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ASSEMBLY — 41ST SESSION

TECHNICAL COMMISSION

Agenda Item 33: Other issues to be considered by the Technical Commission

DISASTER PREPAREDNESS AND RESILIENCE OF AIRPORTS

(Presented by Airports Council International (ACI))

EXECUTIVE SUMMARY

ACI member airports have committed on a global level to reach net-zero carbon emissions by 2050. More than 130 airports have anticipated their target to 2030, or even earlier, while others are aiming for 2040. This effort and commitment emerges not only from the ongoing sustainability efforts of the entire industry but also from the urgent need to mitigate the impact of aviation on global climate change.

The evolving climate is already proving to have significant impacts on the overall aviation ecosystem's efficiency and safety of operations. These impacts will continue to evolve and transform as time goes on and climate events evolve.

This paper presents some of the operational and safety challenges airports, and the wider aviation community, face due to climate change and other major natural events. It puts forth the importance of cross industry collaboration to prepare for and respond to major climate or natural events, and showcases some of the actions undertaken by airports to prepare for, manage and mitigate the safety and operational effects of these events.

Strategic Objectives:	This information paper relates to Strategic Objectives of Safety, Air Navigation Capacity and Efficiency and Environmental Protection.
Financial implications:	N/A
References:	A41-WP/210 – *Airports efforts to decarbonize, required support and a collaborative approach with governments and stakeholders* A41-WP/354 – *Attracting and developing the aviation ecosystem's workforce to ensure the industry's long-term sustainability and resilience*

1. INTRODUCTION

1.1 The COVID-19 pandemic has stressed the need to ensure that civil aviation is resilient to future shocks. In this regard, climate change in particular poses an existential threat to the industry and requires an urgent global response. Emerging from the pandemic, sustainability remains equally crucial for the present and the future of the industry as traffic and operations regain their previous levels of growth.

1.2 In June 2018, ACI members adopted a resolution (*ACI Resolution 3/2018 on resilience and adaptation to climate change*) recognizing the potential impact of climate change on airport infrastructure and operations, encouraging member airports to conduct risk assessments, develop mitigation measures and communication channels, as well as to take climate resilience and adaptation into consideration for their master plans.

1.3 Climate change remains a global challenge requiring further and urgent global response. Taking into consideration the Intergovernmental Panel on Climate Change (IPCC) Special Report (2018), and the urgency in defining a path forward to net-zero carbon emissions, ACI member airports committed on a global level to reach net-zero carbon emissions by 2050 and is urging governments to provide the necessary support in this endeavour. Decided in June 2021, this is the first net-zero aviation-sector commitment on a global level and is based on a comprehensive long-term goal feasibility assessment developed by ACI.

1.4 This paper presents some of the challenges which climate change poses for the overall efficiency, capacity and levels of operational safety for the aviation system as well as a number of actions taken by the airport industry to prepare for extreme weather and climate-related events.

2. DISCUSSION

2.1 Climate change poses a number of safety challenges to aviation in addition to potentially severe operational disruptions as well as possible infrastructure changes. For example, higher temperatures can impact take-off and landing conditions and may require longer runway lengths. Natural events such as hurricanes (e.g. Typhoon No. 21 experienced in Japan in September 2018) can lead to the flooding of runways and power supply facilities, as well as extensive facility damage. Other phenomena, like variations in wind direction, can create new cross wind conditions not experienced in the past or can have negative impacts on operations at airports due to stronger winds. Equally, variations in temperatures can generate stronger storms with more intense precipitations, both in winter and summer.

2.2 In 2018, ICAO published a Climate Adaptation Synthesis document, presenting a synthesis of the current understanding of climate change impacts and how those impacts may directly and indirectly affect airports, air navigation service providers (ANSPs), aircraft operators, and other aviation stakeholders or infrastructure. This document was based on the findings of the IPCC AR5, supplemented with other peer-reviewed scientific information, and reviewed by the CAEP ISG (Impacts and Science Group). CAEP Working Group 2 (WG2) was tasked with looking at the specific infrastructure and operational impacts of climate change on aviation via a literature review and survey, the results of which are described in the synthesis.

2.3 Reducing emissions at airports helps contribute to an overall global reduction in the risk of catastrophic events. In June 2021, ACI decided on a long-term carbon goal for their member airports. This states that “ACI member airports at a global level commit to reach net zero carbon emissions by 2050 and

urge governments to provide the necessary support in this endeavor." This ambitious goal highlights airport's leadership in addressing, minimizing, and mitigating the environmental impacts of aviation.

2.4 At a broader level, ACI has taken a leadership role in promoting sustainable development, which actively addresses environmental impacts while ensuring delivery of the economic and social benefits of aviation. The ACI Airport Carbon Accreditation (ACA) is the only institutionally endorsed, global carbon management certification program designed specifically for airports, with approximately 400 airports accredited globally. In this context, ACI is presenting the Working Paper A41-WP/210 to the 41st ICAO Triennial Assembly on *Airports' Efforts to Decarbonize, Required Support and a Collaborative Approach with Governments and Stakeholders*.

2.5 Given the ongoing evolution of natural phenomena airports must prepare for natural disasters and develop mechanisms to ensure resilience and continuity of operations as part of the overall airport disaster preparedness and recovery plan. To assist its members, ACI published a Policy Brief on airport's resilience and adaptation to a changing climate in September 2018. The Brief encouraged airports to conduct risk assessments, consider various adaptation measures and develop mitigations for the potential impact of climate change on infrastructure and operations. It also includes useful case studies from various airports.

2.6 ACI's objective is to ensure that airports are resilient and prepared for major disruptive events. To achieve this, ACI is working to deliver the following three strategic initiatives:

a) establish aviation ecosystem collaboration;

b) provide cross-industry training and guidance material; and

c) provide tactical support to the airport community during major events.

2.7 ACI has been actively involved with the work done by the Humanitarian Assistance and Disaster Response in Aviation (HADRA) Experts Group and supports the further development of this Expert Group as a collaborative platform, which will help delivering ACI's objectives on disaster resilience. In May 2022 ICAO published the Guidance Material on Airport Preparedness for Effective Humanitarian Assistance and Disaster Response developed by the HADRA Expert Group. This guidance highlights the role of aerodromes as important hubs for humanitarian assistance and disaster response and supports governments, regional organizations, the humanitarian community and international civil aviation stakeholders for ensuring an effective response to disasters.

2.8 The ICAO *Airport Services Manual* (Doc 9137), Part 7 – *Airport Emergency Planning* was last updated in 1991. This document, which is scheduled for a major update and review by the relevant subgroup of the Aerodrome Design and Operations Panel will contain new guidance on the topics of managing public health emergencies, assistance to air crash victims and their families and responding to unauthorised drone incidents. While at this time this document contains minimal information pertaining to disaster preparedness and response, ACI welcomes and support the past and current Adaptation activities in the Committee on Aviation Environmental Protection (CAEP) WG2. ACI also believes that the update of Doc 9137, Part 7 is a a great opportunity to explore the inclusion of additional guidance material to help States and aerodrome operators be resilient and prepared for natural disaster events.

2.9 The importance of recruitment and retention of sufficient and diverse personnel to meet future demand and the long-term social sustainability and attractiveness of the aviation sector for the next generation of workers is one of the pillars required to achieve and maintain the established sustainable

goals. ACI is presenting the Working Paper A41-WP/354 to the 41st ICAO Triennial Assembly on Attracting and developing the aviation ecosystem's workforce to ensure the industry's long-term sustainability and resilience.

2.10 The safety of operations is best safeguarded when the response to climate change is taken through a systematic approach which includes the entire aviation ecosystem. An important element of an adaptation plan is the coordination with broader airport stakeholders and surrounding communities. An inclusive approach to collect intelligence, assess risks, and interact proactively with these stakeholders will help mitigate long-term impacts, including safety impacts and ensure a more resilient aviation system.

2.11 Finally, when a major climate-related event affects airport operations, well established Aerodrome Emergency Plans (AEP) and Business Continuity Management (BCM) processes should be in place to manage the immediate emergency, coordinate activities, and ultimately resume operations – all of them safely and efficiently. To help members prepare for and recover from emergencies, including climate-related events, ACI has published a Handbook on Emergency Preparedness and a Handbook on Airport Business Continuity.

3. CONCLUSION

3.1 The information contained in this paper is provided for consideration in the context of the development of additional guidance material to help States and industry prepare for and recover from major disruptive natural events.

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