



WORKING PAPER

THIRTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 9 to 19 October 2018

COMMITTEE B

- Agenda Item 6: Organizational safety issues**
6.2: Implementation of safety management
6.2.1: State safety programmes (SSPs)

RISK-BASED APPROACH IN REGULATION

(Presented by Brazil)

EXECUTIVE SUMMARY

This paper aims to present the development of regulation based on scientific assessment of the consequences of risks to society. As an example, the review of the applicability of Brazilian regulation on Aerodrome Rescue and Firefighting Services (ARFFS) is presented. Analysis shows that proportional regulation can be redirected to improve compliance. No Country Left Behind (NCLB) initiatives and revision to ICAO Standards and Recommended Practices (SARPs) can benefit from this perspective.

Action by the States is in paragraph 3.

1. INTRODUCTION

1.1 The need to improve the quality of government intervention on enterprises and citizens has led to distinct regulatory reforms over the last decades. At least three different waves of reform can be identified. The first wave, from the 1930s to the 1960s, was characterized by greater government intervention (more regulation), justified by the concept of market failures. The second wave, from the 1970s to the 1980s, represented a return to liberalism (less regulation), in response to government failures. Since the 1990s, the debate on regulatory reform is no longer focused on “more” or “less” regulation, but on the concept of a better regulation (or smart regulation).

1.2 One of the key principles of better regulation is the use of a solid evidence base to support regulatory interventions. In this context, risk-based regulation has emerged as an important element of the better regulation agenda of governments and international organizations, especially in areas such as health, safety, and environmental protection. The core proposal of risk-based regulation is the use of risk assessment techniques to help regulators make better decisions. Usually, the term risk-based regulation is applied in two contexts. The first application concerns the development of regulations based on scientific assessment of the consequences of the risk to society. The second

application is related to the assessment of the risks posed by regulated entities to target enforcement and inspection resources.

1.3 This working paper focuses on the first application of the term, and has a purpose to share a practical example of the application of risk assessment studies during the revision of aerodrome rescue and firefighting service regulation in Brazil. The example shows that risk-based regulation offers a tailored approach that provides benefits for enterprises and governments. Lower risk sectors or activities can be subject to lighter requirements and lower administrative burdens. This potentially reduces disparities and generates more equitable conditions between large and small organizations. The resources made available by more proportional regulation can then be redirected to improve compliance in other priority risk areas.

1.4 The benefits of risk-based regulation show that it can be an important tool for the achievement of the objectives of the No Country Left Behind (NCLB) initiative through more intense use of risk assessment studies on the development and revision of national regulations. Similar benefits can be achieved by adopting risk-based regulation in the revision of ICAO Standards and Recommended Practices (SARPs).

2. DISCUSSION

2.1 In order to show how important it is to consider risk-based regulation in the process of incorporating ICAO SARPs into State's regulatory framework, this section presents the case of the review of the applicability of Brazilian regulation on Aerodrome Rescue and Firefighting Services (ARFFS).

2.2 According to Annex 14 — *Aerodromes*, section 9.2, aerodromes shall provide rescue and firefighting equipment and services, with the objective, in case of an accident, to increase the survivability chance of passengers in the aircraft. To do so, requirements are established on equipment, vehicles, extinguishing agents and personnel, to be implemented by States. As an ICAO Contracting State, Brazil has incorporated the requirements in its regulation, whose applicability has recently been reviewed.

2.3 Previously, Brazilian ARFFS regulation required all airports serving commercial flights (domestic and international flights) to provide a fully compliant fire station. This was a costly obligation and often an economic barrier for developing small airports and for providing commercial flights to certain regions of the country.

2.4 With the regulatory evolution, since December 2017, small airports (less than 200.000 passengers per year) are no longer required to provide ARFFS. Nonetheless, if they provide the service, it must be compliant with regulation. The regulatory impact analysis on the proposed change of the regulation had a strong risk-based approach. The following variables were considered in the analysis:

- a) other international experiences on the theme, such as the Canadian, Australian, Argentinian, and South African regulations;
- b) academic and technical studies – two Brazilian master thesis and two studies from the Canadian and Australian CAA;
- c) impact on the matrix of transported passengers in Brazil – 98 per cent of all passengers (and 100 per cent of international passengers) in Brazil are processed in fifty five airports;

- d) impact on the accident risk matrix that would no longer be covered by ARFF services – based on the analysis of data from 9.6 million flights and 1,868 safety events (including nine aircraft accidents in aerodromes) between 2006 and 2015 in Brazilian airports, the probability of an aircraft accident happening in an airport is estimated to be 9.7×10^{-7} (or 1 accident in every 1.03 million flights); and
- e) impact on the regulatory cost for complying with ARFF service in Brazil – the analysis of the cost of provision of ARFFS in the four different airport categories shows that the cost of maintenance for small airports (less than 200,000 passengers per year) is about US\$ 470,000 per year (or US\$ 5,30 for each passenger processed annually), meanwhile for larger airports (5 million passengers and beyond per year) the cost is approximately US\$ 2 million per year (or US\$ 0,16 per passenger processed annually).

2.5 The studies showed that the proposed amendment would affect only 2per cent of the passengers embarked or disembarked in 545 Brazilian airports, from which only forty four serves scheduled flights (11per cent of the estimated probability accidents). The safety level is still quite conservative when compared to Australian and Canadian regulations, and this approach was effective to guarantee safety levels in Brazil and to provide a more cost effective regulation.

2.6 Recently, ICAO have discussed the possibility of amendment to Annex 14, Volume 1, SARP 9.2.1 that requires ARFFS provision for all types of operation in airports. Due to extensive discussions and studies in its panels and working groups, ICAO is considering exempting the obligation when airports operate only general aviation. This decision has significant impact on such airports, since they tend to have low commercial traffic. Such changes on Annex 14 are possible due to extensive risk assessment.

3. ACTION BY STATES

3.1 States are invited to:

- a) share with ICAO and with other Contracting States similar studies or data that could support other risk assessments, including the adoption of risk-based regulation in the development and revision of SARPs; and
- b) offer support to NCLB initiative in order to develop tools to encourage the application of risk assessment techniques that could provide more proportional regulation and the reduction of costs maintaining an acceptable level of risk.

— END —