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Agenda Item 3: RASG-PA Working Groups
3.1 Aviation Safety Training Team (ASTT)
3.1.6 ICAO Fatigue Risk Management System (FRMS)

THE CREATION OF A FATIGUE RISK MANAGEMENT PROGRAM

(Presented by Brazil)

SUMMARY

This working paper presents the proposed structure for a Brazilian Fatigue Risk Management Program.

References:

- State letter AN 11/1.3.22-09/18 (Adoption of Amendment 33 to Annex 6, Part I);
- State Letter SP 59/5.1-10/33 (Proposals for the amendment of Annex 6, Part I relating to a Fatigue Risk Management System -FRMS)
- Comments - I Pan American Summit (April 2010);
- Programa Brasileiro para a Segurança Operacional da Aviação Civil (PSO-BR);
- Programa de Segurança Operacional Específico da ANAC (PSOE-ANAC);
- Regulamento Latino Americano nº 121; e
- Regulamento Brasileiro de Aviação Civil nº121

Strategic Objective(s)	*This working paper is related to Strategic Objective(s)* *A – Safety*

1. Background

1.1 The workshop on fatigue in aviation, held on March 23, 2010 in Rio de Janeiro, resulted in a first working draft of a proposal for a risk management system for human fatigue in Brazil. Starting from the State letter AN 11/1.3.22-09/18, representatives of companies operating under RBAC 121 discussed the subject of human fatigue, and proposed indicators, analysis methods and implementation models for creating a Fatigue Risk Management Program. After the workshop, internal discussions led to the decision of extending applicability of fatigue risk management regulations beyond flight crew, to flight dispatchers and maintenance personnel.

1.2 Further developing discussions, a seminar was held in Rio de Janeiro, including companies that operate under RBACs 121 and 135, researchers, unions, DECEA, FABGL, Petrobras, ANAC employees and other stakeholders to discuss a draft regulation for the management of fatigue in civil aviation. A draft Appendix to the RBAC 121 was submitted to participants in advance and allowed them to participate in the process by providing comments, criticisms and suggestions. On October 4th lectures were given by ANAC's technical staff, invited professors, doctors and consultants with experience in implementing human fatigue management programs, motivating the participants that were to occur on the next day. On October 5th, the participants were organized into eight groups and were encouraged to make comments and suggest changes to the proposed draft. Comments were reviewed and included to information that led to amendments to the original draft.

1.3 The International Conference on Fatigue in Aviation took place in Rio de Janeiro on April 28-29, 2011 and was aimed at introducing participants to the proposed amendment to RBAC 121, entitled *Estrutura do Programa de Gerenciamento de Risco de Fadiga Humana – PGRF* (Structure of the Human Fatigue Risk Management Program). It presented the rules and guidelines to be used by 121 companies when developing an FRMS, involving the crew and other employees doing fatigue-risk related work. At the end of the second day, the draft amendment proposal to the RBAC 121 was presented. All of the events presentation slides are available for download at: http://www.anac.gov.br/Noticia.aspx?ttCD_CHAVE=179&slCD_ORIGEM=29

1.4 With regard to the contents of the draft proposal, it is noted that PGRF was considered to be integrated to SMS, and its components outlined the format of the proposed documents and guided the content of the requirements, based on the concept of just culture.

1.5 It is also important to note that the subject was discussed in the 1st Pan American Aviation Safety Summit that took place in Sao Paulo, on April 19-23, 2010, in which ICAO presented the proposal of making FRMS a standard, as well as in the ICAO Fatigue Risk Management Symposium, event that brought together regulators and airlines that already had or were planning to implement FRMS.

1.6 Current intended application of fatigue risk management regulation as per RBAC 121 is directed to flight and cabin crew and flight dispatchers.

2. Analysis

2.1 Brazil presents a proposal for the subject through the draft document entitled "*Proposta de inclusão de requisitos de gerenciamento de risco de fadiga RBAC 121*", which is intended to become an Appendix and a Subpart to *Regulamento Brasileiro da Aviação Civil no 121*.

2.2 The proposal complies with the Brazilian legislation that regulates the flight-professional activities, detailing prescriptive hours of daily work of airmen and integrates with Safety Management Systems.

3. Discussion

3.1 After technical analysis, it is concluded that the proposed regulations on the management of fatigue should be part of the Safety Management Systems – SMS.

3.2 The proposed structure on the management of fatigue will not change or affect provisions laid down in existing legislation; therefore it will not fully address the possibility of flexibility of the standard.

3.3 It is necessary, nevertheless, to manage fatigue beyond what is required by law, creating more defense layers to improve safety.

3.4 Furthermore, it also proposes the extension of the applicability, including the following professional categories: flight and cabin crew and flight dispatchers governed by part 121.

3.5 For the PGRF, as per SMS design and content, the need to establish policies and procedures, management, assurance and promotion was determined.

3.6 The main objective is to restrict that certificate holder assigns safety risk prone tasks to workers that may be affected by fatigue as well as that workers engage on these tasks if they are fatigued to the point that they cannot perform duties safely.

3.7 The certificate holder may not allow crew and dispatchers to continue performing a safety risk prone activity if they report being fatigued to point that they cannot perform duties safely.

3.8 Certificate holders must provide a means of unrestricted and simple access to allow employees to report the impossibility of engaging in a safety risk prone task if deemed unfit.

3.9 The certificate holder must describe clear and accessible procedures to deal with reports on the impossibility of engaging in a safety risk prone task, whether they are submitted by the involved person or by a third-party.

3.10 The certificate holder must provide an exclusive form for the communication of fatigue risk situations or include in a form that already exists the following fatigue data: field for gradual alertness and fatigue levels at the time of the occurrence, description of the occurrence and corrective suggestions.

3.11 The form must allow communication to be made confidentially and anonymously and must allow actions to be taken before activities are initiated.

3.12 Reports must be addressed to ensure its tracking, with a clear policy on analysis and transmission of confidential information.

3.13 The certificate holders will keep records of crew scheduled hours and hours actually worked.

3.14 The work schedules must be developed considering the following aspects related to human fatigue:

(1) Industry or operators operational experience and data collected on similar types of operations/tasks;
(2) Best-practices of creating work schedules based on evidence and data supplied by involved personnel;
(3) Data from bio-mathematical models;
(4) Scientific data on circadian rhythms, sleep and workload.

3.15 The minimum requirements on fatigue risk management training are:

(1) Fundamentals of regulations;
(2) Detailed presentation of certificate holder's PGRF;
(3) Concepts: sleep and wakefulness, circadian cycle, causes of fatigue (individual and organizational conditions), impact of fatigue on performance and workload;
(4) Prevention and mitigation of fatigue: lifestyle, nutrition, healthy habits, physical activities, responsible home/work commuting;
(5) Staff responsibilities in ensuring rest and fitness for work;
(6) Operations in multiple time zones, for crewmembers;
(7) Fatigue as contributing factor for accidents and incidents;
(8) "Just culture".

3.16 The PGRF must explicitly present:

(1) Communication processes, forms, and publication of PGRF adopted by the company;
(2) Company's strategies on resisting/fighting fatigue in its activities;
(3) Training/education programs on the topic;
(4) Lines of responsibility with respect to decision regarding fatigue related risks.

4. Creation of panel of experts to prepare an FRMS appendix to LAR 121

4.1 It would be convenient to create a panel of experts for the preparation of amendments to the LAR 121 so as to require the construction of the Fatigue Management Programs in the 2012 work program of the Regional System.

5. Suggested actions

5.1 From what was presented, the RASG-PA Executive Steering Committee is invited to:

a) Take note of the information presented in this working paper;

b) Include in the Regional Safety Oversight System work program, the creation of amendments to LAR 121, to include the implementation of Fatigue Risk Management Programs,

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