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INFORMATION PAPER

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Agenda Item 6: Other Business

UNMANNED AIRCRAFT SYSTEMS

(Presented by Trinidad and Tobago)

EXECUTIVE SUMMARY	
This information paper presents information on Unmanned Aircraft Systems and its concerns for Civil Aviation in the ECAR.	
Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency • Environmental Protection
References:	• *Manual on Remotely Piloted Aircraft* Systems (RPAS) Doc 10019 • Unmanned Aircraft Systems (UAS) (Cir 328) • ICAO Global RPAS Symposium, Montreal Canada, March 23-25, 2015 • Second NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/2) Puntarenas, Costa Rica, 1 to 4 June 2015

1. Introduction

1.1. Article 8 of the Chicago Convention entitled “Pilotless aircraft” provides that:
“No aircraft capable of being flown without a pilot shall be flown without a pilot over the territory of a contracting State without special authorization by that State and in accordance with the terms of such authorization. Each contracting State undertakes to insure that the flight of such aircraft without a pilot in regions open to civil aircraft shall be so controlled as to obviate danger to civil aircraft”.

1.2 The Eleventh Air Navigation Conference (ANConf/11), Montréal, 22 September to 3 October 2003) endorsed the global air traffic management (ATM) operational concept which contains the following text: “an unmanned aerial vehicle is a pilotless aircraft, in the sense of Article 8 of the Convention on International Civil Aviation, which is flown without a pilot in-command on-board and is either remotely and fully controlled from another place (ground, another aircraft, space) or programmed and fully autonomous.”

1.3 Remotely piloted aircraft are one type of unmanned aircraft. All unmanned aircraft, whether remotely piloted, fully autonomous or combinations thereof, are subject to the provisions of Article 8 of the *Convention on International Civil Aviation* (Doc 7300), signed at Chicago on 7 December 1944 and amended by the ICAO Assembly. Unmanned Aircraft System (UAS) considers all components essential for the operation of an unmanned aircraft.

2. Discussion

2.1 Remotely controlled and uncontrolled (autonomous) aircraft have been in existence since the time of the First World War, operated by both civil and military entities. Recently due to rapid technological advances and commercial enterprise UAS have become easily available for general civilian use. Recreational and light commercial use of UAS has grown rapidly throughout the world. The Small UAS (SUAS) has become common place in most ECAR states. These SUAS carry a variety of payloads that may be used for aerial photography, structural surveys, environmental surveillance and security surveillance. The SUAS is easily available in terms of accessibility and price.

2.2 Article 8 of the Convention on International Civil Aviation states that “Each contracting State undertakes to insure that the flight of such aircraft without a pilot in regions open to civil aircraft shall be so controlled as to obviate danger to civil aircraft”. The use of the word “civil” was significant in that most of the unmanned aircraft in use at the time of drafting were military. If the word “civil” is substituted with the word “manned” it may lend more significance to the current issues which may be considered in the ECAR region with regard to UAS. The integration of UAS into non-segregated and controlled airspace must be considered in the short term. Segregated airspace in terms of no-fly zones especially in the vicinity of aerodromes may remain a method of control especially for SUAS operations. Limitations may be placed via geographic boundaries and altitude restrictions.

2.3 The integration of UAS into controlled airspace may be considered in terms of the aircraft itself, in that the requirement and standards for flight in controlled airspace shall remain the same in terms of communication, surveillance and sense and avoid capability whether the aircraft is manned or unmanned. The air traffic controller should not be disadvantaged in any way through diminished communication or surveillance capability of UAS. While the SUAS may only provide limited see and avoid capability to its operator, it is possible for larger UAS to be equipped with sense and avoid technology as well as Mode-S/ADS-B/out transponders. Communication between the remote pilot or operator and ATC must be maintained via a medium certified for use and available to ATC.

2.4 Visual Line of Sight (VLOS) operations may be easier to control in that it limits the range of operations. Beyond Visual Line of Sight (BVLOS) and autonomous flight will extend the range of operations. Performance characteristics of UAS must also be considered in relation to that of manned aircraft operating within the same airspace.

2.5 All the SARPs of all the annexes may be applied to current operations of UAS. States’ regulatory systems may need to be strengthened where the laws of the state may require specific regulations for UAS operations. Regulations for UAS operations in the ECAR should be common to all states and also to neighboring states. Commonality will ensure a less complicated system of coordination where UAS transit from one state to another. This may be considered in the areas of Airworthiness, Registration, Approvals to operate and Personnel Licensing. Different classes or categories of UAS should also be considered in the development and application of regulations.

2.6 States may face security concerns both to aviation and otherwise. Most states may find, that the security concerns that may develop through the use of UAS, may be more expansive than what civil aviation authorities or civil aviation regulations will address. Where this is applicable a national collaborative solution may be appropriate.

3. Conclusion

3.1 The Meeting is invited to note the information in this paper.

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