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30.3 Relevant Outcomes of the High-level Conference on COVID-19, Safety Stream (HLCC 2021)

IDENTIFICATION NEW HAZARDS AND CONTROLLING NEW RISKS IN CHANGES

(Presented by Iran (Islamic Republic of))

EXECUTIVE SUMMARY

Any change may create new hazards, but what is important is that the changes affect the existing hazards as well. It is true that new hazards create new risks, but the previous hazards will also bring new risks and it does not even end here, but the previous risks can be transformed into new risks by changing any of the variables of probability and severity, and after that new suitable controls will be necessary.

<i>Strategic Objectives:</i>	This working paper relates to Strategic Objectives on Safety.
<i>Financial implications:</i>	
<i>References:</i>	

1. INTRODUCTION

1.1 Over the recent decades, the air transportation has increased worldwide and the analysis of fatalities and injuries is conducted us to the study of accident/ incident prevention in aviation. Aircraft operation is a complex of different activities in an airfield and its management is an important matter.

1.2 The service provider shall develop and maintain a process to identify changes, which may affect the level of safety risk associated with its aviation products or services, and to identify and manage the safety risks that may arise from those changes (ICAO, *Annex 19 – Safety Management*).

1.3 Airlines experience several “changes” during their operations that can originate from inside or outside of the organization. Each of these changes may be due to the expansion or contraction of the organization, changes in existing systems, processes, equipment or services. In fact, changes are made to achieve organization objectives and could be used to comply with rules and regulations and to adapt the organization's behaviour, activities and operations with optimized conditions.

1.4 The management of change (MOC) seeks to proactively and predictively mitigate safety risks before they result in aviation accidents and incidents. MOC is a best practice that controls safety risks and hazards as they pertain to an organization's changes to its facilities, equipment, operations, environment, processes or personnel. When a change is to be brought about, it will involve risks.

2. KEY QUESTION: NEW HAZARDS OR EXISTING HAZARDS?

2.1 Any change may create new hazards, but what is important is that the changes affect the existing hazards as well. What is neglected is the lack of attention to the existing hazards that can create different conditions in different situations with the introduction of changes. Usually, only new hazards are identified and the existing hazards are not known. Here, both new hazards and existing hazards are discussed, and thus existing risks and new risks are evaluated.

New hazards, new risks (with change)

2.2 Changes in operating environments may create new hazardous conditions, leading to new risks which new defenses are needed. Obviously, any change can provide the conditions for the existence of risks, and as a result, new risks have the opportunity to emerge, and this requires the design and use of new and appropriate controllers.

Existing hazards, existing risks (without change)

2.3 Existing hazards in operational environments carry risks that may already have defenses in place to control existing risks. For example, existence of mountains around the airport have potential of hazardous condition for aircraft while take-off, climb, approach and landing. Flying in mountainous regions and aerodromes has never been safer and has even brought many problems to the air transport system. Unpredictable weather in these regions is also a cause of concern for pilots who often have to deal with rapidly changing conditions such as strong winds and low visibility (Existing Hazards). Moreover, as height above sea level increases, atmospheric pressure becomes relatively lower which leads to thinner air and reduced air density which denser air ensures better aircraft performance.

2.4 As a result of these factors, lift is reduced since it takes more time to attain the necessary take-off speed to produce it. Similarly, low pressure leads to reduced air resistance and available drag

which makes it harder for the aircraft to slow down during landing. In this case, there will be the possibility of runway excursion and terrible consequences (Existing Risks).

2.5 Consequently, aircraft need to be equipped with special tires and airports must meet certain specifications, such as having longer runways to handle higher take-off and landing speeds (Existing Defenses).

2.6 Existing hazards, new risks (with change)

2.6.1 *Existing hazards, new risks.* Existing hazards generate new risks while changes being applied in the system and accordingly, new defenses must be considered to control new risks, and the previous controls are not effective for the new risks. In this way, previously determined controllers and defenses may not be suitable for the new risks.

2.6.2 *Existing hazards, transformation of existing risks into new risks.* Another point must be taken into account is that “existing risks” due to a change can appear in the form of “new risks” and the previous defenses may not work properly, so new defenses must be applied. Existing risks may become new risks (variation in severity/ probability) with the advent of change, and new defenses should be considered for the new risks. With the change in each of the variables of severity and probability of risk, the amount of risk will change and the previous controllers and defenses will not respond to this risk. Therefore, in proportion to the change of risks and the emergence of new risks, new defenses should be considered.

3. CONCLUSION

3.1 In operating environments, changes can create new hazardous conditions leading to new risks.

3.2 Existing hazards in operational environments carry risks that may already have defenses in place to control existing risks.

3.3 Existing hazards may generate new risks, and new defenses should be considered for the new risks.

3.4 Due to a change, existing risks can appear in the form of “new risks” (variation in severity/ probability) and the previous defenses may not work properly, so new defenses must be applied.