NOTICE OF PROPOSED AMENDMENT (NPA) No 6/2006

BASIC PRINCIPLES AND ESSENTIAL REQUIREMENTS FOR THE SAFETY AND INTEROPERABILITY REGULATION OF AERODROMES

TABLE OF CONTENTS

A Explanatory Note

I. General

1. The purpose of this Notice of Proposed Amendment (NPA) is to envisage amending REGULATION (EC) No 1592/2002 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 15 July 2002 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency (the Basic Regulation)[1] to extend its scope to the safety and interoperability regulation of aerodromes. The scope of this rulemaking activity is outlined in ToR BR.002 and is described in more detail below.

2. The Agency assists the Commission in the preparation of proposals for amending the Basic Regulation to be presented to the European Parliament and to the Council. The Agency shall prepare drafts of the basic principles and essential requirements which are adopted as "Opinions" (Article 14.1) to be submitted to the Commission.

3. When developing rules, the Agency is bound to follow a structured process as required by article 43.1 of the Basic Regulation. Such process has been adopted by the Agency's Management Board and is referred to as "The Rulemaking Procedure"[2].

4. This rulemaking activity is included in the Agency's rulemaking programme for 2006. It implements the rulemaking task BR.002: to develop basic principles and essential requirements for the interoperability and safety regulation of airports.

5. The text of this NPA has been developed by the Agency. It is submitted for consultation of all interested parties in accordance with Article 43 of the Basic Regulation and Articles 5(3) and 6 of the EASA rulemaking procedure.

II. Consultation

6. To achieve optimal consultation, the Agency is publishing the Notice of Proposed Amendment (NPA) of the European Aviation Safety Agency on its internet site. Comments should be provided within 3 months in accordance with Article 6(4) of the EASA rulemaking procedure. Comments on this proposal may be forwarded *(preferably by e-mail)*, using the attached comment form, to:

By e-mail: NPA@easa.eu.int

By correspondence: Process Support Unit
Rulemaking Directorate
EASA
Ref: NPA 6-2006
Postfach 10 12 53
D-50452 Cologne
Germany

[1] Regulation (EC) No 1592/2002 of the European Parliament and of the Council of 15 July 2002 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency. *OJ L 240, 7.9.2002, p.1.*

[2] Management Board decision concerning the procedure to be applied by the Agency for the issuing of opinions, certification specifications and guidance material ("rulemaking procedure"), EASA MB/7/03, 27.6.2003

Section IV of this document contains explanations related to this rulemaking task. It also includes several questions. The objective of these questions is to seek the opinion of stakeholders on key features of the future framework for the regulation of aerodromes. It would be most appreciated that comments be related to these questions. However, the Agency welcomes also comments on any other point addressed in this NPA. Comments should be received by the Agency before Wednesday 16th August 2006. If received after this deadline they might not be considered. Comments may not be considered if the form provided for this purpose is not used.

III. Comment response document

7. All comments received in time will be responded to and incorporated in a comment response document (CRD). This may contain a list of all persons and/or organisations that have provided comments. The CRD will be widely available on the Agency's website.

IV. Content of the Notice of Proposed Amendment

General

8. When adopting its proposal for a Regulation of the European Parliament and the Council on common requirements in the field of civil aviation and establishing the European Aviation Safety Agency[3], the European Commission acknowledged that its proposal aimed at covering all fields of civil aviation safety and environmental protection. It however recognised that as a first step it was only proposing the provisions necessary to ensure the airworthiness and environmental compatibility of products, as further work was needed to properly regulate air operations, flight crew licensing and the safety of aerodrome operations and air navigation services.

9. During the legislative process, which led to the adoption of the Basic Regulation, the European Parliament and the Council accepted the Commission's view but insisted that work be undertaken with the view to extend the scope of the regulation to all other domains of civil aviation safety, as reflected in the second whereas of the regulation. They considered indeed such extension as absolutely necessary to ensure overall consistency of the regulatory framework under a total system perspective, all elements being inter-dependent. This would also prevent a complex and unclear sharing of responsibilities between the Community and its Member States, which could lead to loop-holes detrimental to the objective enshrined in the EASA Regulation, of a high and uniform level of aviation safety. As a first step to meet this objective, EASA issued on 16th December 2004 Agency Opinion[4] 3/2004 on the regulation of pilot licensing, air operations and third country aircraft. Based on this opinion and along the lines taken in it, the Commission issued a legislative proposal[5] on 16th November 2005.

10. In parallel the Commission asked the Agency to initiate work on the safety and interoperability regulation of aerodromes and air navigation services[6] and launched an impact assessment[7] on

[3] COM(2000) 595 final of 27.9.2000 (OJ C 154/29.5.2001)

[4] Agency Opinion 3/2004 for amending Regulation (EC) No 1592/2002 on common rules in the field of civil aviation and establishing the European Aviation Safety Agency, to extend its scope to the regulation of pilot licensing, air operations and third country aircraft

[5] Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EC) No 1592/2002 on common rules in the field of civil aviation and establishing the European Aviation Safety Agency (OJ L 240/7.9.2002) of 15 July 2002 (COM(2005)579)

[6] The term "air navigation services" is used here in a broad sense to cover all elements of the so-called CNS/ATM system.

ways and means to extend Community competence into these fields. This impact assessment concluded that the extension of EASA competences was the most favourable option, subject to a careful transition path and an appropriate distribution of certification tasks between the Agency and the National Aviation Authorities (NAA). The Commission issued on this a communication[8] outlining a medium-term agenda for the development of civil aviation safety regulation in Europe. In this context EASA is to prepare, implement and monitor the application of safety rules, and is set to become by 2010 the European authority with extended powers covering all aspects of civil aviation safety.

11. When considering ways and means to prepare the opinions it has to present to the Commission in order to establish the necessary legal framework, the Agency found it appropriate to distinguish aerodrome regulation from that of air navigation services. Aerodromes have indeed for their prime objective to provide for the safety of an individual aircraft by ensuring that the appropriate means are provided to allow its safe take off and landing, while air navigation services aim at managing its interaction with other aircraft. As a consequence the risks associated to these two types of activity are fundamentally different and the related mitigating measures to be enforced by regulation need to be addressed separately in order to avoid overlap and confusion. Conversely risks associated to air traffic on the ground and in all phases of flight are of the same nature and should be handled under a gate to gate perspective. This does not mean that aerodrome operators may not be air navigation service providers, but only that the requirements to be met in this case are separate from those related to their basic airport activity. The present consultation is therefore limited to the safety of the ground infrastructure and its operation. A separate task is currently being handled by the Agency to address the CNS/ATM dimensions of civil aviation safety and a similar consultation will be launched when possible.

12. Furthermore, during the elaboration of this NPA, the consultation of ICAO data and definitions has shown that the term airport was not adapted to the work that was being carried out and did not reflect the scope properly. The term aerodrome is the one used internationally, so this is the term that is employed in this document in order to take into account the agreed terminology. In the same manner this document refers to aircraft rather than aeroplane as is the case in ICAO. Aircraft includes not only aeroplanes but also all other flying devices such as helicopters and gliders that need also proper infrastructure to operate safely.

13. Last but not least, when considering ways and means to regulate a dedicated sector, the Agency has to take into account that aviation is by essence of a global nature. Aircraft fly from place to place and the rules devised to provide for the necessary level of safety have also to be known and understood by all users. Such a need for interoperability is therefore not only a tool to facilitate the free movement of persons, but also an essential safety requirement. The Agency considers therefore that interoperability cannot be dissociated from safety when regulating civil aviation. This explains why the present consultation covers also interoperability requirements so as to ensure that the interoperability objectives contained in ICAO Standards and Recommended Practices are also taken into consideration and avoid disrupting the global system they underpin.

14. The objective of this document is to seek the opinion of all parties on ways and means to regulate the safety and interoperability of European aerodromes, so that the Agency can make its decision in full knowledge of the situation and guide the debates of the Community legislator. It thus explores which safety objectives should be set by the legislator and how. It

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[7] Preliminary Impact Assessment on the Extension of EASA competences to ANS, ATM and Airports, carried out on behalf of the European Commission, Final Report dated 15 September 2005

[8] Communication of the Commission COM(2005) 578 final of 15.11.2005; Extending the tasks of the European Aviation Safety Agency, An agenda for 2010

continues by discussing which aerodromes should be subject to common rules. It finally examines various options for their implementation taking into account the principles developed in the Commission's White Paper on European Governance[9].

Safety objectives

15. Currently the safety objectives to be met by regulating European aerodromes are set by the Standards and Recommended Practices adopted by the International Civil Aviation Organisation (ICAO SARPs) and by the national provisions of the basic acts adopted by Member States to establish the regulatory framework applicable to civil aviation. In many cases these national basic acts are mainly about the delegation of executive powers to governmental bodies or to independent civil aviation authorities. They include very little about the result expected by the legislator. They thus leave a large discretion for the executive level to implement the ICAO framework, and set the safety objectives, subject to political pressure, to avoid the occurrence and recurrence of accidents.

16. As the Community is not a contracting party to the Chicago Convention, ICAO SARPs are not part of Community law, although they bind its Member States and also create certain obligations on the Community as laid down in the Basic Regulation. Moreover, as execution of Community law is made by Member States or Community bodies like the Commission or an Agency, the jurisprudence of the European Court of Justice requires that the objectives assigned by the legislator are sufficiently clear and specific to allow judicial control of the acts of such executive bodies. Last, but not least, if some form of self-administration is to be envisaged for some aerodromes – that is without the need for certification - the safety objectives must be sufficiently detailed to allow their direct implementation by the aerodromes owners or operators. As a conclusion, the extended EASA Regulation shall specify in clear and detailed terms the safety objectives of the Community for the regulation of the aerodromes.

17. One option to achieve this goal is to transpose the relevant ICAO SARPs of Annex 14 by reference, as was done for environmental protection in Article 6 of the EASA Regulation. This would be a simple option, easy to implement, and it would ensure full consistency between the international and Community obligations of Member States. Feasibility of this option can however be questioned for several reasons. Firstly, ICAO SARPs are sometimes regarded as minimum standards, which may not provide for the level of safety required by European citizens. Secondly, the very significant amount of differences with Annex 14 SARPs notified by Member States seems to demonstrate that these standards are not considered as fully appropriate by these States. Last but not least ICAO SARPs combine altogether basic principles, essential requirements and implementation means. This structure makes it difficult to differentiate requirements that affect the fundamental freedoms of persons, which shall be adopted at legislative level, from implementing rules that are for the executive level to decide. Moreover such close mix of requirements of different nature prescribes a specific regulatory system and deprives the Community legislator from its right to decide on alternative systems more in line with new concepts of good governance, such as higher reliance on regulated persons to ensure compliance with basic safety requirements and the development of a safety culture based on responsibility rather than enforcement.

18. Another option, which is recommended by the Agency, is to enshrine in the EASA Regulation the objectives, which shall be met through the regulation of aerodromes. This is the model, which has been chosen in most other areas of civil aviation safety, for example in airworthiness of aeronautical products, in pilot licensing and in flight operations. This requires that detailed

[9] COM (2001) 428 final of 25.07.2001.

provisions are drafted to specify the obligations that the legislator imposes on the executive level and/or the persons affected so as to achieve the expected level of safety. As quantified targets can hardly be defined, such requirements shall at least describe the measures that shall be implemented to mitigate all significant risks related to the regulated activity. This presents the advantage that the legislator can tailor its requirements to the needs and aspirations of citizens. It is recognised nevertheless that such requirements have to be compatible with those prescribed by ICAO in order to ensure that Member States fulfil their ICAO obligations and global interoperability is not affected.

Question 1

The Agency is interested in knowing if stakeholders agree that the establishment of dedicated high level essential requirements at Community level is the best means to set the safety objectives for the safety regulation of aerodromes.

19. Assuming a positive answer to the above question, the Agency has developed dedicated essential requirements with the help of GASR[10] and JAA[11] experts. They are attached herein as a Chapter B of this document. They have been designed to provide for an appropriate mitigation of any significant risk associated to the design and operation of aerodromes following a structured risk assessment evaluation. They are drafted in a way, which potentially allows for covering all types of aerodromes; flexibility has therefore been incorporated in the requirements so as to allow implementing rules to be adapted to the size and nature of operations of the aerodromes. It is expected that their level of detail is sufficient to permit the necessary judicial control of executive acts or direct implementation if some form of self-administration by the regulated entities were decided as more appropriate in certain cases. Care has also been taken to ensure their compatibility with the corresponding ICAO SARPs. Conversely they have been conceived to provide for a good legal basis for future implementing rules based on the drafts developed by GASR.

20. When devising these essential requirements, the Agency met with the difficulty of providing for flexibility while ensuring consistency with ICAO Standards as regards rescue and fire fighting services. Whilst the need for such services is not questioned, as they are important to save lives in case of accident or incident at an aerodrome or at its immediate vicinity, the level of protection needs further consideration. It is agreed that such level should reflect the size of aircraft using the aerodrome; it is questionable however whether they should be appropriate to the most critical aircraft using only occasionally the aerodrome. The answer to the question is of particular importance as it may affect the ability of an air operator to use an aerodrome as an alternate or not. From a pure risk management perspective, it is clear that the level of protection should take into account the number of movements of the most critical aircraft and not just the size of the aircraft. This however must be consistent with the operational rules applicable to the choice of alternate aerodromes. The absence of distinction between the designated destination aerodrome and the alternate aerodrome has been the subject of discussion and ambiguity in the ICAO framework, especially in the case of intercontinental flights where it causes difficulties and constraints for the operators designating alternate aerodromes with relevant rescue and fire fighting capabilities. The Agency seeks therefore the opinion of stakeholders on this question.

[10] Group of Aerodrome Safety Regulators (GASR)
[11] Joint Aviation Authorities (JAA)

Question 2

The Agency is interested in knowing whether the attached essential requirements actually meet the criteria developed here above and whether they constitute a good basis for the safety and interoperability regulation of the aerodromes bearing in mind the envisaged scope. The Agency also welcomes any suggestion to improve these essential requirements, in particular as regards the requirements for rescue and fire fighting services.

Scope and applicability

21. It is essential that the exact scope of powers transferred to the Community be precisely specified in the amended Basic Regulation. This means in other words that aerodromes, persons, equipment and services to be regulated at Community level must be clearly identified. As a consequence, they will be subject to the requirements established by this regulation and, as appropriate, to rules taken for its implementation, while Member States will no longer be entitled to impose on them their own standards. A contrario, any aerodrome, activity, person or organisation not covered by Community competence will remain under the full responsibility of Member States, which shall take appropriate measures to provide for the level of protection expected by their citizens. The scope is to be defined in Article 4 of the Basic Regulation.

22. While the benefits of regulating mobile products, persons and services at Community level is not contested as this facilitates their free movement, it might be questioned whether this is justified for aerodromes. The Agency is of the opinion that with the consolidation of the internal market and the need to facilitate the free movement of European citizens, the provision of a high uniform level of safety can only be achieved if aerodromes and some of their equipment are subject to common safety and interoperability requirements. Thus any user, commercial or private, would be sure that the aerodrome it intends to use meets a high level of safety and the procedures for its use are sufficiently harmonised to reduce risks associated with the lack of familiarisation with the installation. Such are also the reasons why ICAO recommends that all Contracting States extend the use of SARPs to all aerodromes open to the public.

23. Moreover, as competition develops between aerodromes open to the public, it is fair that they are subject to common rules so as to avoid distortions in the market not linked to commercial performance. Also the need to better regulate the provision of aerodromes services may well lead Member States and the Community to organise competition for the market. Thus aerodrome operators would be called to bid to take over the operation of aerodromes. Article 8 of the EASA Regulation establishes the principle of automatic recognition without further showing or control of certificates issued in accordance with that Regulation and its implementing rules. Subjecting aerodrome operators to common rules could therefore facilitate market access for those having demonstrated their capability in one Member State when they want to extend the scope of their activity in another Member State.

24. Based on these considerations, and as prescribed by ICAO Annex 14, all aerodromes open for public use must be subject to common rules whatever their size and ownership, public or private. This view seems already widely shared as a majority of Member States have already started developing such common rules through the GASR. The Agency agrees however that all aerodromes cannot be subject to the same rules. There is a need to adapt the applicable rules to the size and type of operations, as these factors affect the risks that have to be mitigated. This has already been taken into account when drafting the essential requirements, which contain built-in flexibility to allow different types of implementing rules tailored to the associated risks. They also provide for flexibility in relation to the defined aerodrome design criteria i.e. non-

compliances may be mitigated by alternative operational measures. Moreover, the envisaged Essential Requirements propose a different treatment of aerodrome operators based on the complexity of the aerodrome operations.

25. It is questionable however whether private aerodromes or certain categories of aerodromes, whose use is restricted for technical or practical reasons, should also be subject to common rules. On one side such aerodromes may constitute a threat for their neighbours who could therefore expect that their safety will be ensured without discrimination; on the other as they are not open for public use, the justifications presented above to regulate them at Community level can hardly be invoked.

Question 3

Do stakeholders consider that aerodromes, which are not open for public use, should be subject to Community legislation?

26. When considering the scope of Community action, there is a need to clarify also what products, organisations and persons are affected. Aerodrome is indeed a generic word that covers infrastructure, equipments, operators and individual persons, which altogether contribute to providing a service that must be safe. If the safety objective imposes restrictions on the design of the infrastructure or of the equipments, as well as on the right of operators and persons to provide freely their services, such restrictions must be clearly specified by the legislator.

27. Although aerodromes have traditionally been regarded as a single entity, in most cases very different legal persons act as owner and operator of an aerodrome with very different roles and responsibilities. It is the "owner" who usually is responsible for the infrastructure and the design of the aerodrome, while the operator is mainly responsible for its safe operation. It would be unfair to create obligations on one of them that can only be met by the other. Moreover, the increasing trend towards privatisation of aerodromes, as well as the considerations by States of new financial models to build or extend aerodromes to better respond to a growing demand in capacity, should not be impaired by the way safety is regulated. The Agency considers therefore necessary to distinguish these two categories of regulated persons. Of course, in some cases a legal owner may pass the responsibilities over to another organisation that would then be considered de facto as the owner from a safety stand point. In the same vein, the Agency considers that States, which are ultimately responsible to organise the provision of adequate aerodrome capacity, should also be required by Community law to fulfil certain obligations that cannot be placed on the owner or the operator as their fulfilment requires the exercise of police powers vis-à-vis the public at large. The attached essential requirements have been drafted to take into account such allocation of roles.

28. In this context it is also necessary to clarify whether certain equipment such as visual aids, electronic navigation aids, or detection systems such as surface movement radars, which are specific to aerodrome operations, have to be regulated. Here again the question is whether it is fair to require an owner or an operator to be responsible for technologies for which they have no particular competence. Regulating them would put the responsibility on their designers or manufacturers. A legal framework has already been established under the Single European Sky framework, especially by the Interoperability Regulation[12], but it is not clear whether it covers such equipment and is actually appropriate to ensure that they are inherently safe.

[12] Regulation (EC) No 552/2004 of the European Parliament and of the Council of 10 March 2004 on the interoperability of the European Air Traffic Management network

Question 4

Do stakeholders consider that certain aerodrome equipment should be regulated at Community level? If so, what equipment?

Implementation means

29. The extended EASA Regulation shall specify how the compliance with essential requirements is to be implemented and verified. This includes specifying whether issuing an official certificate, showing to a third party or self-declaration should be used to demonstrate compliance. It also requires that details are provided on how such demonstration of compliance should be made. If such details are too complex or lengthy, executive powers should be given to the Commission to develop the necessary implementing rules. When appropriate, the bodies in charge with the issue of the certificate, or to which compliance is to be shown, should be identified. They can be the Agency itself, national administrations or appropriately accredited entities. In the last case, criteria for accreditation would need to be specified and accreditation authorities nominated.

30. There is a wide range of possibilities to verify compliance with the common safety objectives. The choice of which to use is a political decision, which depends on the public sensitivity to the subject. The issue of a certificate by official bodies may be perceived as providing better proof of compliance than showing to a private third party, which itself can be seen as a more powerful tool than self-declaration. As far as civil aviation is concerned, several of these forms of regulation have been used in different Member States in different sectors. There is however no agreed common practices as traditions and culture in various sectors and countries largely influence this choice.

31. The choice also depends on the level of uniformity that is sought for a certain type of activity. While uniformity can be essential to facilitate the free movement of goods, services and persons, while ensuring a level playing field for commercial activities, it may not be a necessary condition for all types of activities, as is the case in particular as regards the approval of aerodrome infrastructure. Also, the implementation means decided by the Community shall be compatible with the international obligations of Member States so as not to unduly affect the business of European citizens and companies with the rest of the world or affect the global nature of civil aviation.

32. Such are the considerations that will guide the legislator when adopting the articles of the Basic Regulation, which must describe, in the case of aerodromes, how the essential requirements are to be implemented and by which executive bodies. So, the aim of this chapter is to consider various options so that the Agency can advise the legislator on the best means to implement the safety regulation of aerodromes.

33. There seems to be a strong consensus that large aerodromes must hold a certificate attesting compliance with the essential requirements. The extended EASA Regulation shall therefore specify that no one can open a large aerodrome for public use without holding the proper certificate attesting compliance with the essential design requirement. Everybody seems to agree also that such aerodromes must be operated by approved organisations. As already explained in paragraph 27 above, the Agency considers that there should be two separate certification processes for the design and the operation of these aerodromes. For the sake of uniformity, as a principle already foreseen by Member States through GASR, it seems appropriate to establish common rules for issuing and maintaining certificates. Consistent with the principles underlying

the EASA Regulation, such rules should be set by the Commission through a comitology process.

34. As regards small aerodromes, and taking into account, as already said in paragraph 24, the need to provide for appropriate flexibility for the means to show compliance with the essential requirements, several options can be envisaged. Firstly it must be decided whether the essential requirements can be directly implemented without any additional detailed rules. In such case it would be for the regulated persons and, if so decided by the legislator, a competent authority to interpret the essential requirements and ensure their implementation. If such option is considered insufficient to provide for uniformity, it is necessary to give implementation powers to the Commission to adopt, through comitology, appropriate implementing rules. The answer to this question could be different for the compliance with the essential requirement related to the aerodrome design and those related to their operation. Such answer can also vary in accordance with the size of the aerodrome. The envisaged essential requirements already establish segregation between large and small aerodrome, as it was considered that beyond a certain limit the operator should be imposed additional requirements.

Question 5

The Agency would be interested to know stakeholders' views as regard:

a) *The need for detailed implementing rules to facilitate compliance showing with the essential requirements related to the physical characteristics and infrastructure of small aerodromes?*

b) *The need for detailed implementing rules to facilitate compliance showing with the essential requirements related to the operation and management of small aerodromes?*

c) *The relevance in this context of the segregation already proposed in the essential requirements, between large and small aerodromes?*

35. Secondly, it must de decided how compliance shall be demonstrated. One option would be to impose a certification process to assess compliance with the essential requirements and, if so decided, related implementing rules established as above. Another one would be to leave it to the aerodrome owner or operator to declare their compliance with such requirements and rules, themselves. A least demanding option would be to ask the owner and/or the operator to be in a position to demonstrate its compliance when so asked by the relevant competent authority. The answer to this question could be different for the verification of compliance with the requirement related to the aerodrome design and those related to their operation. Such answer can also vary in accordance with the size of the aerodrome.

Question 6

The Agency would be interested to know stakeholders views as regard:

a) *The need to require certification for the verification of compliance with the requirements related to the physical characteristics and infrastructure of small aerodromes?*

b) *The need to require certification for the verification of compliance with the requirements related to the operation and management of small aerodromes?*

c) *The relevance in this context of the segregation already proposed in the essential requirements, between large and small aerodromes?*

36. As explained earlier the Agency considers that the ability of aerodrome operators to operate and manage an aerodrome should be assessed independently of the verification of compliance of such aerodrome with the requirements related to its physical characteristics and infrastructure. This opens the possibility for an operator to be certified once for the management of several aerodromes in the same way than an air operator is entitled to operate several aircraft when it has been recognised fit and able to do so and the aircraft is certified. This would not change the obligation of the operator to have an operating manual for each aerodrome it operates because it is recognised that each one is a specific case, as are the various aircraft used by an air operator. This would facilitate developments such as those envisaged in paragraphs 23 and 27 by avoiding an unnecessary multiplication of certifications for the same organisation and promote international business in operating aerodromes.

Question 7

The Agency would be interested to know stakeholders views as regards the possibility for an operator to be entitled to operate several aerodromes under a single certificate?

37. When it is agreed to impose a certification process, it must be decided who should be the competent authority for issuing such certificates. Bearing in mind that the amount of applications may be rather high, proximity may be an advantage particularly for small aerodromes and a centralised action would most likely not be practicable, nor create efficiency benefits. There are however again several options. The normal practice for the implementation of Community law is that competent authorities are the national aviation authorities. Another option could be, especially for small aerodromes, that private assessment bodies be accredited to assess compliance and issue the related certificates. This is what the Single Sky Regulations foresee in certain circumstances. In such a case it must also be decided how such assessment bodies would be accredited. Moreover, it could be envisaged that also the Agency issues some certificates in cases where centralised action is more efficient. Such could be the case if the answer to the question 7 were positive. Of course the choice among these various options could be different for the verification of compliance with the requirement related to the aerodrome design and those related to their operation. Such answer can also vary in accordance with the size of the aerodrome.

Question 8

The Agency would be interested to know stakeholders views as regard:

a) *The possibility that assessment bodies be accredited to assess compliance with the requirements related to the physical characteristics and infrastructure of aerodromes?*

b) *The possibility that assessment bodies be accredited to assess compliance with the requirements related to the operation and management of aerodromes?*

c) *The possibility that the Agency be entitled to assess compliance with the requirements related to the physical characteristics and infrastructure of aerodromes?*

d) *The possibility that the Agency be entitled to assess compliance with the requirements related to the operation and management of aerodromes?*

e) *The relevance in this context of the segregation already proposed in the essential requirements, between large and small aerodromes?*

f) *Other criteria to be used to decide which bodies are best placed to assess compliance with the applicable requirements.*

38. Finally, if the answer to question 4 is positive, it must be decided how aerodrome specific equipment is to be regulated. This requires that the options and questions related to the need for implementing rules, means to be used to verify compliance and the appointment of assessment bodies are answered. When doing so care must be taken to maintain consistency with the processes established by the Single European Sky framework, which requires that verification of compliance be declared by the certified service providers themselves on the basis of a technical file issued by an accredited assessment body.

Question 9

The Agency would be interested to know stakeholders views as regard the best means to regulate specific technical systems at an aerodrome?

V. Regulatory Impact Assessment

39. At this stage the establishment of a full regulatory impact assessment has little significance. The regulation of aerodromes open for public use is a decision already made by Member States as a consequence of their ICAO obligations. As a consequence they have already started working individually or collectively through GASR, to do so. Moreover the evaluation of impact is more linked to the detailed nature of the requirements themselves than the mere decision to establish Community competence in this field. There are finally still a number of unknown elements about the exact scope of Community action and the means to regulate aerodromes in the envisaged context.

40. As a first evaluation however the agency considers that the establishment of Community competence can only bring economies of scale by bringing together rulemaking and some certification tasks. This has been investigated by the Commission, which contracted an independent consultant for this purpose. The conclusions of this impact assessment are clearly that collective action under the auspices of the EASA system is the best option (see also above references in paragraph 10). The Agency intends nevertheless to elaborate on the impact assessment of its proposed actions when it has analysed the views of stakeholders on the present consultation and presents its final opinion.

B Essential Requirements

I-Description of the essential requirements[13]

Introduction

1. This explanatory memorandum explains how essential requirements for aerodrome safety have been drafted. It has for main objectives to explain:
   - what essential requirements are;
   - the process of hazard mitigation used to draft them;
   - how they comply with ICAO standards and recommended practices

2. As their name already indicates, essential requirements are the conditions to be fulfilled by a product, a person or an organisation to ensure as much as possible that the public is not unduly affected by their operations or activities. They address therefore the means by which risks associated to a specific activity shall be eliminated or reduced to an acceptable level, when reasonably probable. To achieve this goal hazards and associated risks must be identified and analysed to determine the requirements that are essential to mitigate the unacceptable risks. In that context it must be made clear that certification processes are not mitigating measures; they are the verification that a mitigating measure is being implemented. As far as mitigating measures are concerned, it is also important to insist that they must be proportionate to the safety objective. This means that they must not go beyond that which is necessary to achieve the expected safety benefit without creating undue restrictions that are not justified by that objective. To validate the results of such a "top down" approach, a "bottom up" review was made to examine why particular essential requirements were imposed; which risk such requirement was mitigating; and whether the means used were proportionate to the safety objective.

3. In this context, the Agency together with GASR and JAA experts undertook a study to identify hazard areas linked with the activity of a single aircraft landing on or taking off from an aerodrome. These are:
   - Hazards related to the physical characteristics and infrastructure of an aerodrome,
   - Hazards related to the operations and management of an aerodrome,
   - Hazards related to the local environment of the aerodrome whilst not being directly under the control of the aerodrome owner or operator

   The mitigating criteria that were introduced to mitigate each hazard, when the associated risk appeared unacceptable, and to produce the essential requirements originate from ICAO Annex 14, Volume I "Aerodrome Design and Operations" and Volume II "Heliports" related to the global interoperability requirement and a harmonised view on aerodrome operations and management.

4. As specified in the consultation document, the essential requirements have been drafted with the view to allowing alternative implementation means, which could vary depending on the type of operation. It would be possible therefore, to develop implementing rules based on material developed by GASR or to build other forms of regulation, in particular for Aerodromes not involved in complex operations, depending on the answers to the questions raised in that document.

[13] For information purposes only.

Mitigation of the hazards related to the physical characteristics and infrastructure of an aerodrome

Movement area

5. An aerodrome is composed of at least a take off and landing area. One of the first concerns one must have, when designing this area, is to ensure it has sufficient dimensions to accommodate aircraft expected to use the facility. Otherwise an aircraft may overrun or not fit into the area, thus creating a risk of damage to the aircraft or, if the velocity is great enough, of injury and death of the occupants of the aircraft or to people on the ground. This concern is addressed through paragraph A.1.a.i, which imposes suitable dimensions for the area. The manner in which this paragraph is written allows current practice to continue while allowing for the development of implementing rules that comply for instance with ICAO Annex 14, Volume I, Paragraphs 3.1.6 and 3.1.9.

6. Furthermore, the landing and take off area needs to be able to withstand the repeated load of the aircraft that are planned to use the area. Indeed, the frequent use of such an area by aircraft that is too heavy for it may lead to rapid deterioration of the take-off and landing area. At some stage this may in turn induce consequences, such as loss of control of an aircraft, which may lead to an accident. For this reason paragraph A.1.a.ii mandates sufficient bearing strength for the landing and take-off area. This point is based on ICAO Annex 14, Volume I, paragraphs such as 3.1.20.

7. Also this landing and take off area must not retain standing water or suffer from insufficient or inefficient drainage. An abnormal accumulation of water, particularly for airplanes, may lead to aquaplaning, for instance, that may cause a loss of control and lead to an accident. The intent of paragraph A.1.a.iii is to request that such an area be designed in a way to ensure the efficient drainage of water. This point mirrors the intent in ICAO Annex 14, Volume I, Paragraph 3.1.18.

8. Of course, landing and take off area must not have slopes that could limit the visibility of the crew or that could make the usage of the area difficult due to such things as excessive slopes. A landing and take off area designed without taking such things into account could cause a significant reduction in the safety of the aircraft using it. This risk is addressed by paragraph A.1.a.iv, which stems directly from ICAO Annex 14, Volume I, paragraphs such as 3.1.12 to 3.1.19.

9. Another hazard that must be taken into consideration comes from the surface characteristics of the area. An airplane, for example, landing on an area with improper characteristics may suffer from insufficient friction that will reduce its braking efficiency that in turn could lead it to overrun or veer off the takeoff or landing area. Another example would be where surface irregularities may adversely affect the takeoff or landing of an aircraft by causing excessive bouncing, pitching, vibration or other control difficulties. Paragraph A.1.a.v mitigates such a risk by mandating appropriate surface characteristics. The requirement contained therein originates from ICAO Annex 14, Volume I, paragraphs such as 3.1.21 to 3.1.25.

10. If a hazardous object is left on a landing and take off area, the aircraft may hit it causing damage to the aircraft or even, if this occurs at high enough speed, injury or death to the occupants of the aircraft. The principles of ICAO Annex 14 paragraphs, such as those in Volume I, Chapter 9.9, and Chapter 10.2, have been inserted in paragraph A.1.a.v to forbid use of landing and take off areas that are not free from objects that may cause a hazard.

11. In cases of an aerodrome with more than one landing and take-off area, a potential risk exists of an aircraft going too close to another landing and take-off area, and hence disrupting the operations on it. This kind of hazard can be mitigated by proper traffic management and procedures or by an appropriate design of the aerodrome layout requiring adequate minimum distances between landing and take-off areas, depending on the operational procedures on how these runways are planned to be used. Paragraph A.1.b has been elaborated to cater for the latter mitigation means, the only ones which are relevant to these essential requirements. It allows the development of implementing measures that comply with provisions such as those specified in ICAO Annex 14, Volumes I, Paragraphs 3.1.10 and 3.1.11., and the helicopter separation distances required in Annex 14, Volume II.

12. Statistics on aviation safety show that landing and take-off are the most critical phases of flight. For various different reasons an aircraft may be forced to operate on or over the area immediately surrounding the landing and take-off area. Therefore it is essential that these areas be protected to avoid hazards such as collisions with objects for example. Paragraph A.1 c. therefore mandates the establishment of safety areas around the landing and take-off area that have adequate physical characteristics and are free from objects. These areas are indeed intended to protect aircraft flying over them during take-off or landing operations, or inadvertently landing short, running off the side, or overrunning the end, of the take-off and landing area. This provision allows for the development of more specific implementation measures that comply with relevant paragraphs of ICAO Annex 14, Volume I and II, Chapter 3.

13. Depending on the intended use of an aerodrome, the landing and take-off areas may need to be supplemented with areas to be used for taxiing or and parking of aircraft. Even when taxiing at a relatively low speed, hitting an obstacle may lead to undetected damage to an aircraft that in turn may be the cause of an accident. To mitigate this hazard, these areas must be designed to permit a safe operation of aircraft under all foreseeable conditions. Criteria for these areas are referred to in paragraph A.1.d. To avoid imposing on these areas the same stringent physical characteristics as in case of the landing and take-off areas, the subject is dealt with separately. These provisions will allow for compliance with the related paragraphs of ICAO Annex 14, Volume I and similar requirements in Volume II, Chapter 3, also relevant when allowing helicopter operations on an aerodrome intended primarily for aeroplanes.

14. The very same principles, as explained in the previous paragraph, also apply to the other infrastructure such as stands, air-bridges or other equipment that may, in case of collision, cause undetected damage to the aircraft. Paragraph A.1.e addresses this issue and allows the compatibility with the principles of ICAO Annex 14, Volume I, Chapter 3.

15. More and more aerodromes are the centre of many activities, which may be purely commercial in nature and targeted towards passengers or other aerodrome users not actually involved in aircraft operations. Specific constructions, buildings or equipment may well be needed for these purposes. These activities, in themselves, can not be regarded critical from the point of view of the safety of an individual aircraft using the aerodrome, but could, however, inadvertently create induced safety hazards. For example, a new building, even if not constituting an obstacle as such, may cause induced turbulence for an aircraft that could lead a pilot to lose control. Other examples of potential hazards caused by such developments are; infringement of separation distances, blocking visibility for ATC or aerodrome users, waste from storage areas creating FOD (Foreign Object Damage), areas of glass causing sun reflection and building design causing radar reflection, navigation aid interference or background lighting interference to pilots vision, all of which could potentially lead to the loss of an aircraft. This is the purpose of paragraph A.1.f, which also enables the implementation of elements contained in ICAO Annex 14 related to this issue.

16. Due to the high speed of aircraft landing or taking-off, hitting an animal may cause damage to aircraft or loss of control, and hence lead to an accident. It goes also without saying that any person entering the maneuvering areas, without appropriate mitigation measures taken, is in danger or could cause the same problems as an animal. Paragraph A.1.g mitigates this risk while staying in compliance with the provisions of ICAO such as those included in ICAO Annex 14, Volume I, Chapter 3.

Local Area Surrounding the Movement Area

17. An inadequate protection of the aircraft proceeding to an aerodrome or departing from an aerodrome could lead to reduced clearances from obstacles, potentially leading to controlled flight into terrain or collisions with buildings, masts or other obstacles. It is therefore necessary that procedures be defined to protect the aircraft from obstacles in the vicinity of the airdrome. This is what paragraph A.2 mandates. This paragraph should also be seen in conjunction with paragraphs B.1.a and C.1. It mirrors ICAO Annex 14, Chapter 4 on Obstacle restriction and removal and ICAO Doc 8168, Departure, Arrival and Landing procedures.

Visual and Non-visual Aids

18. In the case of flight crews operating on an aerodrome with which they are not familiar or in reduced visibility, markings must be understood without any possible confusion. If this were not the case, there could be aircraft landing in the wrong part of the landing and take off area; aircraft deviating from taxiway centerlines; or parking in the wrong place, which could increase the risk of an accident taking place. Paragraph A.3.a, coming from ICAO Annex 14, Chapter 5, Paragraphs 5.2 and 5.5, mandate proper markings.

19. When operating in reduced visibility or at night, it is important that some markings must be supplemented by lights. This is the object of paragraph A.3.b that is in line with the provisions of ICAO Annex 14, Chapter 5, Paragraph 5.3.

20. The proposed essential requirements go on to stipulate in paragraph A.3.c that aerodrome aids, visual or not, when they are installed must be fit for purpose and serviceable. If this were not the case, an aircraft could arrive at and aerodrome with its flight crew believing that certain equipment was functioning when in fact it was not, and finish in a very hazardous situation. Moreover, this point takes into account the implementations of ICAO provisions described in Annex 14, Chapters 2, 5 and 10.

21. The essential standard for visual aids is that they are well visible, recognisable and readable and they provide unambiguous information for the flight crews and other users. Otherwise, a flight crew on an aerodrome with which they are not familiar could, for example, ignore runway-holding position markings and take the aircraft onto the active runway, which is just receiving a landing aircraft. This is the reasoning behind the requirements in paragraph A.3.d. ICAO Annex 14 in its Chapters 5, 6 and 7, including their appendices and attachments, cover various criteria for several types of different visual aids.

22. Many of the visual or non-visual aids are systems whose continuous functioning is dependant on electrical power supply. Any disruption in power supply must not create a situation which degrades the essential information provided for flight crews. A hazardous situation could develop in the event of a low-visibility departure if the runway lights went off, or for a landing aircraft at night if the approach lighting system went off suddenly. That is why a mitigation in case of power supply disruption of visual and non-visual aids has been included in Paragraph

A.3.e, based on principles established in Chapter 8 of ICAO Annex 14, Volume I, covering electrical power supply systems for all air navigation facilities.

23. It is obvious that a type of hazards described in the previous paragraph could also be caused by other malfunctions of those systems in question. These hazards have to be mitigated through design features preventing misleading information being supplied. This requirement is mandated in paragraph A.3.f of the essential requirements along the lines of the recommendations in ICAO Annex 14, Volume I, Chapter 8.

24. Complementing the two paragraphs above, aiming to ensure failsafe operations of visual and non-visual aids, a protection against external factors should also be provided. Intentional disturbance or sabotage could suddenly damage a navigational beacon. This situation could potentially lead to a hazardous situation. The purpose of paragraph A.3.g is to mitigate such risks and originates from provision of Chapter 9 of ICAO Annex 14, Volume I.

Aerodrome Data

25. Aerodrome data must be established and contain information on the various physical characteristics of the aerodrome, such as the its location, elevation of the different critical points, the direction and dimensions of the landing and take of areas, dimensions of maneuvering areas and the existence and location of different kinds of visual or non-visual aids. Operational Aerodrome Data, such as the condition or temporary unserviceability of parts of the movement area or unserviceability of visual or non-visual navigation aids, need also to be promulgated. This data must be correct at all times to ensure the safe operations of aircraft using the aerodrome. Hence all the relevant data must be kept up-to-date. Incorrect information given to flight crew would create a significant risk, for example of colliding with an obstacle that is not mentioned in the data. This is the reason for the development of paragraph A.4.a, which in turn originates from Chapter 2 of Annex 14, Volume I.

26. The previous paragraph speaks about the need to establish relevant aerodrome data and to keep it up-to-date. However, this is in itself is not enough. Flight crew must also be able to understand the data provided, and must be able to find all the relevant details. Therefore the accuracy, the integrity and the format of such data is very important, particularly for modern navigation equipment databases. If the user cannot understand the data, it cannot convey the necessary information resulting in the same risk as if there were no data at all or even worse, the data may be misinterpreted and create an unsafe situation. This is stated in paragraph A.4.b, which flows form the provisions of Chapter 2 of Annex 14, Volume I, as did the previous paragraph.

27. To complement the framework for aerodrome data described above, it is also essential to establish ways and means for its communication to take place expeditiously and without altering its contents. The hazard created by having erroneous data or receiving such data too late is evident from what is stated above. The purpose of paragraph A.4.c is to ensure expeditious and incorruptible transmission of data and is based again on ICAO Annex 14, Chapter 2.

<u>Mitigation of the hazards linked to the Operations and Management of an aerodrome</u>

28. As stated in the explanatory note, in some cases the owner and the operator of an aerodrome are very different legal persons. It is the owner, or the person or organisation having the owner's liabilities and responsibilities, perhaps through a leasing or contract arrangement, who usually is responsible for all the means to establish the infrastructure and the design of an aerodrome and so setting the basis for the operations planned to take place there. By comparison, the role of the

operator of an aerodrome is very different from that. It is mainly related to the safe operations at an aerodrome, using the infrastructure and design provided by the "owner". It is therefore necessary to develop essential requirements for the operator to ensure the aerodrome is always used in the optimal manner. The requirements presented in this paragraph have been designed to ensure this takes place and that the person responsible for the proper operation of the aerodrome, whether the owner or another person, fulfils his obligations.

29. The prime obligation of an aerodrome operator is to ensure the aerodrome complies with the requirements in Section A of the essential requirements. If something occurs that makes the aerodrome or part of it become non-compliant, then aerodrome operator must ensure remedial action is taken or necessary mitigating measures are put in place. This is to avoid the hazards created by the operation of aircraft on an aerodrome that no longer complies with the mitigating measures described above. This basic principle is laid down in paragraph B.1.a, which reflects of what is developed in ICAO Annex 14 and in the ICAO Manual for the Certification of Aerodromes.

30. In some cases the physical mitigating measures may not be sufficient to re-establish the aerodrome to its original level of conformity and therefore other measures that may affect the aerodrome operations may be taken, for instance using special procedures, such as closing of areas or taking equipment out of service. In this case, the possible hazard created can be mitigated by the timely information of the users of the aerodrome. For example, the hazard created by new obstacles in the close vicinity of an aerodrome can be safely mitigated through appropriate landing and take-off procedures and routes. The new obstacles however remain a significant safety risk if pilots have not been informed of this change in a timely manner. This urgency of passing information about the safety measures that have been taken, as well as the nature of the hazard, have been emphasized in paragraph B.1.b and are again in line with the principles provided for by ICAO.

31. Just as for the members of flight crew, persons involved in aerodrome operations or maintenance, that may have an impact upon the safety of aircraft operations, must also be subject to proficiency requirements related to training and qualification. Moreover, whatever the level of competence needed, the knowledge of these people should be kept up-to-date in relation to significant changes in aerodrome operations. That is why paragraph B.1.c introduces the need for such persons to be trained and qualified to execute their safety-critical duties. And as the related paragraphs above, this is also the line taken by ICAO.

32. Requirements related to the training and qualification of persons involved in aerodrome operations are not related only to their tasks, but also determined by the physical areas they are allowed to enter unescorted. Any person entering the movement area or other operational areas of an aerodrome, for whatever reason, if not appropriately trained to the established safety procedures related to these areas, is at risk and could be a risk for aircraft. This is the purpose of paragraph B.1.d, which is also fully compliant with the relevant provisions in Chapter 9 of ICAO Annex 14, Volume I.

33. According to the current ICAO framework, aerodrome emergency planning is a process of preparing an aerodrome to cope with an emergency occurring at the aerodrome or in its vicinity. This plan must provide for the coordination of the response of all relevant actors at an aerodrome and in the surrounding community. An incident initially benign could become very serious and lead to loss of life if not properly handled. It is therefore essential to mitigate related risks with emergency measures planned beforehand. These measures are mandated in paragraph B.1.e and reflect provisions in ICAO Annex 14, Volume I, Chapter 9.1.

34. As stated in the explanatory note above, rescue and fire fighting service represents a means to reduce the consequences of an incident or accident on an aerodrome. Paragraph B.1.f allows these measures to be regulated at the Community level.

35. If an aircraft, when landing or taking-off, hits an animal or bird, it may cause damage to the aircraft and thus cause an accident. For these reasons it is important that aerodrome operators establish and implement systems in order to monitor and control birds and animals on and around the aerodrome to ensure that they have no detrimental impact on aircraft safety. This obligation is reflected in paragraph B.1.g and more or less repeats the views of ICAO in Annex 14, Volume I, Paragraphs 9.4 and 9.10.

36. Paragraph 32 above already establishes that any person in the movement area of an aerodrome, if not appropriately trained to the safety procedures related to these areas, is at risk to themselves and could be a risk for aircraft. This implies that procedures for coordinating the movement of vehicles and persons on the movement area and other operational areas have to be developed and used in order to be able to avoid collisions and damage to aircraft. These objectives and clarifications are the basis of the mandate presented in B.1.h. From substance point of view the line taken here is fully compliant with ICAO Annex 14, Volume I, Chapter 9, although the allocation of requirements between different ICAO Annexes not necessarily being exactly the same.

37. For very obvious reasons an aerodrome should not be operated in reduced visibility or at night without the proper operational procedures and necessary provisions being put in place and equipment being available. The absence of such measures could lead to an accident. Therefore, paragraph B.1.i was developed based on similar principles as defined by relevant ICAO Annexes imposing that appropriate procedures and equipment are available and used.

38. The safe operation of an aircraft consists of several sub operations by a chain of different actors. The aerodrome is one of these actors, whose own operations have to be safe, but which also have to be interfaced and coordinated in a safe way with other relevant actors in a service chain. This is very true, for example, in case of ATS and AIS providers on an aerodrome. The significance of coordination in relation to safe operations has made it necessary to require this on a legal level, as is the case in paragraph B.1.j. This has been one of the overriding principles also for ICAO when imposing requirements to the various actors within aviation.

39. An incident and accident reporting system is one of the principal starting points for the management of aviation safety. This is not contested by anyone and it is already legally imposed by the Community legislation. These very same grounds are shared by ICAO. This broad and consistent basis needs to be enhanced by further complementary implementation measures in relation to aerodrome operations. Such is the background for paragraph B.1.k.

40. As demonstrated by the list of hazards, safe aerodrome operations require a number of mitigating measures to be implemented in various fields by appropriately trained persons in a carefully co-ordinated manner. This complexity requires in turn that aerodromes of certain size or complexity put in place and maintain high performance management systems covering procedures, training programmes, incident analysis and accident prevention so as to promote a real safety culture. In the ICAO context this is described in Annex 14, Volume I, Chapter 1.4 on certification of aerodromes, which very much covers these principles. This is the intent of paragraph B.2.a, which also suggests the criteria for the size or type of an aerodrome which is to apply this requirement. The following criteria are proposed, independent from each other, to designate what should constitute a complex aerodrome operation:

- operation of an aerodrome requires more than 5 people - the number of persons needed to run an aerodrome reflects its complexity and therefore a need to provide for a management system to regulate the interactions between these people
- aerodrome is open for operations in IMC (Instrument Meteorological Conditions) - availability of low visibility procedures and use of non-visual aids leads to a more complex operations at the aerodrome necessitating proper written procedures
- aerodrome is operated at night – justification same as above
- aerodrome has more than 50 000 aircraft movements annually – the amount of traffic at an aerodrome corresponds with a need for specific management structures
- aerodrome is open to aircraft with a maximum take-off mass of 10 tonnes or more, or an approved passenger seat configuration for 19 or more – the nature of operations taking place at the aerodrome corresponds with a need for specific management structures

41. There is also a need to operate in a standardised manner to provide for a comparable level of safety on such aerodromes. For this, their operations must be carried out according to an aerodrome manual so that all can work in the same manner at all times where ever they are on the aerodrome and facilitate the communication between the different actors. Poor communication leads to misunderstandings that can be the cause of an accident or incident. This is the point made in the second sub-indent of paragraph B.2.b.

Mitigation of the hazards not directly under the control of the aerodrome owner or operator

42. Section C of the proposed essential requirements contain measures, which are important elements in mitigating aerodrome related safety hazards, but which can not be legally imposed to the aerodrome owner or to the operator. The very reason for this is that these hazards occur in areas outside of the actual aerodrome perimeter and can not be legally challenged by the aerodrome actors. In the view of the Agency, this extension of the Basic Regulation offers an appropriate legal instrument to address these safety hazards and means to impose the necessary mitigating responsibilities to the Member States concerned.

43. A defined airspace around an aerodrome has to be maintained free from obstacles so as to permit an aircraft to land and take-off safely. This concerns obstacles, not only inside the aerodrome perimeter, but also those outside of it and which extend into this protected airspace. In the case of changes or developments, which may create an object protruding into the protected airspace, as a mitigating measure an aeronautical study should take place. The study should verify whether this object is an obstacle which is creating a safety hazard to an aircraft landing or taking-off at this aerodrome. If it is assessed as an obstacle, either the obstacle should be removed or the arrival and/or the departure procedures should be amended to mitigate the effect of this new obstacle. This process can only be ensured through an appropriate consultation with the relevant aviation authority, aerodrome owner or aerodrome operator and the local land use authority, in order to allow timely mitigation measures to be taken. That is why paragraph C.1 directly imposes obligations on Member States to do so. This is provided for also by ICAO Annex 14, Volume I, Chapter 4, as a recommendation to the Contracting States.

44. Also other types of activities, which might create safety hazards for aerodrome operations, take place increasingly often in a modern society. New developments in land use may affect the geographical data used as a basis when developing the arrival and departure routes. New buildings or other constructions, even if not identified as obstacles, may create dangerous effects of induced turbulence. Laser lights and other non-aeronautical lights, which may cause dazzling of or be confusing to the flight crew, are used more and more often for different

commercial activities. Some human activities may also attract wild life to the vicinity of an aerodrome, and so creating increased risks for aircraft operations taking place there. For such reasons requirements are presented in paragraph C.2, in order to impose more stringent requirements on the Member States to protect aircraft from such activities, as described in Annex 14, Volume I, Chapters 5 and 9, and associated parts of Annex 14, Volume II.

45. Paragraph 33 above already requires aerodromes to establish an emergency plan to cope with emergencies occurring at the aerodrome or in its immediate vicinity. There is sometimes a need for an emergency plan for aviation emergency situations occurring in the aerodrome local area too, as the means are shared between the aerodrome and the local rescue and fire services. This would be a type of a safety activity in which one can not impose, at least totally, a legal responsibility to the aerodrome owner or to the operator. Therefore, paragraph C.3 imposes on the Member State to enforce the coordination of the emergency plan with local rescue and fire services and possible associated services. This is described in ICAO Annex 14, Volume I, Chapter 9.

46. According to JAR-OPS 1.220 air operators can only authorise the use of the aerodromes that are adequate for the type of aircraft and operations concerned. When defining such aerodromes, the operator should take into account the safety-related aspects of an aerodrome, such as applicable performance requirements, runway characteristics, available visual and non-visual aids and available ancillary services. Aerodromes authorised should then be listed in their Operations Manual. This safety-related aerodrome information has always to be communicated to the users through different channels of AIS (Aeronautical Information Services). The decision then, whether to use an aerodrome or not, is left entirely to the air operator. Despite these clear responsibilities, aerodromes are sometimes used by aircraft for which the aerodrome design and operating procedures are not intended. In emergency situations this could be acceptable. However, in other cases this should be regarded as a potential safety risk. This is the thinking which has motivated introducing such an obligation in paragraph C.4, which does not conflict in any way with the principles in ICAO Annex 14, Volume I, but which lays down more directly this obligation to then be enforced by Member States.

II – Essential Requirements

A - Physical Characteristics and Infrastructure

1) Movement Area

a) An aerodrome must have a designated area for the landing and take-off of aircraft.

i) The landing and take-off area must have dimensions suitable for the aircraft intended to use the facility.

ii) The landing and take-off area, where applicable, must have a bearing strength sufficient to support the repetitive operation of the intended aircraft. Those areas not intended for repetitive operations only need to be capable of supporting the aircraft.

iii) The landing and take-off area must, where applicable, be designed to ensure water is drained to prevent standing water becoming a hazard to aircraft operations.

iv) The geometry of the landing and take-off area must be such that it creates no hazard to aircraft operations.

v) The surface characteristics must be adequate for use by the intended aircraft.

vi) The landing and take-off area must be free from objects which might constitute a hazard to aircraft operations.

b) Where there are several landing and take-off areas, they must be such that they do not create a hazard to aircraft operations.

c) The landing and take-off area must be surrounded by defined areas. These areas are intended to protect aircraft flying over them during take-off or landing operations, or inadvertently landing short, running off the side, or overrunning the end, of the take-off and landing area.

i) These areas must have dimensions appropriate to the aircraft operations anticipated;.

ii) The geometry of these areas must be such that they constitute no hazard to aircraft operations.

iii) These areas must be free from objects which might constitute a hazard to aircraft operations.

iv) Each of these areas must have a bearing strength sufficient to serve its purpose.

d) Those areas of an aerodrome, with their associated immediate surroundings, that are to be used for taxiing or parking of aircraft, must be designed to permit the safe operation of aircraft expected to use the particular facility under all the conditions planned for:

i) These areas must be having a bearing strength sufficient to support the constraint of the repetitive operation of the intended aircraft, except for those areas which are expected for only occasional use which need to be capable of supporting the aircraft only.

ii) These areas must be designed to ensure water is drained to prevent standing water becoming a hazard to aircraft.

iii) The geometry of these areas must be such that it creates no hazard to aircraft operations.

iv) The surface characteristics of these areas must be adequate for use by the intended aircraft.

v) These areas must be free from objects which constitute a hazard to aircraft. This should not preclude equipment required for that area to be parked in specific marked positions or zones.

e) Other infrastructure, intended for the use of aircraft, must be so designed that use of that infrastructure must not create a hazard to aircraft using them.

f) Constructions, buildings, equipment or storage areas must be located and designed so as not to create a hazard for aircraft operations.

g) A fence or other suitable barrier must be provided to prevent the entrance to the movement area of unauthorized persons, vehicles or animals large enough to be a hazard to aircraft operations, unless the related risk can be mitigated by other means.

2) Local Area Surrounding the Movement Area

a) To protect an aircraft proceeding to an aerodrome for the purpose of landing, or for its departure from an aerodrome, arrival and departure routes or areas must be established. Such routes or areas must provide aircraft with the required clearance from obstacles located in an area surrounding the aerodrome over which the aircraft goes when descending below, or climbing to, an altitude or height required by the applicable Rules of the Air for the en route phase of the flight.

b) Such obstacle clearance must be appropriate to the phase of flight and type of operation being conducted. It must also take into account the equipment being used for determining the position of the aircraft.

3) Visual and Non-visual Aids

a) All areas within the movement area have to be clearly identified and marked in a way that can be understood by all flight crew.

b) When the aerodrome is used at night or during reduced visibility, certain markings must be supplemented by lights.

c) Visual aids and non-visual aids provided to assist in the use of the aerodrome must be fit for purpose, serviceable, recognizable and understood by all aircrew.

d) Visual Aids must at all times be clearly visible and unambiguous.

e) When such equipment requires electrical power, any supply disruption must not result in incorrect visual or non-visual guidance being provided to aircraft or aircrew; or any misleading information being given; or result in the lack of any essential service.

f) Electrical system and electrical equipment design must ensure failures do not permit unsafe situations to develop or occur.

g) Suitable means of protection must be provided to avoid damage or disturbance to such visual or non-visual aids.

4) Aerodrome Data

a) Aerodrome data relevant to the aerodrome must be established and kept current.

b) The data quality must be adequate for purpose, understandable and be in a format understandable by all users.

c) The data must be made available to the users in a timely manner, using a secure, incorruptible and expeditious method of communication with the users.

B – Operations and Management

1) An aerodrome operator is responsible for the operation of an aerodrome; The responsibilities of an aerodrome operator are the following;

   a) To verify that the requirements of Section A are complied with at all the times or to take appropriate measures to mitigate the risk associated with the non-compliance.

   b) To ensure that all users are made aware of measures taken in accordance with paragraph (a) above with necessary urgency.

   c) To ensure that any person involved in aerodrome operations or maintenance, in activities that may have an impact upon the safety of aircraft operations, is adequately trained and qualified for such activities.

   d) To ensure that any person permitted unescorted access to the movement area or other operational areas is adequately trained and qualified for such access.

   e) To ensure that an effective aerodrome emergency plan, covering emergency scenarios that may occur at the aerodrome or in the immediate vicinity, is established and implemented. This plan must include the interface, coordination and co-operation with non-aerodrome emergency services required after an incident or accident has occurred. Such emergency plan must provide for coordination with the emergency plan referred to in paragraph 3, Section C.

   f) To ensure that an aerodrome rescue and fire fighting service, including at least equipment, extinguishing agents and manpower, is provided at the aerodrome as appropriate for the size of aircraft utilising the aerodrome. Such a service must respond to an incident or accident in a timely manner.

   g) To establish and implement a programme to reduce the risk associated with birds and animals, and to take or initiate appropriate measures.

   h) To ensure that the movement of vehicles and persons on the movement area and other operational areas, is coordinated with the movement of aircraft to avoid collisions and damage to aircraft.

   i) To establish and implement procedures to mitigate risks related to aerodrome operations in reduced visibility or at night.

   j) To interface with all organisations and staff that operate airside, including air traffic services, and with non-airside organisations whose activities may have an effect on aircraft safety, to ensure continuing compliance with these essential requirements.

   k) To establish and implement an incident and accident reporting system.

2) Whenever an aerodrome is open to public use and;

   - the operation of the aerodrome requires more than 5 people, or
   - it is open in IMC, or
   - it is operated at night, or
   - it has more than 50,000 aircraft movements per year, or
   - it is open to aircraft with
     - a maximum take-off mass of 10 tonnes or more,
     - or an approved passenger seat configuration for 19 or more

Then;

a) The aerodrome operator must implement and maintain a management system to ensure compliance with these essential requirements for aerodromes. The aerodrome operator must also aim for the continuous improvement of this management system.

And;

b) The Aerodrome operator must develop an aerodrome manual and operate in accordance with that manual. Such a manual must contain all necessary instructions, information and procedures for the aerodrome, the management system and for operations personnel to perform their duties.

C - Mitigation of hazards not directly under the control of the aerodrome owner or operator

1) The airspace around aerodrome movement areas must be maintained free from obstacles so as to permit the intended aircraft operations at the aerodromes to be conducted without the creation of undue hazard by the growth of obstacles around the aerodromes. To achieve this, obstacle monitoring surfaces must be developed, implemented and continuously monitored to identify obstacles that would create hazards to air navigation.
   a) An infringement to these surfaces will require an assessment to identify whether or not the object is an obstacle.
   b) Such obstacles must be promulgated, and according to the need be marked and, where necessary, provided with lights.

2) Hazards related to human activities and land use, such as but not limited to items on the following list, must be monitored and controlled or mitigated as appropriate;
   a) any development or change in land-use in the aerodrome local area
   b) the possibility of building induced turbulence
   c) the use of lasers
   d) the use of non-aeronautical ground lights
   e) the creation of areas that might encourage wild life activity in the surrounding of the aerodrome movement area both inside and outside the aerodrome boundary;

3) A local community emergency plan must be established for aviation emergency situations occurring in the aerodrome local area.

4) Except for aircraft emergency situations, or under specific conditions specified in each case, an aerodrome or parts thereof must not be used by aircraft for which the aerodrome design and operating procedures are not normally intended.