ICAO’S FIRST iUG Meeting 2018
SAFE TRAVELS
Committed to leave no one behind

ICAO’s Agenda for SAFETY

Catalin Radu
Deputy Director, Aviation Safety
Air Navigation Bureau - ICAO
Our Aspirational Safety Goal

ZERO FATALITIES

Estimate 4.4 Bill Pax
We are not that far...

In the past, some regions have already achieved zero fatalities.

### Regional Accident Statistics: 2015

<table>
<thead>
<tr>
<th>RASG</th>
<th>Estimated Departures (in millions)</th>
<th>Number of Accidents</th>
<th>Accident Rate (per million departures)</th>
<th>Fatal accidents</th>
<th>Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFI</td>
<td>0.8</td>
<td>6</td>
<td>7.3</td>
<td>0</td>
<td>0</td>
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<tr>
<td>APAC</td>
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<td>24</td>
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<td>EUR</td>
<td>8.1</td>
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<td>23</td>
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<tr>
<td>MID</td>
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<td>3</td>
<td>1.2</td>
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<td>0</td>
</tr>
<tr>
<td>PA</td>
<td>13</td>
<td>34</td>
<td>1.6</td>
<td>1</td>
<td>1</td>
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<tr>
<td>WORLD</td>
<td>33</td>
<td>92</td>
<td>2.4</td>
<td>5</td>
<td>50</td>
</tr>
</tbody>
</table>

### Regional Accident Statistics: 2016

<table>
<thead>
<tr>
<th>RASG</th>
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<th>Accident Rate (per million departures)</th>
<th>Fatal accidents</th>
<th>Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFI</td>
<td>0.9</td>
<td>1</td>
<td>1.2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>APAC</td>
<td>10.7</td>
<td>19</td>
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<tr>
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<tr>
<td>MID</td>
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<td>2.3</td>
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<tr>
<td>PA</td>
<td>2.1</td>
<td>0</td>
<td>2.1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>WORLD</td>
<td>2.1</td>
<td>7</td>
<td>2.1</td>
<td>7</td>
<td>182</td>
</tr>
</tbody>
</table>

For 2018 (non validated results)

AFI (WACAF/ESAF)

ZERO fatalities

90% countries with Zero Fatalities
Challenges of new technologies

Air traffic is predicted to **double** by 2030

How can we ensure the **safe** realization of this growth?
Risks/barriers to achieve our goal

• Effective Implementation of SARPs

• ICAO’s Safety priorities: Operational Risks

• Current and emerging issues

All 3 are introducing risks in the system
Safe Travels: ICAO’s agenda for Safety

Effective Implementation of SARPs
Performance Dashboard

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
<th>Value</th>
<th>Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>USOAP EI ( E1 )</td>
<td>0%</td>
<td>95.17%</td>
<td>Yes</td>
</tr>
<tr>
<td>Significant Safety Concerns ((ESCa))</td>
<td>0</td>
<td>0</td>
<td>Yes</td>
</tr>
<tr>
<td>FASAR</td>
<td>0</td>
<td>3</td>
<td></td>
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<tr>
<td>Aerodrome Certification</td>
<td>Satisfactory</td>
<td>Satisfactory</td>
<td>Yes</td>
</tr>
<tr>
<td>Global Safety Programme (( SSP))</td>
<td>0%</td>
<td>95.1%</td>
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</tr>
<tr>
<td>Global HSF Implementation</td>
<td>Level 2</td>
<td>Level 3</td>
<td></td>
</tr>
<tr>
<td>ICAO</td>
<td>Cat 1</td>
<td>Cat 1</td>
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</tr>
<tr>
<td>FAA  NASA</td>
<td>Satisfactory</td>
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<td>Yes</td>
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<tr>
<td>Airworthiness</td>
<td>Unrestricted</td>
<td>Unrestricted</td>
<td>Yes</td>
</tr>
<tr>
<td>PBN</td>
<td>100%</td>
<td>95.91%</td>
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<tr>
<td>Global Aviation Training Activities</td>
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<tr>
<td>Corrective Action Plan Update</td>
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</tr>
<tr>
<td>Positive Safety Margin</td>
<td>3/3</td>
<td>3</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Note: The targets are agreed global or regional performance targets, as applicable. FASAR accidents are by State of Occurrence or State of Operation on scheduled commercial flights with aircraft over 3.71 for the last 5 years.

Universal Safety Oversight Audit Programme (USOAP)

Global USOAP Results

Canada was audited in 2005.

The current overall result for Canada is 95.17% EI which is above the world average of 66.56%.

Canada has achieved the target of 60% EI, as suggested by the Global Aviation Safety Plan (GASP) by 2017.

Overall EI

Canada

Overall EI

Canada is ranked 1/34 in RASG-PA with respect to overall effective implementation. Within this group, 73.53% have reached the target of 60% EI with an average EI of 73.79%. Canada rates above the average of RASG-PA.
Resolution of Safety Concerns (CE-3) in Aerodromes (AGA)

- Does the State collect and forward wildlife strike reports to ICAO?
- Provides a framework for managing operational risks.

Available Documentation:

Best Practices shared by States and International Organizations:
- OPERATIONS AT PLATEAU AIRPORTS: The approach to managing operations at plateau airports by setting out operational criteria different from regular airports:
- QUICK RESPONSE AFTER EQUIPAGE: Shared by Japan
- CERTIFICATION OF FIRMS PROVIDING AIRCRAFT GROUND HANDLING SERVICE: Shared by Dominican Republic

Available Training:
- Aerodrome Safety Management Incorporating PAMS-Aerodromes by Trainer Plus
- Air Traffic Strike Management by Trainer Plus
- Communication Procedures for Airside Operations by Trainer Plus

Regional/Global Initiatives:
- IATA Operational Safety Audit (IOSA) by IATA for States in World

Software tools available:
- EMPC-FAP by EMPC GmbH
- EMPC-FAP is designed to manage and to check the implementation of aviation-specific regulations.

States that have resolved the PQ:
- Austria, Belgium, Switzerland, Germany, Denmark, Estonia, France, Greece, Ireland, Italy, Malta, Netherlands, Norway, Portugal, Spain, Sweden, United Kingdom, and others.

Training:
- States that have resolved the PQ and Guidance
- Priority Criteria
- SARPs and Guidance
- Best Practices
- (Templates, Other State's, Industry)

Solution Center
Report on Protocol Questions (PQ)
Findings and Guidance for Resolutions
Evolution of Analysis: Safety Margins

Safety Margin

Risk-based prioritization model based on a State’s Traffic and the level of Effective Implementation (EI) in the related technical areas at risk (Operations, Air Navigation, Support Functions)
SSP pre-requisites

Identifies pre-requisites to an effective and sustainable SSP implementation

A subset of ~300 USOAP PQs in 19 areas with more granularity than the 60% EI threshold.
Evolving Safety Performance

• iMPLEMENT is a data-driven decision making process that:
  
  • **Assesses the current status** of aviation (Safety Briefings)
  
  • **Identifies the best solutions** in order to maintain or improve the aviation capability of the State (Solution Center)
  
  • **Evaluates the needs of the aviation system** (money, people, infrastructure) (CAA HR Tools, PAINT/iAID, etc.)
  
  • **Identifies resources** through existing national, regional, or global mechanisms (ASIAP, SAFE Fund, etc.)
  
  • **Showcases the real added value of air transport** and the socio-economic return on investment of aviation

A ‘NO COUNTRY LEFT BEHIND’ Initiative:

Facilitating **Data-Driven** Decisions for Aviation

* Site: www.icao.int/iMPLEMENT
Identify Risks

Prioritize and Offer Solutions

Identifying the needs

Resourcing the needs

Aviation Benefits

Solution Center

Cost Database

NEEDS TODAY

RESOURCING THE NEEDS

ASIAP
Aviation Development Funds
CASI
Technical Cooperation Assistance

State Safety Briefing

SSP Foundation

Identifying the needs

Prioritizing risks & providing corrective actions

Identifying the needs

Providing practical solutions to prioritized risks

Reporting on current State risks

Prioritizing risks & providing corrective actions

Providing practical solutions to prioritized risks

Identify Risks

Prioritize and Offer Solutions

Identifying the needs

Resourcing the needs

Aviation Benefits
161 Member States (84%)
Global El > 95%
Evolution of RASGs

- RASGs as the **leaders for the management of regional operational risk environment**, as reflected in the Global Aviation Safety Plan (GASP)
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• RASGs to assist States in identifying hazards and defining their own specific targets
  • From 60% EI to an acceptable Safety Margin for each State
  • Mapping the risk
Evolution of RASGs

- RASGs as the leaders for the management of regional operational risk environment, as reflected in the Global Aviation Safety Plan (GASP)

- RASGs to assist States in identifying hazards and defining their own specific targets
  - From 60% EI to an acceptable Safety Margin for each State
  - Mapping the risk

- RASGs to harmonize and avoid overlaps
  - Between States
  - Between RASGs
Safety Priorities: Operational Risks

- Runway Safety related (RS)
- Loss of Control-Inflight (LOC-I)
- Controlled Flight Into Terrain (CFIT)

Other accident priorities? (i.e. by Region)
Support

Allow

Resolve

Facilitate

Generate indicators

Support the identification of hazards and risks

Allow monitoring of safety performance

Resolve need for in-house analytics technology

Facilitate data-driven decision making
Information Sharing and Exchange

**SERVICE PROVIDERS**
- Airports
- ANSP
- Airlines
- Business Aviation
- Manufacturers

**KPI**

**SMS**

**STATES**
- Core Safety Performance Indicators
- SPI

**ICAO**
- Implement
  - Provide States with tools to prioritize implementation

**TOOLS**
Risk Mitigation: Managing the Hazards

Airport Hazards (from METARs, NOTAMs, and USOAP)

Data driven decision making processes using data from States, Industry, and other stakeholders
Real-Time Monitoring Aviation’s Health

**Identifying potential risks**
One aircraft was at 60kts with 1000 feet remaining
Evolution of Analysis – seeing the Big Picture
Analysis to manage the hazards

OVER 30
Applications for safety analysis and Information

MORE THAN 3000+
Registered users

www.icao.int/safety/ISTARS
Safe Travels: ICAO’s agenda for Safety

Current and Emerging Issues
Current and Emerging Issues

What next?
- Mental Health
- GPS interruption
- Drones
- Supersonic aircraft

Conflict Zones  Global Tracking  Cyber Safety  RPAS  Space Transportation
Safe Travels: ICAO’s agenda for Safety

Summary
GASP 2020-2022

Effective Implementation

- States that need support in areas with safety margins below zero, to use a RSOO mechanism
- All States to improve their score for the effective implementation (EI) of the critical elements (CEs) of the State's safety oversight system as follows:
  - By 2019: 75%
- Target 4.1: ICAO Recognized functions
- Target 2.1: Implement Safety Oversight
- Target 2.2: Positive Safety Margin
- Target 3.1: Sustainable SSP
- Target 3.2: Effective SSP
- Target 6.1: Appropriate Infrastructure

BBBs

- All States to reach a positive safety margin, in all categories
- All States to implement the foundation of a State Safety Programme (SSP)
- All States to implement an Effective SSP, as appropriate to their aviation system complexity
- All States to implement the air navigation and airport core infrastructure
- Target 1.1: Reduced Accident rate
- Target 5.1: INDUSTRY assessment programmes
- Target 5.2: Harmonized KPIs in SMS
- Target 4.2: Safety risk information to RASG
- Target 4.3: RASG Risk mgmt. activities

Operational Risks

- Maintain a decreasing trend of global accident rate
- Increase the number of service providers participating in the corresponding, ICAO-recognized industry
- All service providers to use globally harmonized SPIs, as part of their safety management systems (SMS)
- All States to contribute information on safety risks, including SSP safety performance indicators (SPIs), to their respective Regional Aviation Safety
- Target 2020
- Yearly
- 2020
- 2022
- 2022
- 2022
- 2022
Phase I: Effective safety oversight

Phase II: SSP implementation

Phase III: Predictive risk management

Sub-phase I-A

Sub-phase I-B

Sub-phase II-A

Sub-phase II-B

Sub-phase III-A

Sub-phase III-B

Effective Implementation

Safety Priorities

RASGs Sharing and Exchange Safety Info

Data → Mgm Risk

RSOOG/GASOS

60% → Safety Margin

SSP Pre-requisites

RSOO/GASOS

Effective Implementation

Safety Margin

RSOO/GASOS

SSP Pre-requisites

RASGs Sharing and Exchange Safety Info

Data → Mgm Risk

RSOOG/GASOS

Effective Implementation

Safety Margin

RSOO/GASOS

SSP Pre-requisites

RASGs Sharing and Exchange Safety Info

Data → Mgm Risk

RSOOG/GASOS
Real-Time Monitoring Aviation’s Health

**Combining** State audits with State/Industry operational data

- Through SMS and SSP
- Protection of information/operational data through Amendment 1 to Annex 19
Our Aspirational **Safety** Goal

SAFE TRAVELS

Passengers First

ZERO FATALITIES
THANK YOU!