Safety Oversight Audit Section

Regional Seminar on the Preparation, Conduct and Reporting of an ICAO Safety Oversight Audit

Beijing, China, 12 to 15 December 2006

Introduction to the Comprehensive Systems Approach

Module 3
Module objective

At the end of this module the participants will have a clear understanding of the USOAP comprehensive systems approach developed by ICAO for the conduct of safety oversight audits.
Outline

- The Annex by Annex approach
- The Comprehensive Systems Approach
- Tools used in the implementation of the comprehensive systems approach
- The overall process
- Appointment of a National Safety Oversight Coordinator
Annex by Annex approach

- It was applied from 1996 – start of the voluntary assessments until 2004 – end of first cycle of mandatory audits.
- Assessed the implementation of specific annexes.
- Experience shows that it was successfully implemented and served the intended purpose:
  - Raised State awareness on their safety oversight responsibilities.
  - Provided reliable information on the status of implementation of ICAO SARPs.
  - Enabled the identification of deficiencies in the global safety of aviation activities in the three areas.
Annex by Annex approach

The Annex by Annex approach, however, presented several challenges:

- Did not give a clear picture of the overall safety level provided by the aviation system in the State.
- Aviation activities are interrelated. A problem in one area affects the whole system.
- Safe aircraft operations are not limited to licensing, operations and airworthiness.
- State oversight capabilities with respect to other aviation activities have an equal impact on safety.
Annex by Annex approach

The Annex by Annex approach, however, presented several challenges:

- Continuing on an Annex-by-Annex approach would have been very lengthy and expensive.
- It would have also represented an administrative problem, as it would have been necessary to replace technical experts on a three-year or six-year cycle.
- The overall picture of the health of the aviation system would have been very difficult to assess.
Comprehensive systems approach

- The Comprehensive Systems Approach (CSA) refers to the implementation of a structured process and methodology for the planning, preparation, conduct, reporting, follow-up and evaluation of ICAO safety oversight audits.

- It is designed to determine States’ capability for safety oversight through the effective implementation of the critical elements of a safety oversight system.
Comprehensive systems approach

- A structured approach that enables an audit process which is methodically conducted and documented to ensure:
  - Standardization,
  - Traceability, and
  - Accountability

- Compatible with USOAP Principles
Comprehensive systems approach

- The CSA:
  - Looks at States’ safety oversight systems from a process perspective.
  - Provides a timely picture of the overall health of a State’s safety oversight system and its effectiveness.
  - Focuses attention on critical safety areas.
  - Allows for flexibility depending on the size and complexity of the aviation system established in a State.
Comprehensive systems approach

- **Benefits of a systems approach:**
  - Enables the assessment of a State’s capability for safety oversight.
  - Enables the assessment of the effective implementation of the critical elements of a safety oversight system.
  - Evaluates the overall aviation safety system established by States and avoids a piecemeal approach to evaluate aviation safety standards.
Comprehensive systems approach

- Benefits of a systems approach:
  - Promotes the uniform implementation of international safety Standards.
  - Promotes the building of confidence among States by making each State aware of the other States’ capability for safety oversight.
  - Overall, it will significantly contribute to the safety and efficiency of the international air transport system.
The implementation of the CSA required the development of a plan, processes, procedures and specific tools to be used both by ICAO and Contracting States.

It also required the establishment of a Programme which is:

- Fully transparent; and
- Works closely with all Contracting States.
Comprehensive systems approach

- Endorsed by Assembly Resolution A35-6 (2004):
  - USOAP to be further expanded to include the safety-related provisions in all safety-related Annexes.
  - USOAP to adopt a comprehensive systems approach in conducting safety oversight audits.
  - PEL, OPS, AIR, ATM, AGA and AIG to constitute the core elements (subjects) of the audit Programme.
Comprehensive systems approach

- Endorsed by Assembly Resolution A35-6 (2004)
  - Audit reports to be structured on the basis of the critical elements of a safety oversight system.
  - Final audit reports to be made available to all Contracting States in their entirety.
  - USOAP to continuously ensure the maintenance of its quality assurance system (ISO certification).
Comprehensive systems approach

- Assembly Resolution A35-6 calls upon States to:
  - Submit, on a timely manner, and keep up-to-date, all information and documentation associated with the preparation and conduct of an audit.
  - Cooperate with ICAO and, as much as possible, accept audit missions as scheduled by ICAO.
  - Second qualified and experienced technical staff to ICAO on long- or short-term basis.
Comprehensive systems approach

- Resolution A35-6 also calls upon States to:
  - Accept the primacy of USOAP audit results as meeting the established SARPs.

- In this regard, Assembly Resolution A35-7 requests the Secretary General to continue to foster coordination and cooperation between USOAP and other audit programmes (IATA, EUROCONTROL, etc.).
Comprehensive systems approach

Effective State Safety Oversight System

- Personnel Licensing (Annexes 7, 8, 16)
- Aircraft Operations (Annexes 6, 18)
- Airworthiness of Aircraft (Annexes 10, 11, 12, 15 & PANS-ATM)
- Legislation and Regulations (Conventions Annex 2)
- Convention
- Aerodromes (Annex 14)
- Navigation System (Annexes 3, 4, 5)
- Accident & Incident Investigation (Annex 13)
- Organization & Safety Oversight Functions (SAAQ)
Comprehensive systems approach

- Legislation and Regulations
  - Convention Annex 2

- Personnel Licensing
  - Annex 1

- Aircraft Operations
  - Annexes 6, 18
  - PANS-OPS

- Airworthiness of Aircraft
  - Annexes 7, 8, 16

- Organization & Safety Oversight Functions
  - SAAQ

- Aerodromes
  - Annex 14

- Air Navigation System
  - Annexes 3, 4, 5
  - 10, 11, 12, 15 & PANS-ATM

- Accident & Incident Investigation
  - Annex 13

SOA - November 2006
Comprehensive systems approach

- Audit processes and procedures:
  - A three-phase audit process has been established (it will be discussed phase-by-phase, in Modules 6, 8 and 9).
  - The process and procedures are highly transparent and available to all Contracting States.
  - The entire process, from initial planning and scheduling of an audit to the publication of a final safety oversight report takes approximately two years to complete.
Comprehensive systems approach

Selection criteria for States to be audited:

- Expressed urgency to audit a particular State
- Requests by a Contracting State
- Size and complexity of aviation activities
- Results of previously conducted audits
- Regional balance
- Aircraft accident and incident rates
- Completion of documentations required for the audit (auditors’ tools)
- Language requirements
- Proximity to a State selected for an audit
Comprehensive systems approach

Audit tools:

- Audit tools are used throughout the three phases of the audit process, from the initial planning stage to the publication of the final audit report.
- The main audit tools include:
  - State Aviation Activities Questionnaire (SAAQ).
  - Compliance Checklists (CCs)
  - Safety Oversight Audit Manual - Audit Protocols
Comprehensive systems approach

State Aviation Activities Questionnaire (SAAQ)

- Designed to enable ICAO to collect useful information on the organization and system established by a State to meet its safety oversight-related obligations as a signatory to the Convention on International Civil Aviation.
- Used in the planning and customization of an audit.
Comprehensive systems approach

State Aviation Activity Questionnaire (SAAQ)

- All States have to complete it and submit it to ICAO.
- States have to update the information contained in their respective SAAQ whenever there is a change in their civil aviation system.
- An updated SAAQ must be submitted at least 90 days prior to the conduct of the on-site phase of the audit.
- The SAAQ can be completed online.
Comprehensive systems approach

Contents of the SAAQ:

- Part I — General administrative information
- Part II — Legislation
- Part III — Organization
- Part IV — Operational activities
- Part V — Air navigation services
- Part VI — Aerodromes
- Part VII — Aircraft accident and incident investigation
Comprehensive systems approach

SAAQ, Web-based version

<table>
<thead>
<tr>
<th>Reference</th>
<th>SAAQ Question</th>
<th>Comments</th>
</tr>
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<tbody>
<tr>
<td>GEN 1.1</td>
<td>PART 1. - GENERAL ADMINISTRATIVE INFORMATION Provide the name, position and address of the person designated as the State coordinator with respect to the ICAO Universal Safety Oversight Audit Programme (USOAAP). Specify: Name: Position: Contact address: Tel: Fax: Email:</td>
<td></td>
</tr>
<tr>
<td>GEN 1.2</td>
<td>What is the normal workweek, e.g. Mon to Fri, Sat to Wed?</td>
<td></td>
</tr>
<tr>
<td>GEN 1.3</td>
<td>What are the normal working hours, e.g. 0900 to 1700; 0730 to 1430?</td>
<td></td>
</tr>
<tr>
<td>GEN 1.4</td>
<td>What statutory holidays should be considered as not suitable for planning an audit?</td>
<td></td>
</tr>
<tr>
<td>GEN 1.5</td>
<td>Is there an annual vacation period when many of the essential staff may not be available and, therefore, that should be avoided when scheduling the audit?</td>
<td></td>
</tr>
<tr>
<td>GEN 1.6</td>
<td>What documentation will be required from and made available to ICAO audit members to access operational sites for audit purposes, e.g. passes, photo ID?</td>
<td></td>
</tr>
<tr>
<td>GEN 1.7</td>
<td>Has the State established a civil aviation website(s)? If yes, indicate the URL(s).</td>
<td></td>
</tr>
</tbody>
</table>
Comprehensive systems approach

Compliance Checklists CCs:

- 16 CCs were developed, one for each of the Annexes being audited.
- The CCs provide ICAO with information on a State’s level of implementation of international Standards and Recommended Practices (SARPs).
- The CCs enable States to identify any difference which may exist between their own practices and those established by international standards (Article 38 of the Chicago Convention).
Comprehensive systems approach

Compliance Checklists:

- The completed CCs submitted by States allow ICAO to maintain a database on each State’s level of compliance of the ICAO SARPs.

- States are required to maintain the compliance checklists up-to-date and, in any case, update them at least 90 days prior to the scheduled audit.
Comprehensive systems approach

Contents of the Compliance Checklists:

- A foreword providing States with instructions on how to complete the document.
- The Foreword also defines the categories to be considered in determining differences to be identified and submitted to SOA.
- Standards and Recommended Practices contained in all safety-related Annexes (all ICAO Annexes except Annexes 9 and 17).
### Comprehensive systems approach

#### Compliance Checklist – sample page

<table>
<thead>
<tr>
<th>SARP Identifier</th>
<th>Annex Reference</th>
<th>Legislation Reference</th>
<th>Text of difference</th>
<th>Level of compliance</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>SARP Identifier</td>
<td>Annex Reference</td>
<td>Legislation Reference</td>
<td>Text of difference</td>
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<td>A1100001205</td>
<td>Chapter 7</td>
<td>()</td>
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</table>

**Investigator-in-charge - Designation**

The State conducting the investigation shall designate the investigator-in-charge of the investigation and shall initiate the investigation immediately.

**Investigator-in-charge - Access and control**

The investigator-in-charge shall have unimpeded access to the wreckage and all relevant material, including flight recorders and ATS records, and shall have unimpeded control over it to ensure that a detailed examination can be made without delay by authorized personnel participating in the investigation.

**Flight recorders - Accidents and incidents**

Effective use shall be made of flight recorders in the investigation of an accident or an incident. The State conducting the investigation shall ensure, for the read-out of flight recorders without delay.
Comprehensive systems approach

Compliance checklist, Web-based version

<table>
<thead>
<tr>
<th>Annex 01</th>
<th>PERSONNEL LICENSING</th>
<th>Legislation Compliance Quote relevant State Act Regulation or Document Reference</th>
<th>Difference</th>
<th>Yes</th>
<th>Net Applicable</th>
<th>Text of the difference identified by the State</th>
<th>Comment including the reason for difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annex Standard or Recommended Practice</td>
<td>NINTH EDITION - JULY 2001 Amendment 165</td>
<td></td>
<td></td>
<td>No</td>
<td>More Exacting or Exceeds</td>
<td>Less protective or partially implemented or not implemented</td>
<td></td>
</tr>
</tbody>
</table>

**Chapter 1. Definitions and General Rules Concerning Licences**

**Definitions**

When the following terms are used in the Standards and Recommended Practices for Personnel Licensing, they have the following meanings:
Comprehensive systems approach

Audit Protocols (PQ):

- Developed by SOA with the assistance of relevant ANB Sections.
- Used for the conduct of the on-site audit.
- Enable auditing against the critical elements of a safety oversight system.
- Provide guidelines to the auditor on what evidence should be requested and reviewed.
- Can be used by States to conduct internal audits.
Comprehensive systems approach

Additional/Support Tools - Guidance material:

- Designed to assist States in the implementation of SARPs and associated Procedures:
Comprehensive systems approach

Additional/Support Tools - Guidance material:

- Additional guidance material is listed under each of the audit protocols in Module 6.
Comprehensive systems approach

Additional/Support Tools - Seminars and workshops

- One of the main tools used to assist States to establish an effective safety oversight system.
- Seminar/workshops provide States information on USOAP and on how to prepare for an ICAO audit.
- A means of sharing knowledge and experience with experts from other States and organizations.
# Safety oversight audit process

<table>
<thead>
<tr>
<th>Location</th>
<th>Pre-audit</th>
<th>Audit</th>
<th>Post-audit</th>
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<tbody>
<tr>
<td>Montreal</td>
<td>Sec Gen letter to State</td>
<td>Opening meeting</td>
<td>Final report</td>
</tr>
<tr>
<td></td>
<td>Audit team briefing</td>
<td>Closing meeting</td>
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</tr>
<tr>
<td></td>
<td>Update SAAQ &amp; CC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SPO handover to TL</td>
<td></td>
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</table>

<table>
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<tr>
<th>Time Frame</th>
<th>12 months</th>
<th>days</th>
<th>9 months+</th>
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</table>

SOA - November 2006
The scope of safety oversight audits during the initial audit cycle was limited to Annexes 1, 6 and 8.

This meant that ICAO, for the most part, only had to deal with one State entity, namely the Civil Aviation Administration or Authority.

The scope of safety oversight audits under the comprehensive systems approach has expanded to 16 of the 18 Annexes to the Convention.

As a result, in many States, ICAO has to deal with several entities responsible for safety oversight (and investigation) tasks, besides the Civil Aviation Authority.
To facilitate the audit process, and to ensure proper communication and coordination with Contracting States, the Safety Oversight Audit Section (SOA) requested all States to appoint a National Safety Oversight Coordinator (NOSC).

The NSOC serves as focal point between the Safety Oversight Audit Section (SOA) and the State concerning safety oversight matters.

The NSOC plays an active role during the three phases of the audit process: pre-audit, on-site and post-audit phase.
Review

- The Annex by Annex approach
- The Comprehensive Systems Approach
- Tools used in the implementation of the comprehensive systems approach
- The overall process
- Appointment of a National Safety Oversight Coordinator
Thank you!