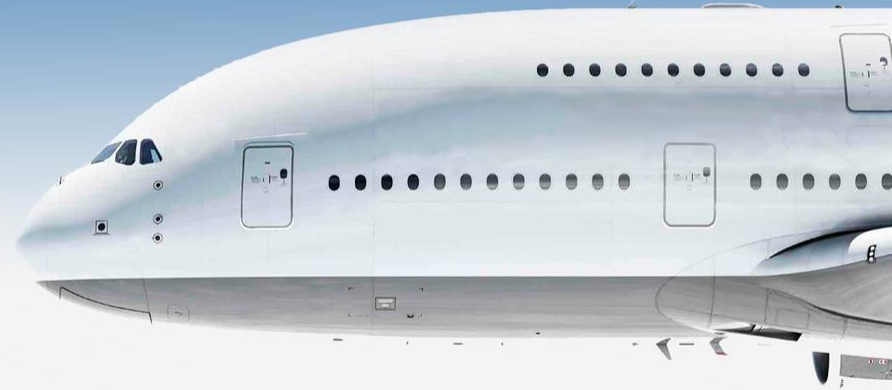# USING THE ROADMAP TO DEVELOP A NASP

Martin Maurino M.Eng
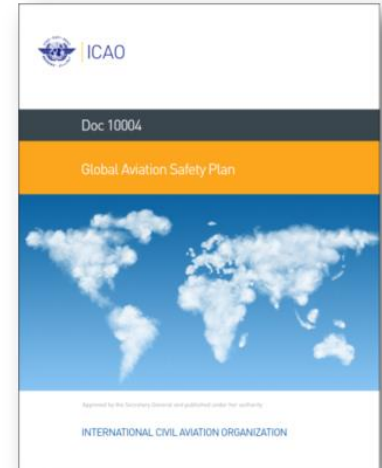**Technical Officer, Global Aviation Safety - ICAO**

13 April 2021

Overview

- Reminder: key elements in aviation safety planning
- NASP development process
- 8 steps to develop NASP
- How to use roadmap to develop NASP
- Additional information
- Q&A

ICAO

Doc 10004

Global Aviation Safety Plan

Approved by the Secretary General and published under his authority

INTERNATIONAL CIVIL AVIATION ORGANIZATION

2 key elements in aviation safety planning

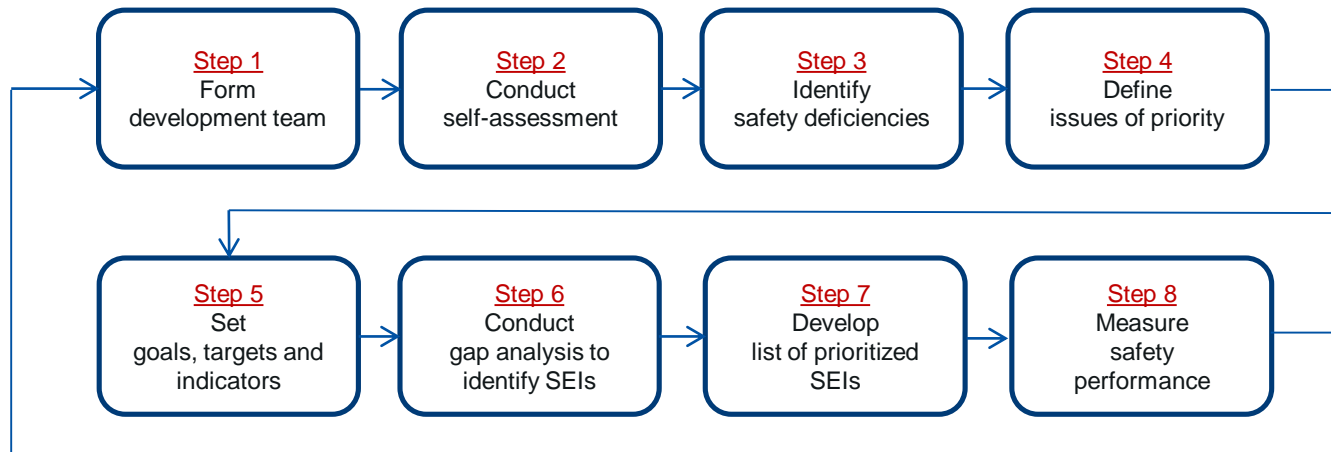| a strategy	an action plan
• <u>What</u> is to be achieved by a plan • Includes: 1. analysis of challenges 2. definition of goals and targets 3. how to measure their achievement	• <u>How</u> goals and targets defined in strategy will be achieved • Includes: 1. initiatives needed to achieve the goals and targets (SEIs)

Aviation Safety Planning

Strategy
Global Aviation Safety Plan

Action Plan
Global Aviation Safety Roadmap

Regional Aviation Safety Plan

National Aviation Safety Plan

Includes Action Plan(s)
(e.g. Surveillance Activities, Runway Safety Programme)

NASP Development Process

Same steps & rationale should be used when developing RASP

Process Assists Develop NASP that:

- Describes safety deficiencies
  - national operational safety risks
  - other safety issues
    - such as organizational challenges (e.g. systemic issues)

- Defines national safety goals & targets
  - i.e. strategic approach to manage safety

- Presents specific SEIs to enhance safety
  - i.e. action plan

- Defines how State will measure safety performance
  - to monitor NASP implementation and effectiveness

Step 1 — Form Development Team

- Begin by assigning responsible entity to lead NASP development
  - e.g. CAA

- Once State has assigned a responsible entity
  - that entity should form NASP development team
  - identify stakeholders early in process
  - team is responsible for completing steps 2 to 8

- Output from this step: NASP development team membership list

Step 2 — Conduct Self-assessment

- Conduct evaluation of current situation in State
  - to understand current operational context
  - in which NASP will be implemented
  - activity referred to as "self-assessment" (output from step 2)

- Understanding ops context includes
  - analysis of established capabilities
  - system size & level of complexity
  - available resources

Step 2 — Conduct Self-assessment (2)

- Assess
  - traffic volume in State, incl. anticipated growth or decline
  - maturity of different sectors, e.g. aerodromes, CAT, GA, helicopter ops
  - common hazards or challenges
- Also look at
  - level of EI of CEs of safety oversight system
  - status of SSP implementation & continuous maintenance

- Why?
  - to develop understanding of current SSO capabilities & operational context

E-tools Available on ICAO iSTARS

iSTARS tools to assist States to identify specific deficiencies related to safety oversight and SSP implementation		
Tools to determine the EI score and identify existing safety deficiencies, as well as the safety oversight index for the three functional categories	USOAP Protocol Questions	PQ Tester
	Level of Implementation and SSCs	Safety Audit Information
	Summary of State Safety Indicators	State Safety Briefings
	USOAP CMA OLF tools	
	Risk-based prioritization for operations, air navigation and support functions	Safety Oversight Index
SSP implementation	State safety programmes	SSP Gap Analysis
	Status of SSP prerequisite protocol questions	SSP Foundation Tool

Step 3 — Identify Safety Deficiencies

- Identify series of safety deficiencies to be addressed
  - as well as stakeholders to be involved in addressing them
  - based on results of self-assessment
  - also refer to GASP & RASP

- In context of NASP, safety deficiencies include
  - operational safety risks
  - and other safety issues, such as ORG challenges

- Conduct data-driven analyses or use existing analyses / other info
  - development team may identify additional stakeholders / new team members

Step 3 — Identify Safety Deficiencies (2)

- Prepare list of identified safety deficiencies, as output from this step

- List should describe
  - series of national ops safety risks
    - including HRCs
  - and other safety issues
    - including ORG challenges

- List will later become basis for national safety issues in NASP

Step 4 – Define Issues of Priority

- Identification of safety deficiencies enables team to
  - define a series of national safety issues
  - which will later be transformed into national safety goals & targets

- During this step
  - review list of safety deficiencies
  - determine which ones should be given priority
  - as national safety issues to be addressed in the NASP

- Use quantitative approach to define national safety issues of priority
  - if not feasible >>> rely on the knowledge and expertise of the team

- Priority should be given to issues that have the greatest impact on safety

Step 4 – Define Issues of Priority (2)

- For ops safety risks
  - categorize certain types of events as national HRCs
  - consider them of utmost priority
  - because of number of fatalities and risk of fatalities associated with such events

- For other safety issues
  - categorize certain ORG challenges as national safety issues
  - consider them of utmost priority
  - because they are systemic issues, which impact effectiveness of risk controls

- As output from this step, prepare a list of national safety issues of priority

Step 5 – Set Goal, Targets & Indicators

- Use list of national safety issues
  - to set national safety goals and targets

- National safety issues that were given priority (in step 4)
  - can be formulated into statements that set goals and targets
  - within NASP

- Output from this step: list of national safety goals, targets and indicators

Goal

- Results toward which efforts in safety are directed
- Present desired outcomes that strategy aims to produce
- Written in manner that describes high-level outcomes that State aims to achieve

Target

- Each goal should contains specific targets
- Specific desired outcomes from specific actions taken to achieve goals, at a certain point of time
- Written targets in a manner that identify who the specific actions are directed to

Indicator

- Each target should also include list of indicators to measure progress towards achieving respective goal
- Indicators are measurement index used to evaluate if NASP yields expected results (evidence)
- Written in a manner that references quantitative data

Step 6 – Conduct Gap Analysis for SEIs

- Once team has set national safety goals and targets
  - needs to identify series of SEIs
  - that will enable their achievement

- Conduct a gap analysis
  - to identify specific steps to take
  - to reach each national safety goal and associated targets

Step 6 – Conduct Gap Analysis for SEIs (2)

- Team should not only focus on weaknesses it needs to address
  - also identify strengths within State
  - that can facilitate closing gap
  - such as existing economic frameworks, access to training, etc.

- To develop SEIs for NASP>> conduct the gap analysis
  - using Global Aviation Safety Roadmap

- Compilation of SEIs will form action plan
  - that supports safety strategy presented in NASP

Use of Roadmap

- Roadmap contains a series of SEIs
  - providing detailed actions
  - to be taken when addressing identified safety deficiencies

- Using the roadmap, team should
  - select which SEIs
  - and specific actions will be implemented
  - in what order
  - >>> List of SEIs is output from this step

Use of ORG Roadmap

- To identify SEIs that address ORG challenges
  - refer to the Organizational Challenges (ORG) Roadmap

- Identify appropriate starting point within ORG Roadmap
  - using data from a number of existing sources
  - e.g. USOAP, State's surveillance activities, industry programmes
  - or from SMEs

Safety enhancement initiative ✖	SEI-3 — Establishment of an independent accident and incident investigation authority, consistent with Annex 13 — *Aircraft Accident and Incident Investigation*
Stakeholder	States
Actions	✖ 3A — Establish an independent accident and incident investigation authority, as per Annex 13 requirements (CE-1 and CE-3) ✖ 3B — Develop an effective system to promulgate technical guidance and tools, and provide safety-critical information needed for technical personnel to effectively conduct accident and incident investigations (CE-5) ✖ 3C — Establish an effective system to attract, recruit, train and retain qualified and sufficient technical personnel to support accident and incident investigations (see SEI-5) (CE-3 and CE-4)
References	3A — Annex 13, *Aircraft Accident and Incident Investigation* — Doc 9734, *Safety Oversight Manual*, Part A — *The Establishment and Management of a State Safety Oversight System*

ORG Roadmap

Component 1
State Safety Oversight System

Component 2
State Safety Programme

Use of OPS Roadmap
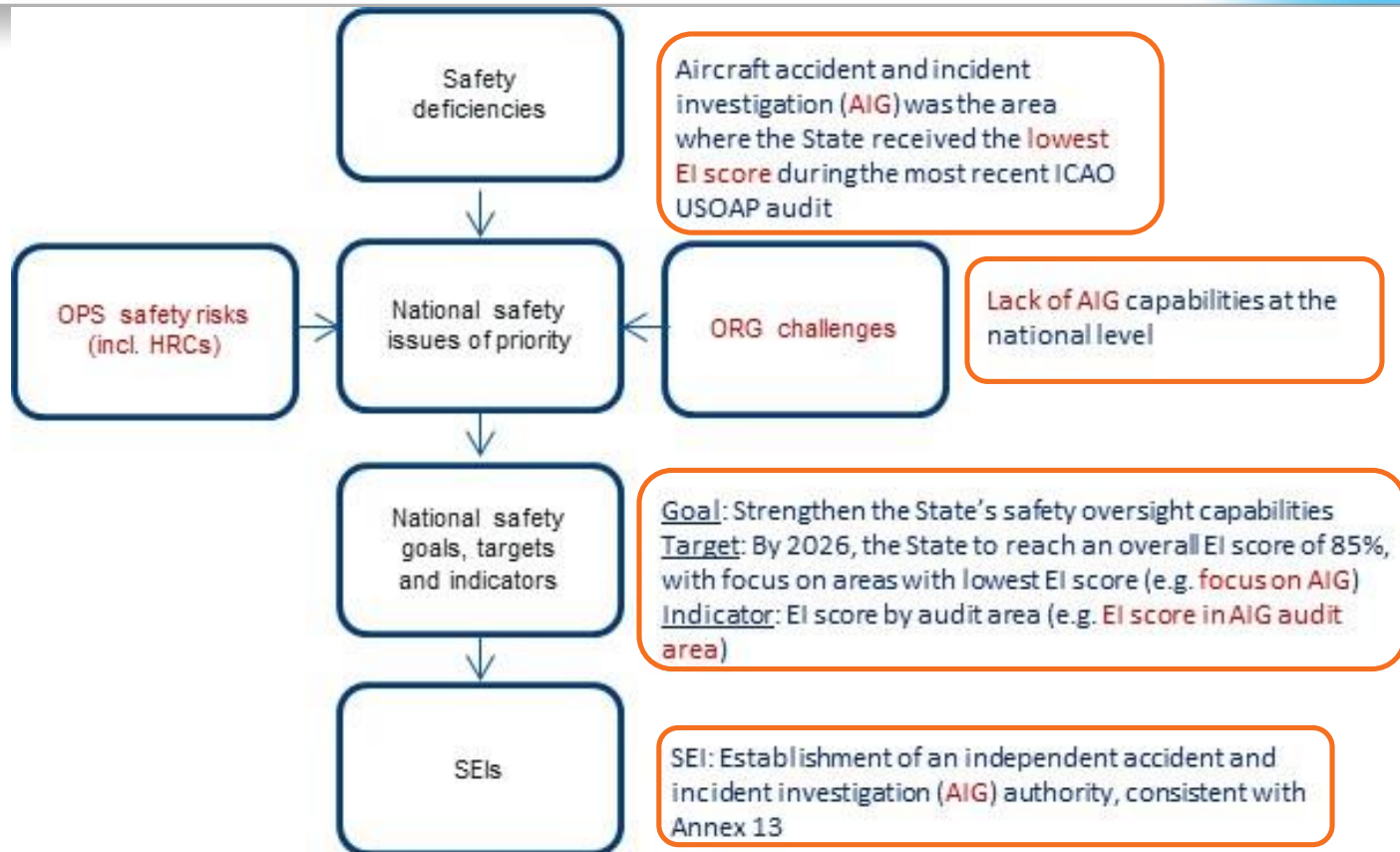
- Conduct a similar review
  - of SEIs presented in Operational Safety Risks (OPS) Roadmap
  - identify those that have not been implemented
  - to serve as safety risk mitigations for HRCs

- Series of SEIs should be implemented to address contributing factors leading to HRCs
  - some SEIs may be derived from OPS Roadmap
  - others may be identified through sources (investigations, SRAs)

Safety deficiencies

Aircraft accident and incident investigation (AIG) was the area where the State received the lowest EI score during the most recent ICAO USOAP audit

OPS safety risks (incl. HRCs) → National safety issues of priority ← ORG challenges

Lack of AIG capabilities at the national level

National safety goals, targets and indicators

Goal: Strengthen the State's safety oversight capabilities
Target: By 2026, the State to reach an overall EI score of 85%, with focus on areas with lowest EI score (e.g. focus on AIG)
Indicator: EI score by audit area (e.g. EI score in AIG audit area)

SEIs

SEI: Establishment of an independent accident and incident investigation (AIG) authority, consistent with Annex 13

Step 7 — Develop List of Prioritized SEIs

- Review list of potential SEIs
  - by reviewing gaps & associated SEIs

- Select SEIs relevant to State & its operational context
  - by listing them in order of priority

- When reviewing gaps identified, evaluate
  - safety impact
  - ability of (or ease of implementation for) State
    - to effect the change for each gap

Step 7 — Develop List of Prioritized SEIs (2)

- **As output from step 7 >> generate prioritized list of SEIs**
  - List forms action plan to achieve national safety goals and targets

- **Once a list of potential prioritized SEIs is developed**
  - team is ready to begin drafting NASP

- **NASP does not have to contain all actions for each SEI in detail**
  - some SEIs may be presented in a stand-alone document
    - containing detailed implementation plan
  - NASP should provide summary of SEIs
  - Link or reference to detailed implementation plan may be included in NASP

Step 8 — Measure Safety Performance

- Final step is divided into two separate tasks
  1. Definition of process to monitor implementation of NASP and effectiveness
  2. Actual measurement of safety performance

- For 1st task: include description of aspects
  - refer to Doc 10131, Chapter 4, 4.3.6 for detailed guidance

- Once process for monitoring implementation is completed (output)
  - team has all content necessary to finalise the drafting of NASP
  - use NASP template presented in Doc 10131 or develop own

Step 8 — Measure Safety Performance (2)

- After NASP has been finalized
  - Handover SEIs to organizations or individuals responsible for implementation

- Measure safety performance
  - to monitor implementation of NASP
  - assess its actual effectiveness in terms of improving safety

- Periodically monitor implementation of SEIs
  - to ensure actions are being accomplished, that they are effective
  - any difficulties with implementation are dealt with > then redo cycle

Additional Information

- **GASP Public Website**
  - www.icao.int/gasp

- **Useful documentation (free on website)**
  - Doc 10004, 2020-2022 edition of GASP
  - Doc 10131, Templates for NASP / RASP
  - Cir 358, Checklist for completeness of NASP / RASP

- **NASP Online Community: https://login.icao.int (ICAO Secure Portal)**

- **Feedback, email: GASP@icao.int**

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