



ASSEMBLY — 39TH SESSION

EXECUTIVE COMMITTEE AND TECHNICAL COMMISSION

Agenda Item 29: United Nations 2030 Agenda - Sustainable Developments Goals (SDGs)

Agenda Item 36: Aviation safety and air navigation implementation support

PROJECT LOON – FLOATING CELL PHONE TOWERS IN THE SKY

(Presented by the Civil Air Navigation Services Organisation (CANSO))

EXECUTIVE SUMMARY

This paper presents an update on Project Loon, a heavy free unmanned balloon network which intends to bring the internet to underserved parts of the world (in direct support of SDG Goals 9 and 17 in general and targets 9.2, 17.6, 17.8 and indicators 17.6.2 (“Fixed Internet broadband subscriptions, by speed”) , 17.8.1 (“Proportion of individuals using the Internet”) and 9.c.3 (“Percentage of population covered by a mobile network, by technology”) specifically. It will outline recent achievements and plans forward, and following on from a recent ICAO State Letter, seek assistance from Civil Aviation Authorities and Air Navigation Service Providers (ANSPs).

**Action:** Consistent with the ICAO Convention of creating and preserving friendship and understanding of nations and peoples of the world through the peaceful use of aviation, the Assembly is invited to:

- a) urge States to encourage their ANSPs to learn more about Project Loon by reviewing ICAO State letter AN 13/22.1-16/42 (Attachment A);
- b) request States to join CANSO in supporting Project Loon’s operational capability by reviewing their States procedures;
- c) request States to establish Letters of Agreement with Project loon to allow “Loon” balloons to safely overfly States airspace, which will support the improvement of internet services to underserved areas of the world; and
- d) request States to establish bilateral or multilateral Letters of Agreement with adjacent States and Project Loon to allow Loon balloons to safely transit flight information region boundaries.

<i>Strategic Objectives:</i>	This working paper relates to the Safety and Air Navigation Capacity and Efficiency Strategic Objectives
<i>Financial implications:</i>	None
<i>References:</i>	State letter: AN 13/22.1-16/42

## 1. INTRODUCTION

1.1 Google directs their internal Research and Development funds toward solving worldwide challenges. Project Loon seeks to support education, investment, remote medical information and emergency services by expanding the internet capability to areas of the world which are underserved.

1.2 This paper presents an update on Project Loon, a heavy free unmanned balloon network which intends to bring the internet to underserved parts of the world (in direct support of SDG Goals 9 and 17 in general and targets 9.2, 17.6, 17.8 and indicators 17.6.2 (“Fixed Internet broadband subscriptions, by speed”), 17.8.1 (“Proportion of individuals using the Internet”) and 9.c.3 (“Percentage of population covered by a mobile network, by technology”) specifically.

## 2. DISCUSSION

2.1 Loon began in 2013, and initially focused its resources on the science of the balloon itself (design, fabric, architecture) and the ability to use the winds to navigate to the areas of the world which need the internet services to improve the lives of citizens. As the project continues its research and development of the communications payload, it is moving into full demonstration/validation of the balloon's ability to operate in a geographic region of interest.

2.2 During the research and development phase, Loon significantly improved the balloon design, manufacture and launch procedure. The balloons are now robust, remaining aloft well beyond the targeted 100 days, and are launched through a custom developed auto-launcher, allowing rapid multiple launches. Loon fully complies with ICAO standards for heavy balloons, and has gone well beyond the safety requirements by adding several layers of safety equipment (including ADS-B) on-board the payload.

2.3 During the demonstration/validation phase, Loon combined publicly available sources of wind data with their own extensive flight data (over 950 balloons, 800,000 flight hours and 24 million flight kilometers), using its massive computer power to create models and simulations that enable much more efficient balloon navigation.

2.4 With a combination of this data and the smart technology used in the balloon itself, Loon balloons are able to change altitude to “catch” the winds moving at the speed and direction necessary to a given service area.

2.5 Loon is finalizing its Safety Management Plan (SMP) and formalizing its operations center known as Loon Mission Control (LMC), using best practices from around the world, in order to take the next operational steps.

2.6 Loon is planning a further series of Regional Demonstrations, focusing on underserved areas, partnering with local telecommunications authorities. Loon is actively seeking working relationships, as outlined in the ICAO State Letter, with key Civil Aviation Authorities and Air Navigation Service providers for overflight Letters of Agreement (LOAs), as well as possible launch and landing sites.

2.7 ICAO recently released a State Letter (Ref.: AN13/22.1-16/42 of 17 June 2016) which shared information regarding Project Loon and attached operational procedures from several States currently working with the project.

2.8 Loon remains grateful to the many States which have been supporting Project Loon, since inception. In order to continue to progress to operational internet service to underserved areas, overflight discussions and agreements are key.