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English, French, Spanish and Russian only*

ELEVENTH AIR NAVIGATION CONFERENCE

Montreal, 22 September to 3 October 2003

Agenda Item 2: Safety and security in air traffic management (ATM)
2.3: Safety regulation

ATM SAFETY REGULATORY OVERSIGHT

(Presented by European Organisation for the Safety of Air Navigation (EUROCONTROL) on behalf of its Member States and those of ECAC[1])

SUMMARY

Structural changes in the ATM industry mean that many States now have the task of establishing ATM safety regulatory functions, separate from service provision, where these did not exist previously.

A basis for national rulemaking exists in the form of global, regional and national rules and standards, but to be effective, these must be implemented through the application of effective safety oversight, promulgated and applied through defined and explicit processes and procedures.

There is a need for States to develop adequate provisions to ensure that safety oversight in conducted nationally in accordance with defined and explicit processes and procedures.

The ATM sector could benefit from past experience in other aviation sectors, and the concept of a certification Manual for ATM should be given full and detailed consideration.

Suggested action by the conference is in paragraph 7.

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[1] The ECAC Member States are: **Albania**, Armenia, **Austria**, Azerbaijan, **Belgium**, Bosnia and Herzegovina, **Bulgaria**, **Croatia**, **Cyprus**, **the Czech Republic**, **Denmark**, Estonia, **Finland**, **France**, **Germany**, **Greece**, **Hungary**, Iceland, **Ireland**, **Italy**, Latvia, Lithuania, **Luxembourg**, **Malta**, **Moldova**, **Monaco**, **the Netherlands**, **Norway**, Poland, **Portugal**, **Romania**, Serbia and Montenegro, **the Slovak Republic**, **Slovenia**, **Spain**, **Sweden**, **Switzerland**, **The former Yugoslav Republic of Macedonia**, **Turkey**, Ukraine **and the United Kingdom**).

The 31 Member States of EUROCONTROL appear in **bold**

(6 pages)

*French, Spanish and Russian versions provided by EUROCONTROL.

1. INTRODUCTION

1.1 National governments have the role of ensuring the continuing safety of their citizens. In aviation, this is done through a legislatively based system of safety regulation. In many aviation sectors, such as airworthiness and airline operations, such activities are well established and understood, but safety regulation generally represents a new concept in ATM.

1.2 Structural changes in the ATM industry have been accelerating over recent years, both in Europe and in many other parts of the world. Progressive separation of the provision of services from other government activities has seen the establishment of agencies, corporations and companies, both publicly and privately owned, operating in an increasingly market-oriented way.

1.3 Correspondingly, we have also seen the emergence of national bodies needed to regulate this new ATM environment from a safety viewpoint.

1.4 It should also be noted that, through the Single European Sky regulations, the European Community is also providing for the separation of regulatory activities from service provisions, at least at the functional level. These regulations are introducing a concept of certification of ATM/CNS services and system, which also covers safety requirements.

2. ROLES IN ATM SAFETY

2.1 These developments in the ATM industry sector have led to a progressive separation of safety roles, as follows:

2.1.1 ***Safety Management* —** Essential processes used by organisations providing safety-related services or products.

2.1.2 ***Safety Regulation* —** The process applied by States for establishing, overseeing and enforcing minimum safety levels in the public interest.

2.2 It should be understood that safety management and safety regulatory functions can not exist separate from the other. They complement each other in an interactive way, and through close coordination and cooperation, both contribute to ensuring ongoing ATM safety.

2.3 The introduction of safety regulation as a defined role implies the establishment of new functional areas within national administrations requiring capabilities, expertise, processes and procedures that have not previously been needed in this field.

3. ROLES IN ATM SAFETY

3.1 Safety Regulation comprises the roles of Rulemaking and Safety Oversight.

3.2 In ATM, formal rulemaking is now being specifically addressed through:

a) the application of ICAO Standards and Recommended Practices;

b) regional rulemaking activities, such as EUROCONTROL Safety Regulatory Requirements (ESARRs);

c) national laws, regulations and requirements, and

d) applicable national and international standards and good practices.

3.3 Taken in conjunction, and with further development with time of the above mentioned international and national rule making elements, a basis exists on which the operation of ATM safety regulatory functions can operate.

3.4 However, the effectiveness of safety regulation depends on the application of safety oversight, as a key means of ensuring that safety rules are complied with, and standards are met. In practice, this requires bodies charged with the task of safety regulation to be adequately equipped, and to be able to operate according to defined and accepted processes and protocols.

4. SAFETY OVERSIGHT

4.1 Safety Oversight may be defined as:

The function undertaken by a designated authority to verify that safety regulatory objectives and requirements are effectively met.

4.2 Safety Oversight is applied in respect of:

4.2.1 Proposed operation of new ATM systems, up to the point of introduction into operational use, or proposed changes to the operation of existing ATM systems, in the form of new developments or modifications. In most of these cases, **initial safety oversight** is undertaken and leads to the issuance of a **safety regulatory approval** or **safety certification**[2].

4.2.2 Continuous operation of in-service ATM systems. In that context **ongoing safety oversight** is carried out.

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[2] Safety regulatory approval and safety certification having the same meaning in this paper.

4.3 Safety Oversight is applied in respect of initial implementation and routine operations of an organisation's Safety Management System.

4.4 Safety oversight involves the safety regulator assessing compliance by the service-provider with all applicable safety regulatory provisions, including those specified at paragraph 3.2 above.

4.5 *Figure 1* illustrates the safety oversight actions to be developed in relation to the ATM service provision activities:

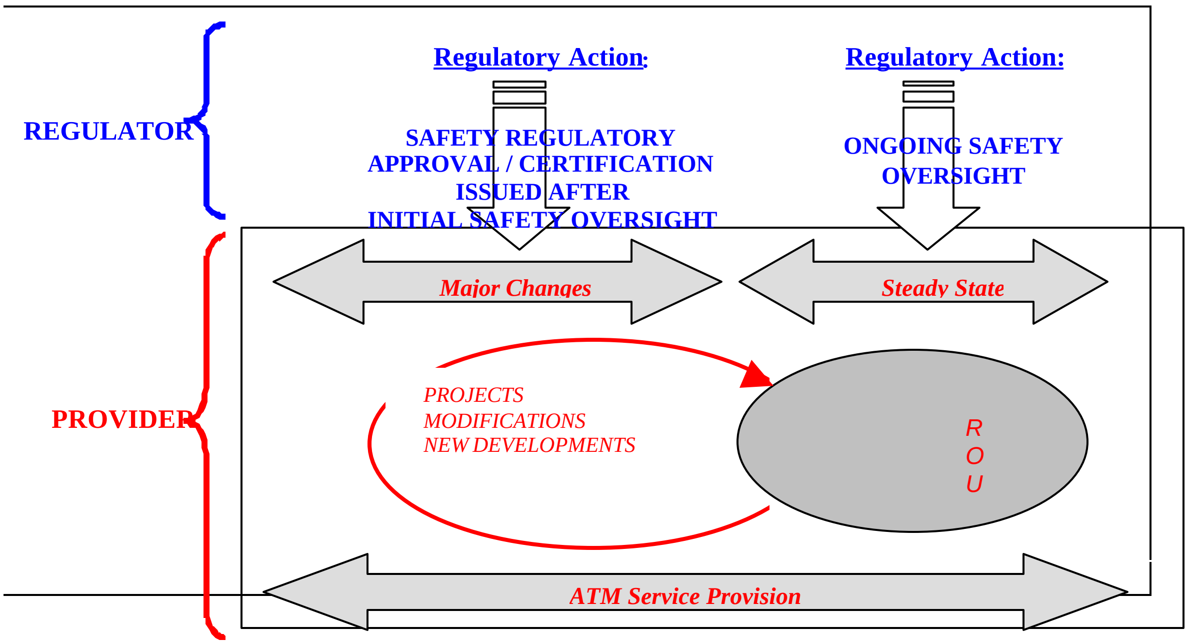

Figure 1. Safety oversight actions

4.6 Within the safety oversight task, there are three main areas for review and assessment:

4.6.1 ***Surveillance of compliance with safety regulatory provisions*** — Safety regulators need to ensure that safety regulatory provisions are complied with on an initial and a continuing basis. In accordance with established and available regulatory processes and appropriate arrangements, providers should provide sufficient documentary evidence of compliance to enable the safety regulator to conduct formal assessments.

4.6.2 ***Areas, their level of risk and effective management*** — Risks involved in all pertinent provision of services, practices and procedures should be formally assessed. It is important that any one process or practice does not have an adverse safety effect upon another, and that new procedures do not impact negatively upon the safety of existing systems or operations.

4.6.3 **Safety adequacy of ATM system elements** — Where considered necessary, certain elements of the ATM system (equipment, procedures, and personnel) may need to be subject to specific forms of oversight. As an example, in relation to certain ATM staff, licensing schemes may be typically used as an additional tool to demonstrate adequate competence.

5. METHODS FOR SAFETY OVERSIGHT

5.1 The methods of safety oversight may include audit and/or inspection. Both methods can form a part of both initial and ongoing safety oversight, but the extent of their use may vary depending upon the aspects subject to the oversight, and the formal safety processes of the service-provider. Performance measurement and other complementary techniques should also be part of this regulatory function.

5.2 Safety oversight activities should be conducted through standardised procedures to eliminate discrepancies in their application. It is indeed essential that the final judgement on whether or not a service provider can operate within tolerable safety levels must be based on sound, reliable and objective findings. Procedures should be written, understandable, actionable, auditable and mandatory, and form a complete documented system.

5.3 At a time of structural changes in the provision of ATM services and in order to safeguard the public interest, it is therefore essential that States put in place adequate provisions to ensure that safety oversight in conducted for ATM services provided in the national airspace in accordance with defined and explicit processes and procedures.

5.4 Establishment of ATM procedures for safety regulatory approval/certification represents a critical element in the achievement of ATM safety. Considering that a number of States are still at the early days of implementing safety regulation in ATM, there would be benefit if good working practices could be documented at a global level and then further refined when more experience is gained.

5.5 Such an approach has been necessary with regard to certification activities in other aviation sectors, notably in the certification of aircraft airworthiness and operations, and more recently in the Certification of Aerodromes.

5.6 It is therefore proposed that the ATM sector should benefit from past experience in other fields, and that the concept of a certification Manual for ATM should be given full and detailed consideration.

6. CONCLUSION

6.1 At a time of structural changes in the provision of ATM services, many States now have the task of establishing ATM safety regulatory functions, where these did not exist previously. A basis for rulemaking exists in the form of global, regional and national rules and standards. However these must be implemented through the application of effective safety oversight, promulgated and applied through defined and explicit processes and procedures.

6.2 Past collective experience can facilitate the establishment of such processes, and the concept of a Certification Manual for ATM should be investigated.

7. ACTION BY THE CONFERENCE

7.1 The Conference is invited to:

a) urge States to develop ATM safety oversight capabilities and procedures, at least where ATM service provision is not a State duty anymore; and

b) request ICAO to launch a study group to develop an ATM certification manual.

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