes, only exacerbate the complicated safety situation in the area.

Regretfully, for almost three years of its work, the Black Sea Task Force, which had been tasked to work out a technical solution enabling distribution of responsibility for air traffic services over the Black Sea, was not able to find a rational and mutually acceptable technical solution to this task. This is largely due to the politicized, rather than technical, nature of the work of this group. In this regard, in order to expeditiously eliminate the emerging threat to the safety of international civil aviation in the Simferopol FIR, the Russian Federation, without raising the issue of sovereignty of the Black Sea States over their airspace and without engaging in political debate thereon, states the need to make the following recommendations, in relation to paragraph 3.46 of the Report of Committee A:

That ICAO:

a)   organize the conduct of an objective and independent technical audit (assessment) of all Black Sea States' capabilities to provide full air navigation services for the Simferopol FIR, including search and rescue operations in this region;

b)   request the Black Sea Task Force to develop proposals for amending the European Air Navigation Plan;

c) establish clear deadlines for completing the tasks mentioned in paragraphs a) and b) above; and

That States and industry stakeholders:

d) provide unrestricted access for conducting an objective and independent technical audit (assessment) of all Black Sea States' capabilities to provide air navigation services for the Simferopol FIR.

It should be noted once again that the actions proposed above are aimed solely at ensuring the safety of international civil aviation, and any delay in their implementation can lead to tragic consequences.

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