



| ICAO

CAPACITY & EFFICIENCY

# Discussion on AIG implementation matters

Marc St Laurent

*AIG Consultant*

Agenda Item 4

ICAO NACC Regional Office, 12 March 2019



# AIG Vision

The ultimate and overall goal is to help States in CAR and CENAM regions

- ✈ Establish adequately resourced and staffed Investigation Authorities to respond to and conduct investigations into accidents and incidents or potential safety issues in a competent, and independent and objective manner,
- ✈ With the view to actively assume their key role within the States SSP to effectively Identify Hazards and communicate their related Findings in a way that results in prompt and effective Safety Actions being taken by key risk stakeholders to prevent losses from damage or injury and improve aviation safety overall.



# AIG Vision

✈ Investigation Authorities (IA) that are effectively meeting those key points would be meeting their mandate and would thus have in place the key AIG components identified in the PQs.



# Principles/Opportunities

- ✈ To establish effective, sound and sustainable safety investigation capacity within Central America and Caribbean regions.
- ✈ ICAO Annexes (e.g. 13 and 19) are not limiting - they describe the minimum requirements.
- ✈ Keep in mind the important role of investigations in relation to the States SMS/SSP and Safety Risk Management responsibilities and activities.



# Principles/Opportunities

- ✈ Foster Central America and Caribbean regional common understanding, sharing, collaboration and cooperation between
  - ✈ Central American GRIAA (established)
  - ✈ Caribbean RAIO-C/CAR-RAIB (ongoing)
  - ✈ All other States Investigation Authorities (IAs)
  
- ✈ MoUs or other agreements to ensure support and collaboration from other leading Investigation Authorities
  - ✈ CAN-TSBC (existing)
  - ✈ USA-NTSB (verbal agreement in principle)
  - ✈ European IAs (e.g. UK, France, Netherlands, etc.)
  - ✈ Others



STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Robust LEG &amp; REG, MoUs</li> <li>• Safety Recommendations - Issue and Follow-up</li> <li>• Individual AIG expertise/talent in Regions</li> </ul>	<ul style="list-style-type: none"> <li>• Weak LEG or REG</li> <li>• Safety Recommendations - Issue and Follow-up</li> <li>• Lack of resources               <ul style="list-style-type: none"> <li>○ Staff/Investigators</li> <li>○ Training</li> <li>○ Budget/Funding</li> </ul> </li> <li>• Ineffective Occurrence Reporting Program (under-reporting)               <ul style="list-style-type: none"> <li>○ Reporting culture</li> <li>○ Just culture</li> </ul> </li> <li>• ACC/INC Safety Data Bases               <ul style="list-style-type: none"> <li>○ ECCAIRS/ADREP</li> <li>○ Safety data analysis</li> </ul> </li> <li>• Lack of Protection for Reports and Safety data</li> <li>• Lack of Independence/Potential Conflict of Interest (CAA, Judicial)</li> <li>• Lack of common Standard for Investigator Training and Qualification</li> <li>• Under-reporting</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Transition to Independent Investigation Authority</li> <li>• External Assistance/MoU with               <ul style="list-style-type: none"> <li>○ TSBC, NTSB, Airbus, Boeing, etc.</li> <li>○ ISASI, ICAO and other Regional Groups/Orgs</li> </ul> </li> <li>• Regional training organizations</li> <li>• International Investigation meetings and workshops</li> <li>• Docs available in both ES and EN languages</li> <li>• Implementation of SMS &amp; SSP               <ul style="list-style-type: none"> <li>○ Role of INV. AUTH in relation to SSP/SMS</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Lack of resources/funds (high-level commitment)</li> <li>• Large area of responsibility (including maritime area)</li> <li>• Lower number of accidents/investigations               <ul style="list-style-type: none"> <li>○ Impact on Investigator Experience &amp; Skills</li> </ul> </li> <li>• Lack of specific training requirements provided to regional training organizations</li> <li>• Need to translate documents in both ES and EN</li> <li>• Low number of dedicated full-time investigators</li> <li>• Time for States to establish or amend LEG &amp; REG</li> </ul>



# AIG Implementation

- ✈ Legislation and Regulations
- ✈ Documents and Manuals
- ✈ Resources
- ✈ Training
- ✈ Occurrence Reporting & Notification
- ✈ Investigation Management & Conduct
- ✈ Major Accident Readiness



# AIG Legislation & Regulations

- ✈ Ratification of RAIO MoU (top priority for GRIAA and RAIO-C)
  - ✈ To be mirrored individually by States in their enabling LEG/REG
- ✈ States LEG/REG implementation
  - ✈ Independence from Civil Aviation and Judicial
  - ✈ Unhampered access (a/c, evidence), witness statements, examinations
  - ✈ Protection of safety information and data gathered during investigations
  - ✈ Just culture, not to apportion blame or responsibility
  - ✈ Non-compelling of investigators in legal proceedings





# AIG Legislation & Regulations

- ✈ Process/timeline for new or amended Legislation or Regulation
  - ✈ Long and tedious process... (several years at best)
- ✈ Those AIG requirements are deemed so **important and essential** to the good conduct of investigations and the advancement of safety that must be enshrined in the States' legislation at the **highest level**



# AIG Docs & Manuals

## ✈ Org/Admin Documents (Policies, Procedures, Forms, etc.)

- ✈ Governance and Quality management (e.g. include reference to specific AIG PQs)

## ✈ Investigation Operations (Standards, Procedures, Checklists, etc.)

- ✈ Training (standards, program, individual plans, etc.)
- ✈ Guidance material (sufficiently detailed - e.g. post-mortem, medical and other examinations, etc.)
- ✈ Specific to the organization and 'operational' – i.e. need to be sufficiently detailed and clearly understandable to allow new joining staff to reliably carry out their assigned duties (i.e. who does what, how, where and when, and under whose authority)

## ✈ Other

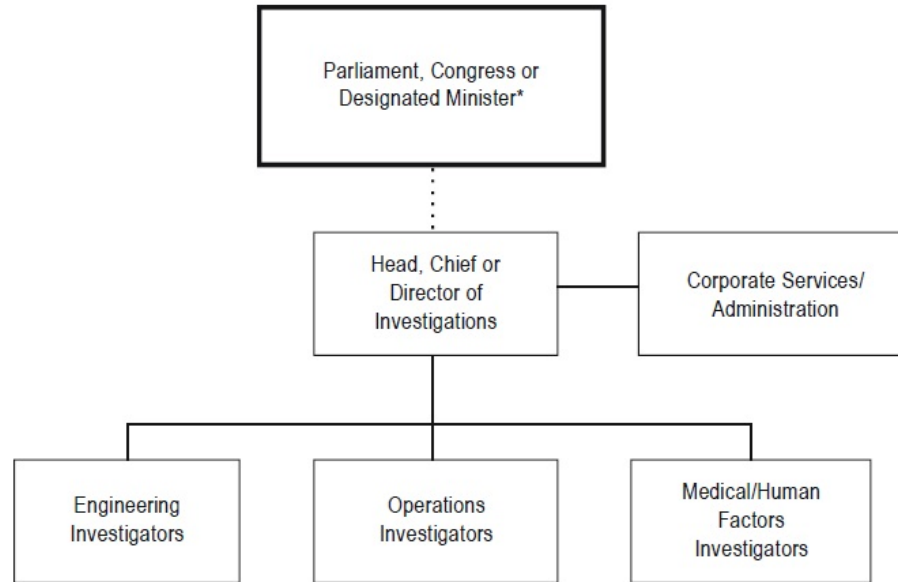
- ✈ External promotion or information/guidance material (local police or other authorities, first responders, industry, public, etc.)



# Resources

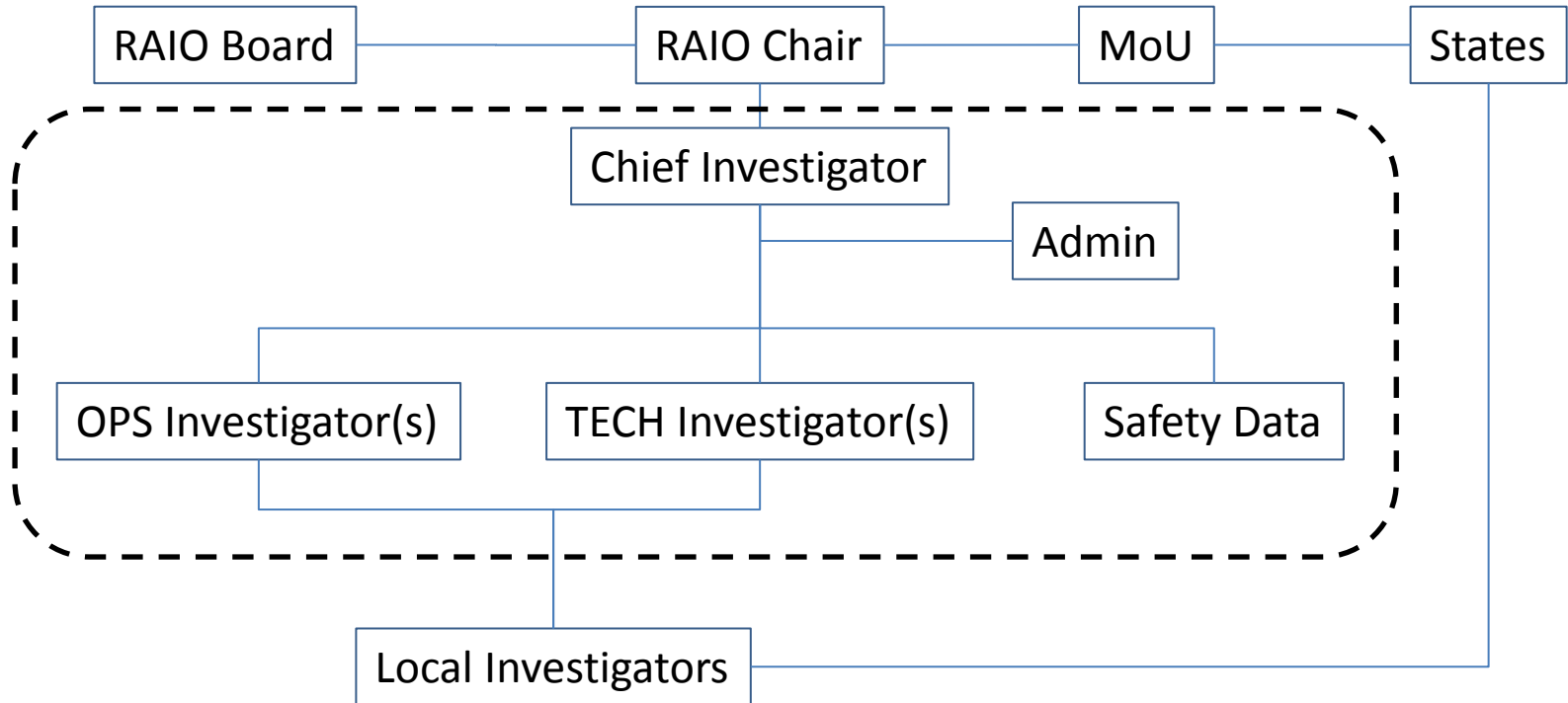
## ✈ Human

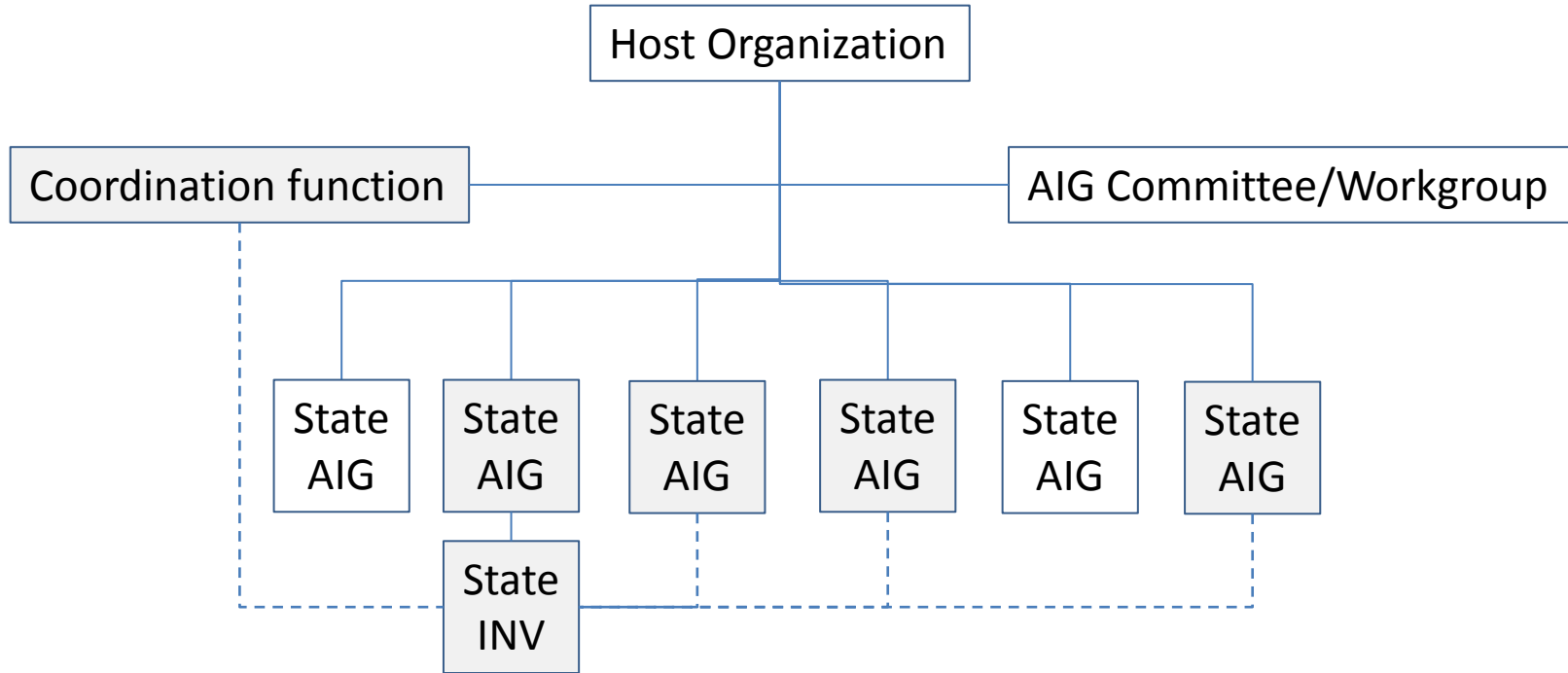
- ✈ Size and shape of organization, number of staff
- ✈ Number of investigators
  - ✈ Profile/specialties (e.g. FOP, ENG/Maint., ATM, HF, SMS, etc.)
  - ✈ Full time vs Part-time investigators
- ✈ Investigation training and qualifications/experience
- ✈ Safety information data management and analysis



\* The investigation authority should not report to the same Minister responsible for the regulation and/or safety oversight of civil aviation in the State nor should it report to the judicial authority.

**Figure 3-3. Example of a streamlined organizational structure**







# Resources (...)

## ✈ Material

- ✈ Funding/budget (adequate for normal operations)
- ✈ Office location and facilities (separate, independent and secure)
- ✈ Communications and transportation availability
- ✈ Technical facilities and equipment (incl. Go-Kits)



# Resources (...)

## ✈ Support

- ✈ Material examination & testing
- ✈ FDR/CVR readout facilities
- ✈ Underwater search and recovery
- ✈ Removal, transport and storage (a/c, parts and other evidence)
- ✈ MoUs with other organizations





# Training

- ✈ Training standards, plan, records (global, individual)
- ✈ Induction, Basic/Initial, OJT, Recurrent, Advanced, Specialized
- ✈ Training activities, sources/providers
- ✈ Aviation Medical Examiners – specialized HF and Accident Investigation training



# Training

✈ Training Standard (Draft)

✈ Investigator Experience & Training (MsExcel Form)



# Occurrence Reporting & Notification

- ✈ ACC/INC reporting vs Mandatory/Voluntary/Confidential reporting programs (i.e. harmonization/coordination with other State/Regional reporting programs)
- ✈ Safety Information System – database(s) used, ECCAIRS/ADREP compatibility and notification
- ✈ Safety analysis capability (based on number of occurrence reports received, and occurrence risk classification)



# Conduct/Manage Investigations

- ✈ Investigation case management process/software
- ✈ Number (annual total, current/open) of:
  - ✈ investigations conduct
  - ✈ reports publication
  - ✈ recommendations issue and active follow-up
  - ✈ Establish investigation processes in line with and as part of States SSPs Hz ID and Risk Management/Safety Actions processes
- ✈ vs resources provided or available



# Major accident readiness

- ✈ Additional funding for Major Accident (e.g. National Emergency Response Plan)
- ✈ Go-Team and Kit readiness
- ✈ Coordination with local airport/police/military authorities (liaison, MoUs, etc.)
  - ✈ *Consider participation in airports regular emergency crash exercises*
- ✈ Media & Public communications (plan and presence)
- ✈ Family assistance plan (Aircraft and Airport operator vs AIG specific duties)



# AIG PQs

- ✈ **Introduction to the ICAO USOAP CMA Protocol Questions**
- ✈ Protocol Questions (PQs) are the primary tool used in the ICAO Universal Safety Oversight Audit Programme (USOAP) Continuous Monitoring Approach (CMA) for assessing the effective implementation of the eight critical elements (CEs) of a State safety oversight system. Developed based on ICAO Standards and Recommended Practices (SARPs), Procedures for Air Navigation Services (PANS) and ICAO guidance material, the PQs are revised periodically by ICAO to reflect amendments to the ICAO provisions and reference documents.
- ✈ States are expected to use the PQs to conduct regular self-assessments and in this way, monitor the health of their aviation safety oversight system in a proactive manner.



# AIG PQs

- ✈ *Legislation, Primary Aviation Legislation and Specific Operating Regulations*
- ✈ The term “legislation” in the USOAP CMA Protocol Questions is used as a generic term to include primary aviation legislation and specific operating regulations.
- ✈ The term “primary aviation legislation” in the USOAP CMA Protocol Questions includes any legislative provision and/or instrument promulgated and enforceable in the State (e.g. laws, acts, codes and international treaties).
- ✈ The term “specific operating regulations” in the USOAP CMA Protocol Questions includes any binding regulatory provisions and/or instruments in the State (e.g. regulations, decrees, rules, and orders).



## AIG PQs

✈ Processes and procedures should clarify *who does what, how, when (or within what timeframes) and in coordination with whom*, as applicable.





# AIG PQs

## ✈ **Specific Guidelines for AIG**

- ✈ For PQs associated with CE-1, *Primary aviation legislation*, the requirements should preferably be promulgated at the level of legislation. In some States, such requirements may however be promulgated at the regulatory level, which is acceptable depending on the legal system in the State.
- ✈ For PQs associated with CE-5, *Technical guidance, tools and provision of safety-critical information*, review of the policies/procedures and guidance material on the notification and investigation of aircraft accidents and incidents should address not only the availability/establishment of these policies/procedures and guidance material to the relevant staff, but also their implementation. These PQs will be marked “*not satisfactory*” if:
  - ✈ a) there are no written documents (e.g. procedures, guidelines and checklists); or
  - ✈ b) the existing documents are not satisfactory (e.g. they do not comply with the requirements of the relevant ICAO reference documents); or
  - ✈ c) the existing documents, albeit satisfactory, are not systematically followed.



# AIG PQ Hit List

- ✈ List of AIG PQs that are most often found unsatisfactory
  - ✈ Inadequate documentation
  - ✈ Inadequate evidence of effective implementation



# AIG PQ Hit List

- ✈ 6.001 – LEG/REG institution of Investigations into Accidents and Serious Incidents
- ✈ 6.003 – Formal designation of Authority to conduct Investigations
- ✈ 6.004 – *Clear delegation of authority to the Head of the Investigation Authority*
- ✈ **6.005 – LEG (and MoU) provisions for independent investigation process**
- ✈ **6.007 – REG for immediate notification of accidents and serious incidents to Investigation Authority**
- ✈ 6.010 – *Availability to public of all AIG REGs & publications*
- ✈ 6.011 – LEG/REG sole purpose of investigations is prevention, not blame or liability
- ✈ 6.015 – Procedures for amendments to LEG/REG and National standards
- ✈ 6.017 – Procedures for identifying and notifying differences to ICAO



# AIG PQ Hit List

- ✈ **6.021 – Authority/IIC unhampered access and control of site and wreckage**
- ✈ **6.023 – Authority/IIC unhampered access to all relevant material/evidence**
- ✈ **6.025 – Authority/IIC detailed examination of all relevant material/evidence without delay**
- ✈ **6.027 – Authority/IIC statements from witnesses**
- ✈ **6.029 – Non-disclosure of CVR and airborne image recordings to public or for other purposes**
- ✈ **6.031 – Non-disclosure of investigation records for other purposes**



# AIG PQ Hit List

- ✈ 6.033 – *REG for participation of accredited representatives from other States*
- ✈ 6.035 – *Re-opening of investigations*
- ✈ 6.101 – *Clear and documented structure for independent Investigation Authority*
- ✈ 6.103 – *Coordination and standardization of IA regional offices*
- ✈ **6.105 – Sufficient resources for IA to investigate**
- ✈ **6.107 – State process for supplementary funding when required (Major ACC).**
- ✈ 6.111 – *Appropriately qualified and identified personnel for investigations*
- ✈ 6.113 – *Sufficient personnel for IA to meet its investigation obligations*
- ✈ 6.115 – *MoU or other arrangements to obtain necessary personnel in expeditious manner*
- ✈ 6.117 – *Job descriptions for INV personnel*



# AIG PQ Hit List

- ✈ 6.119 – Appropriate minimum INV qualifications and experience are established
- ✈ 6.120 – Established minimum INV qualifications and experience are met
- ✈ 6.121 – Issue of credentials to INV
- ✈ 6.122 – *Formal agreement/clarification as to entitlements and obligations of INV participants*
- ✈ 6.123 – Formal INV training program
- ✈ 6.125 – Periodic INV training plan
- ✈ 6.127 - INV training program appropriately implemented
- ✈ 6.129 – Maintenance of training records
- ✈ 6.131 – INV initial and recurrent training on site safety



# AIG PQ Hit List

- ✈ **6.135 – Measures to avoid possible conflict of interest with participating CAA experts**
- ✈ 6.201 – Provision of necessary investigation equipment
- ✈ 6.202 – Appropriate facilities and office equipment
- ✈ 6.203 – Provision of necessary means of communications and transportation
- ✈ 6.205 – INV field kits and personal items readiness
- ✈ 6.207 – Provision of necessary PPE for bio and other hazards at site
- ✈ 6.209 – Provision of necessary and up to date INV documentation
- ✈ 6.210 – *Proper maintenance of INV files*
- ✈ 6.211 – *Availability of hangar/storage facilities for protection and safe custody of evidence/aircraft*
- ✈ 6.301 – Effective conduct of INV



# AIG PQ Hit List

- ✈ **6.303 – INV procedures manual and/or guidance material**
- ✈ 6.311 – *Correct and up to date information of other States IAs*
- ✈ 6.313 – *Provision to ICAO of correct and up to date information of IA/RAIO*
- ✈ 6.315 – *Processing of ACCID/INCID NOTIF from other States w/o delay*
- ✈ 6.316 – *Procedure/guidance/checklist for initial response following receipt of ACCID/INCID NOTIF*
- ✈ **6.317 – Forwarding of ACCID/INCID NOTIF to other States and ICAO**
- ✈ 6.319 - *Forwarding of ACCID/INCID NOTIF to other States and ICAO, when not State of Occurrence*
- ✈ **6.321 – Initial ACCID/INCID NOTIF forwarded with minimum delay by most suitable and quickest means**
- ✈ 6.323 – *Format/content of ACCID/INCID NOTIF complete, clear and concise & in ICAO working language*
- ✈ 6.325 – *Inform State conducting INV when appointing an accredited representative*





# AIG PQ Hit List

- ✈ 6.327 – Provision ASAP of all relevant info (crew, aircraft, etc.) to State conducting INV
- ✈ 6.329 - Provision of DG info to State conducting INV with minimum delay
- ✈ 6.341 – Adoption of Annex 13 definitions
- ✈ 6.343 – Guidance as to extent and types of ACC INV
- ✈ 6.345 - Guidance as to extent and types of Serious INC INV
- ✈ 6.347 – *Inform AVSEC authority immediately when unlawful interference is involved or suspected*
- ✈ 6.349 – Immediate initiation of investigation and designation of IIC/Team
- ✈ 6.351 – Guidance as to the designation of at least one experienced INV for each investigation
- ✈ 6.353 – *Guidance as to the preservation of all evidence of a transitory nature*



# AIG PQ Hit List

- ✈ 6.355 – Protection of aircraft/wreckage/site against access by unauthorized persons, etc.
- ✈ 6.357 – Security and safe-keeping of ATS COM and records ASAP
- ✈ 6.359 – Cooperation and clear separation between Authority and judicial authorities investigations
- ✈ 6.361 – Procedures for timely recovery and readout of the flight recorders
- ✈ 6.363 – Choice of read-out facility and participation of S/Manufacturer and S/Operator
- ✈ 6.367 – Participation of Accredited Representatives' advisers to the investigation
- ✈ 6.369 – Invitation of air operator, and aircraft design and final assembly organizations to participate
- ✈ 6.371 – Participation from States having special interest due to fatal or serious injuries to its citizens



# AIG PQ Hit List

- ✈ 6.373 – Protection of investigators from biological and other hazards at sites
- ✈ 6.375 – Carriage of autopsy examinations
- ✈ 6.377 - Expeditious medical examinations of flight crew, passengers and involved aviation personnel
- ✈ 6.379 – Thorough testing and examination of aircraft parts or components
- ✈ 6.380 – Thorough investigation of operational, human factor and organizational aspects
- ✈ 6.381 – Provision of relevant and timely information to families and accident survivors
- ✈ 6.383 – Comprehensive system for providing assistance to aircraft accident victims and families
- ✈ 6.391 – Provision to State conducting an investigation of all information and elements required
- ✈ 6.395 – Advisers from the operator or from aircraft type design and final assembly organizations
- ✈ 6.397 – Procedure to send expert when fatal or serious injuries to its citizens



# AIG PQ Hit List

- ✈ 6.401 – *Completion and public availability of all final reports*
- ✈ 6.403 – *Guidelines on the development, content and format of final report*
- ✈ 6.405 – *Completion of final reports ASAP and interim statements on each anniversary*
- ✈ 6.407 – *Consultation on draft final report by all States, with comments provided within 60 days*
- ✈ 6.409 – *Distribution of draft final report to air operator, aircraft design and final assembly organizations*
- ✈ 6.411 – *Amendment of draft final report, or comments appended to final report*
- ✈ 6.413 – *Distribution of final report to all States participating in the investigation*
- ✈ 6.415 – *Provision of final report to ICAO (a/c 5,700KG or more)*
- ✈ **6.417 – Protection from public disclosure of draft final reports issued or received**
- ✈ **6.421 – Development and issuance of recommendations at any stage of investigations**
- ✈ **6.423 – Addressing of recommendations to IAs in other States concerned, and to ICAO**



# AIG PQ Hit List

- ✈ **6.425 – Monitoring and reporting within 90 days on actions taken from received recommendations**
- ✈ **6.427 – Inclusion of recommendations in the draft final report**
- ✈ **6.429 – Recording of responses to safety recommendations issued**
- ✈ 6.431 – PRELIM ADREP reports sent to all involved States and ICAO (a/c 2,250KG or more)
- ✈ 6.433 – *PRELIM reports sent in one of ICAO working languages*
- ✈ 6.435 – ADREP ACCID DATA reports sent to ICAO ASAP after investigation (a/c 2,250KG or more)
- ✈ 6.437 - ADREP INCID DATA reports sent to ICAO (a/c 5,700KG or more)
- ✈ 6.501 – Establishment of mandatory incident reporting system
- ✈ 6.507 - ACCID/INCID data base for effective analysis of actual/potential safety deficiencies
- ✈ 6.509 – Database in standardized format to facilitate data exchange
- ✈ 6.511 – Analysis of ACCID/INCID reports and data base to determine required preventive actions



ICAO

# CAPACITY & EFFICIENCY



ICAO

North American  
Central American  
and Caribbean  
[NACC] Office  
Mexico City

South American  
[SAM] Office  
Lima

ICAO  
Headquarters  
Montréal

Western and  
Central African  
[WACAF] Office  
Dakar

European and  
North Atlantic  
[EUR/NAT] Office  
Paris

Middle East  
[MID] Office  
Cairo

Eastern and  
Southern African  
[ESAF] Office  
Nairobi

Asia and Pacific  
[APAC] Sub-office  
Beijing

Asia and Pacific  
[APAC] Office  
Bangkok



THANK YOU