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DIRECTORS GENERAL OF CIVIL AVIATION  
ASIA AND PACIFIC REGION**

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**AGENDA ITEM 1: THEME TOPIC**

*“The Challenge of Managing Outcome Focused and Risk Based  
Regulations for Asia Pacific States”*

**PERFORMANCE-BASED REGULATION IN THE  
ASIA PACIFIC REGION**

(Presented by New Zealand)

**SUMMARY**

The ongoing regulation of aviation safety in the Asia Pacific Region faces many challenges, which may require alternative approaches to regulation. Performance-based regulation, which emphasises specifying a performance outcome rather than prescriptively setting out how to comply, is an example of an alternative approach. This paper discusses the benefits of a performance-based approach; supporting effective performance-based regulations; regulatory capability; and the development of performance-based regulation in New Zealand.

## **PERFORMANCE-BASED REGULATION IN THE ASIA PACIFIC REGION**

### **1. INTRODUCTION**

1.1. The traditional approach to aviation regulation is to prescriptively set out particular actions that must be taken to ensure safety, rather than the safety outcomes being sought. Performance-based regulation, on the other hand, establishes performance objectives in legislation, without specifically detailing the means of compliance required to achieve the objectives.

1.2. This paper does not promote entirely replacing prescriptive regulatory requirements with performance-based requirements. Both approaches have an important role, and in the international environment a certain level of prescription is essential to provide standardisation and harmonisation. Nevertheless, performance-based regulation is becoming more common and offers both advantages and challenges.

1.3. This paper discusses the benefits of a performance-based approach, supporting effective performance-based regulation, the regulatory capability required to implement performance-based regulation, and the introduction of performance-based regulation in New Zealand. The adoption of a performance-based approach provides opportunities for Asia Pacific (APAC) States, and should be facilitated by the International Civil Aviation Organization (ICAO).

### **2. BENEFITS OF A PERFORMANCE-BASED APPROACH**

2.1 The complexity of the aviation sector has resulted in highly specific and detailed regulation, designed to address differences among operations and individuals. The volume and specificity of the regulations can complicate compliance by making it more difficult for participants to identify the regulations applicable to them. Performance-based regulation allows States to set safety performance objectives or outcomes, while enabling participants to establish means to achieve compliance that are suitable for their operation. It places a greater degree of reliance on the abilities of operators to identify and develop safe practices particular to their situation.

2.2 The rapid pace of technological change in the aviation sector creates new challenges for States. Traditionally, regulation of aircraft design, equipment and systems has been prescriptive. While prescription supports standardisation, it can also create barriers to the adoption of new technology – particularly where standards do not keep up-to-date with the application of new technologies. Safety risks can be created by the gap between standards and regulations, and available technology. Performance-based regulation is more responsive to changes in technology. It allows for a performance objective to be set in regulation, without limiting the technology that may be used to achieve those objectives.

2.3 Similarly, the rapid pace of change in the operating environment challenges the prescriptive approach. Operators must adapt to economic, political and social changes. Prescriptive regulation may inhibit the development of more sophisticated systems and risk management practices that can be adopted to better address safety risks and meet public expectations. Performance-based regulation enables the State to set minimum performance objectives that must be met, while providing operators with the flexibility to adapt to changes in their operating environment.

2.4 An increased adoption of performance-based regulation by APAC States may help address some of the challenges faced by the region.

### **3. SUPPORTING EFFECTIVE PERFORMANCE-BASED REGULATIONS**

3.1 Guidance material is necessary for the effective implementation of performance-based regulation. Guidance can set out how to demonstrate acceptable means of compliance, provide examples of what compliance might look like, and direct participants to resources or organisations

that might be in a position to assist. Without guidance, parties may lack the ability to assess appropriate means of compliance. For example, performance-based regulation relating to technology may require a degree of technical knowledge that is beyond the expertise held by the average sector participant. Guidance material is especially important to support less-resourced or less mature operators to comply with performance-based regulation.

3.2 Additional supporting requirements can also be used to specify the technical detail of how a participant can meet outcomes set in performance-based regulation. There is a risk that using supporting requirements undoes some of the benefits associated with a performance-based approach by minimising flexibility for operators. However, this can be mitigated by ensuring that supporting requirements are developed using a robust method, adopted only where appropriate, and in a manner that continues to provide a sufficient degree of flexibility. Where the use of supporting requirements is not practical, it may be that prescriptive requirements remain necessary.

3.3 Where Standards and Recommended Practices (SARPs) are performance-based, ICAO can play a critical role in supporting States with the development of these additional tools.

#### **4. REGULATORY CAPABILITY**

4.1 Assessing compliance with prescriptive regulation is quite different to assessing whether a participant has identified an appropriate means of compliance to meet a performance outcome. For regulatory staff to know when their action is necessary, and the type or level of the regulatory action required, they must understand the nature of the risk and the best possible means of addressing it. Regulatory staff must be able to make decisions that are intelligence-led, risk based, display critical thinking, and solve identified problems. In addition, regulatory staff must be able to influence the behaviour of participants. Without the ability to assess whether or not a participant complies with a performance objective, regulators may rely on generic manuals and check sheets. These may unintentionally become prescriptive standards and undermine a performance-based approach.

4.2 The emphasis on different skills and behaviours may well require the employment of regulatory staff with different skills to those traditionally held by staff operating in a prescriptive regulatory environment. In a highly prescriptive regulatory system, States face challenges recruiting appropriately qualified regulatory staff. Acknowledging the need to retain a level of technical expertise, States may benefit from focusing on hiring staff with different skills to those traditionally held.

4.3 As performance-based SARPs are increasingly adopted, ICAO can play an important role in supporting States to develop a performance-based regulatory skill set. ICAO should support States in this regard by:

- facilitating the sharing of knowledge and lessons learned between States;
- providing guidance to States regarding the skills and behaviours required of staff operating in a performance-based environment;
- updating manuals and other resources relating to the core skills of regulatory staff to reflect the new operating environment;
- reflecting the need for different types of skills in ICAO training; and
- considering these additional factors when auditing States.

4.4 ICAO's Next Generation of Aviation Professionals (NGAP) initiative provides an existing means by which ICAO can support the development of skills for a performance-based regulatory environment, for both industry and States.

## **5. THE DEVELOPMENT OF PERFORMANCE-BASED RULES IN NEW ZEALAND**

5.1 New Zealand Civil Aviation Rule Part 100 implements Safety Management Systems (SMS). Part 100 applies to commercial operations, requiring them to establish, implement, and maintain a system for safety management. It does not attempt to identify for operators what specific risks must be addressed or how to do so. Rather, it enables operators to adapt their SMS according to their own risks and challenges.

5.2 New Zealand is also developing performance-based regulations for surveillance equipment and emergency location devices for use in the domestic context. The prescriptiveness of some rules relating to these two types of technology has resulted in the need to grant exemptions from regulations, and in some cases, has delayed the adoption of new technology. The use of performance-based regulation will enable the Civil Aviation Authority of New Zealand (CAANZ) and operators to consider and adopt new technology for surveillance and emergency location as appropriate. This will support technological innovation and limit situations where technology progresses faster than regulation.

5.3 A performance-based approach has also been adopted for the regulation of unmanned aircraft operations.<sup>1</sup> Civil Aviation Rule Part 102 and consequential changes to Part 101, have very few prescriptive limitations on the type of operation that can be carried out. Instead, they require operators to identify and mitigate all safety risks to the extent possible. Certification and surveillance is required under Part 102 where the proposed operation could not be conducted in accordance with Rule Part 101. This approach recognises that the operating environment and technology for unmanned aircraft operations is rapidly changing, and provides flexibility within the regulatory framework for operators to adapt to these changes.

5.4 To support the new rules, the CAANZ has responded to the challenges of regulator capability by developing a Regulatory Workforce Strategy. As part of this strategy, staff are trained to work in new ways to deliver performance-based regulatory oversight. This involves developing capability around outcomes-focused decisions, using data and intelligence to identify and manage risks, and keeping pace with technology. As a result of the strategy, it is expected that CAANZ employees will be better able to identify and prioritise risks, and determine which responses are most appropriate to achieve the desired safety outcomes.

5.5 ICAO can utilise the experience of New Zealand and other States in the development of performance-based SARPs.

## **6. CONCLUSION**

6.1 Performance-based regulation has a number of benefits. In order to fully realise these benefits, supporting requirements and guidance may be needed. Different sets of skills and behaviours of the regulator are also necessary to ensure that the implementation of performance-based regulation optimises these benefits.

6.2 The move to a performance-based regulatory environment provides APAC States with an opportunity to address current challenges. This transition can be facilitated by ICAO with the adoption of performance-based SARPs, the introduction of supporting guidance material, and assisting States with the development of the regulatory skills required.

## **7. ACTION BY THE CONFERENCE**

7.1 The Conference is invited to:

- a) Recommend that ICAO prioritise the adoption of performance-based SARPs whenever appropriate in order to realise the associated benefits;

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<sup>1</sup> See IP/3.3/24 of the 53<sup>rd</sup> Conference of Directors General of Civil Aviation Asia and Pacific Regions, 2016.

- b) Recommend that ICAO provide support to States with regard to the development of any guidance or supplementary requirements necessary to support performance-based regulation;
- c) Recommend that ICAO take steps to support States with the development of the new regulatory skills and behaviours required to support the effective implementation of performance-based regulation; and
- d) Recommend that ICAO take advantage of the experience of States, including New Zealand, when adopting a performance-based approach.

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