Agenda Item 1: ANS context (ATM/CNS) Global and Regional level.

a) Global Air Navigation Plan and Elaboration of Vol. III of the ANP CAR/SAM

LATEST DEVELOPMENTS RELATED TO THE GLOBAL AIR NAVIGATION PLAN (GANP) AND THE GLOBAL AVIATION SECURITY PLAN (GASP)

(Prepared by Uruguay)

SUMMARY

This paper exposes the latest developments related to the Global Air Navigation Plan (GANP) and the Global Aviation Security Plan (GASP), in particular, it includes an update of the key safety performance area of the GANP performance framework.

References:

- Assembly 41th ICAO - WP/45
- Doc. 9750, GANP, 6ª Edition

1. Background

1.1. The ICAO Assembly, at its 40th session, adopted the sixth edition of the Global Air Navigation Plan (GANP, Doc. 9750) through Resolution A40-1: ICAO Global Planning for Safety and Air Navigation.

1.2. The sixth edition of the GANP contains the GANP performance framework, which includes at the global strategic level a number of performance ambitions within the eleven key performance areas (KPAs)2 described in the Global Air Traffic Management Operational Concept (Doc. 9854). At the global technical level, the framework details priority areas, performance targets and key performance indicators (KPIs) within the KPAs of capacity, efficiency, and predictability.

2. Seventh Edition of the GANP

GANP Performance Framework Update – Security

2.1. The 13th Air Navigation Conference, in order to accelerate work on performance, through Recommendation 4.3/1, *Improving Air Navigation System* Performance, established the GANP Performance Expert Group, formerly known as the ICAO Global Performance Expert Group (GIPEG), to maintain and evolve the GANP performance framework.

2.2. One of the tasks of the GANP-PEG is to extend the GANP performance framework, covering the eleven KPAs and, in particular, to contribute to coherence and consistency related to the performance management aspects shared by the GANP, the Global Aviation Safety Plan (GASP, Doc. 10004) and the Global Aviation Security Plan (GASeP) (Doc. 10118).

2.3. The proposed safety performance framework identifies a high-level common interest in safety performance, as well as performance objectives and key performance indicators (KPIs) covering all aspects of the aviation system, enabling the GANP to consider safety in an integrated manner in its other 10 KPAs. At the same time, it provides shared security-related terminology for the GANP and GASP, promoting coherence between the two global plans.

2.4. **Appendix A** provides a summary of the proposed update of the security KPA of the GANP performance framework, including a new performance framework, as well as new focus areas, performance targets and key indicators.

3. Regional air navigation deficiencies versus effective enforcement (IE)

The Basic Building Blocks (BBB) and the Universal Safety Oversight Audit Program (USOAP)

3.1. To establish the link between these two fundamental aspects of any robust air navigation system, the provision of essential services for international civil aviation and the capacity to monitor them by the State, ICAO has assigned the essential services described under the Basic Components (BBB) framework to the Protocol Questions (PQ) of USOAP.

3.2. The result of this mapping demonstrates that the BBBs mainly refer to the critical elements six "CE-6 Licensing, certification, authorization and/or approval obligations" and seven "EC-7 surveillance obligations" as detailed in this web portal:

https://www4.icao.int/ganpportal/bbbsusoapmapping

3.3. This mapping facilitates analysis of the impact that the provision of essential air navigation services, and the ability to monitor them, has on safety performance.

3.4. The provision of essential air navigation services by an ANSP is measured through deficiencies in relation to Regional Air Navigation Plans, while the ability of States to oversee such provision is measured through Effective Implementation (EI). The outcome of both aspects of safety performance can be measured through the KPIs proposed in Appendix B of this document.

3.5. Resolution A41-6: ICAO Global Planning for Safety and Air Navigation is proposed in **Appendix B** to this document for information.

4. Suggested Actions

4.1. The seventh edition of the GANP, in recognition that safety is one of the fundamental principles of aviation performance, presents an updated safety performance framework and maintenance process, reinforcing the importance of having a solid air navigation system foundation in addition to a minor modification of the BBB and ASBU frameworks.

4.2. It is suggested in order to ensure a common direction in safety performance, to work on harmonizing the scope of security performance ambition in the GANP to address the combined scope of the GANP and the GASP.

4.3. And it is proposed that the safety performance ambition in the sixth edition of the GANP be updated so as to achieve continuous improvement of aviation safety performance in the CAR/SAM regions.

APPENDIX A

PROPOSED UPDATE OF THE GANP PERFORMANCE FRAMEWORK

Note. — Please note that only the bolded text with a grey highlight are proposed to be included in the seventh edition of the GANP.

1. The proposed update to the Global Air Navigation Plan (GANP) performance framework focuses on safety, one of the eleven Key Performance Areas (KPAs) of the GANP. The sixth edition of the GANP includes a safety performance ambition and safety performance objectives related to the operational improvements defined in the Aviation System Block Upgrade (ASBU) framework.

2. The main goal of this update to the safety performance framework in the GANP is to contribute to the coherency and consistency related to performance management aspects shared by the GANP, the Global Aviation Safety Plan (Doc 10004) and the Commercial Aviation Safety Team (CAST)/ International Civil Aviation Organization (ICAO) Common Taxonomy Team (CICTT)[1].

3. **Safety performance ambition**

3.1 Performance ambitions are outlined in the Global Strategic Level of the GANP. They are qualitative statements providing global priorities on the performance evolution of the global air navigation system. They should not be seen as a target to continuously monitor and report performance against, but rather as a catalyst for change.

3.2 Both the safety performance ambition and the aspirational safety goal, in the GANP and the GASP, respectively, seek the improvement of safety performance. However, the current safety ambition in the GANP[2] *"Zero ANS-related accidents and a significant 50 per cent reduction of –ANS-related- serious incidents"* shows a difference in scope from the aspirational goal defined by the GASP *"Achieve and maintain zero fatalities in commercial operations by 2030 and beyond"*. In particular: while the performance ambition covers all types of operations, the aspirational goal focuses on commercial operations; while the ambition focuses on air navigation service (ANS)-related causes, the aspirational goal covers all causes and contributing factors to occurrences; and while the ambition covers zero accidents and a reduction in incidents, including the amount of damage and its secondary impact, the aspirational goal focuses on zero fatalities.

3.3 In order to ensure a common direction in safety performance, it is important to harmonize the scope of the safety performance ambition in the GANP to address the combined scope of the GANP and the GASP. Therefore, the safety performance ambition in the sixth edition of the GANP is proposed to be updated as follows:

"Achieve continual safety performance improvement in aviation in each ICAO region"

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[1] Historically, in accident and incident investigations, safety occurrences are categorized in a different way namely using the CICTT occurrence categories Welcome (intlaviationstandards.org).

[2] While the highest safety expectation was referred to as safety performance ambition in the GANP, in the GASP it was called aspirational safety goal.

4. **Safety focus areas**

4.1 Focus areas are outlined in the global technical level of the GANP. They identify and delineate the broad areas in which there are intentions to establish a performance policy via the definition of performance objectives. There is a need for a minimum number of focus and sub-focus areas to attach the performance objectives within the sixth edition of the GANP and the goals in the GASP as well as to cover the areas in which safety data is collected and reported related to the CICTT.

4.2 The sixth edition of the GANP did not define safety focus areas. Therefore, in order to avoid overlapping of performance policies, the following focus and sub-focus areas within the safety KPA are proposed to be included in the seventh edition of the GANP:

KPA: Safety

Operational safety outcomes

- **Flight operations safety**
  - **Safety of traditional operations**
  - **Safety of new entrants**
    - **Safety of remotely piloted aircraft systems (RPAS) operations**
    - **Safety of very low level operations (typically operating below 500ft AGL)**
    - **Safety of higher airspace operations**
    - **Safety of advanced and urban air mobility**
- **Aerodrome operations safety**
- **Air navigation service provision safety**
- **Aircraft maintenance safety**
- **Design and manufacturing safety**

Organizational safety processes

- **State safety programme (including safety oversight)**
- **Safety management system**
- **Safety collaboration**

Provision of infrastructure and aviation services

- **Basic Building Blocks**
- **Operational safety improvements**

Note.— The scope within the operational focus areas is limited to aviation safety. For example, while each time an aircraft design flaw is identified during operations would count as an aviation

safety occurrence under design and manufacturing safety, an occupational health and safety event at the manufacturing premises of an aircraft is outside the scope of the design and manufacturing focus area and would not count as an aviation safety occurrence. Processes that impact the aviation safety outcomes should be found under organizational safety.

5. Safety performance objectives

5.1 Performance policy is defined through a set of specific, measurable, achievable, relevant and timely (SMART) objectives.

5.2 The performance objective for the safety KPA in the sixth edition of the GANP is to maintain or improve safety. Aligned with this performance objective, the following generic sub-objectives are defined within the proposed safety focus and sub-focus areas:

Note.— Sub-objectives in bold with grey highlights are new and are proposed to be included in the seventh edition.

- **Maintain or improve operational safety outcomes**
  - **Maintain or improve safety of flight operations**
    - **Maintain or improve safety of traditional operations**
    - **Maintain or improve safety of new entrants**
      - **Maintain or improve safety of remotely piloted aircraft systems (RPAS) operations**
      - Maintain or improve safety of very low-level operations
      - Maintain or improve safety of higher airspace operations
      - **Maintain or improve safety of advanced and urban air mobility**
  - **Maintain or improve safety of aerodrome operations**
  - **Maintain or improve safety of the air navigation service provision**
  - **Maintain or improve safety in aircraft maintenance**
  - **Maintain or improve safety in design and manufacturing**

- **Maintain or improve organizational safety processes**
  - **Strengthen State safety oversight capabilities**
  - **Increase the implementation of States' safety programmes**
  - **Improve safety management systems implementation**
  - **Increase safety enhancement initiatives**
  - **Improve safety collaboration at global, regional and national levels**

- Maintain or improve safety during surface movement (**)
  - **Reduce the risk of taxiway and apron aircraft/aircraft collisions**
    - Improve collision avoidance during taxi operations (safety net) (**)
  - **Reduce the risk of other collisions while using taxiways and aprons**
    - **Avoid collisions with ground vehicles and mobile equipment on taxiways and aprons (*)**
    - **Avoid collisions with animals or humans on taxiways and aprons (*)**
    - **Avoid collisions with obstacles and buildings (*)**
    - **Avoid encounters with FOD and/or patches of poor taxiway or apron condition (*)**
  - **Reduce the risk of non-collision related occurrences associated with incorrect or unsafe usage of taxiways and aprons**
    - Avoid incorrect taxiing (cases of non-conformance with clearance) (**)
    - Avoid flights attempting to land/take-off on/from taxiways
    - Improve early detection of conflicting ATC Clearances (CATC) related to taxi operations (**)
- Maintain or improve safety on the runway (**)
  - **Reduce the risk of runway aircraft/aircraft collisions**
    - Improve runway collision avoidance (safety net) (**)
  - **Reduce the risk of other collisions while using the runway**
    - Improve runway collision avoidance (safety net) (**)
    - **Avoid bird strike while on the runway (*)**
    - **Avoid collisions with animals or humans on the runway (*)**
    - **Avoid encounters with FOD and/or patches of poor RWY condition (*)**
    - **Avoid wake vortex encounters on the runway (*)**
  - **Reduce the risk of non-collision related occurrences associated with incorrect or unsafe usage of runways**
    - Reduce number of runway incursions

- Avoid incorrect entries of aircraft or vehicles onto the runway protected area (without or contrary to ATC clearance or due to incorrect ATC clearance) (**)
- Avoid incorrect presence of vacating aircraft or vehicles onto the runway protected area (**)
- Avoid incorrect runway crossings by aircraft or vehicles (without or contrary to ATC clearance or due to incorrect ATC clearance) (**)
- Avoid incorrect spacing between successive arriving or arriving and departing or departing and arriving or successive departing aircraft
- Avoid landings without ATC clearance
- Avoid landings on wrong runway at right airport
- Avoid landings at wrong airport
- Avoid take-offs without ATC clearance

▪ Improve early detection of conflicting ATC Clearances (CATC) related to runway usage (**)

▪ Avoid runway excursions

- **Maintain or improve safety in the air**
  - **Reduce the risk of mid-air collisions (aircraft/aircraft)**
    - Improve mid-air collision avoidance (safety net) (**)
    - Improve separation provision (at a planning horizon > 2 minutes) (**)
    - Improve early detection of conflicting ATC Clearances (CATC) (en-route / departure / approach) (**)
  - **Reduce the risk of other collisions while airborne**
    - **Avoid bird strike while airborne (*)**
    - Avoid vertical & lateral navigation errors during flight (cases of non-conformance with clearance) (**)
    - Avoid unauthorized penetration of segregated airspace (**)
    - Avoid controlled flight into terrain (CFIT) and obstacle collision risk (**)
  - Reduce the risk of non-collision related occurrences
    - Avoid hazardous weather (including turbulence)
    - Avoid volcanic ash

- Avoid en-route wake vortex encounters (**)
- Avoid exposure to hazardous space weather
- **Avoid exposure to laser light (*)**
- **Avoid being shot down (*)**
- **Avoid flight into conditions which are in itself non-hazardous, but beyond the capabilities of aircraft or crew (*)**

- **Maintain or improve safety on-board**

Note.— The GANP performance framework is a living framework to be updated through a proposed Maintenance process (see paragraph 2.5 of the working paper). Performance indicators can be mapped at any level of the performance objectives and sub-objectives tree, however, they should be mapped at the lowest level possible.

6. Safety key performance indicators (KPIs)

6.1 Some objectives require precisely defined numerical performance indicators, which serve to establish quantitative measures that, collectively, will indicate progress towards achieving an objective. In order to facilitate this task, the sixth edition of the GANP contains, in its global technical level, a list of 19 KPIs[3] within the KPAs of capacity, efficiency and predictability. These KPIs are associated to the generic performance objectives in the GANP and can be tailored to regional and national instantiated performance objectives.

6.2 The following safety KPIs are proposed to be included in the seventh edition of the GANP:

KPI ID	KPI20
KPI Name	Number of aircraft accidents
Definition	'Accident' is defined in ICAO Annex 13, Chapter 1-Definitions ADREP: Accident Data Report
Measurement Units	Number of accidents / year
Operations measured	Aircraft accidents during all flight phases that occurred in a year within the State/Region of occurrence.
Variants	Variant 1 (GASP): Aircraft MTOW > 2 250 kg 1.1 National accident occurrence level 1.2 Regional accident occurrence level Variant 2: All aircraft 2.1 National accident occurrence level 2.2 Regional accident occurrence level
Object(s) characterized	The KPI is typically computed for individual State, or Region (selection/grouping based on geography)
Utility of the KPI	High-level measurement of safety performance of the aviation system as a whole.
Parameters	None
Data requirement	For each reported occurrence: Date of occurrence Occurrence Category State of occurrence

[3] The list and details of the KPIs are available at https://www4.icao.int/ganpportal/ASBU/KPI.

KPI ID	KPI20
Data feed providers	ICAO ADREP database iSTARS Application "ADREP et al."
Formula/ algorithm	Count accidents if: a) The local date of occurrence is in between 01 January and 31 December of the year in question; b) It is of the type that is notifiable to ICAO; c) The circumstances of the accidents match the definition of Annex 13 definition of 'Accident'; and d) If variant 1, the aircraft involved in the accident is of maximum take-off mass of over 2 250 kg.
References and examples of use	ADREP: Accident Data Report https://www.eurocontrol.int/archive_download/all/node/12148 https://www.eurocontrol.int/archive_download/all/node/9360#page45 https://www.easa.europa.eu/sites/default/files/dfu/easa_asr_2020.pdf https://www.gcaa.gov.ae/_layouts/download.aspx?SourceUrl=/EN/epublication/EPublications/Civil%20Aviation%20Regulations%20(CARs)/CAR%20X%20-%20SAFETY%20MANAGEMENT%20SYSTEM%20(SMS)%20REGULATIONS/CAR-SMS%20-%20SAFETY%20MANAGEMENT%20SYSTEM%20-%20ISSUE%2006%20(corrected).pdf

KPI ID	KPI21
KPI Name	Number of runway incursions
Definition	Number of occurrences at an aerodrome involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and take-off of aircraft. (CICTT Taxonomy definition)
Measurement Units	Number of runway incursions / year
Operations measured	The actual number of runway incursions at an aerodrome
Variants	None
Object(s) characterized	The KPI is computed for individual aerodrome
Utility of the KPI	This KPI gives an indication of the incorrect or unsafe usage of the runways and of the safety performance improvement on the runway.
Parameters	None
Data requirement	For each reported occurrence: Date of occurrence Airport of occurrence
Data feed providers	Airports and airlines
Formula/ algorithm	Count number of runway incursions: a) the local date of occurrence in between 01 January and 31 December of the year in question; and b) the circumstances of the occurrence match the definition of CICTF 'RI'; or the occurrence category has been determined to be runway incursion – vehicle, aircraft or person (RI-VAP).
References and examples of use	https://www.mot.gov.sg/docs/default-source/default-document-library/runway-incursion-by-vehicle-in-seletar-airport-7-apr-2018-final-reportcecc69af7fde4718ad39b5127822a05f.pdf https://www.eurocontrol.int/archive_download/all/node/12148 https://www.eurocontrol.int/archive_download/all/node/9360#page45 https://www.gcaa.gov.ae/_layouts/download.aspx?SourceUrl=/EN/epublication/EPublications/Civil%20Aviation%20Regulations%20(CARs)/CAR%20X%20-%20SAFETY%20MANAGEMENT%20SYSTEM%20(SMS)%20REGULATIONS/CAR-SMS%20-%20SAFETY%20MANAGEMENT%20SYSTEM%20-%20ISSUE%2006%20(corrected).pdf

KPI ID	KPI22
KPI Name	Number of runway excursions
Definition	Number of veer offs or overruns of the runway surface.
Measurement Units	Number of runway excursions / year
Operations measured	• Only applicable during either the takeoff or landing phase. • The excursion may be intentional or unintentional. For example, the deliberate veer off to avoid a collision, brought about by a Runway Incursion. In this case, code both categories. • Use RE in all cases where the aircraft left the runway/helipad/helideck regardless of whether the excursion was the consequence of another event.
Variants	None
Object(s) characterized	The KPI is computed for individual aerodrome
Utility of the KPI	This KPI gives an indication of the incorrect or unsafe usage of the runways and of the safety performance improvement on the runway.
Parameters	None
Data requirement	For each reported occurrence: Date of occurrence Airport of occurrence
Data feed providers	Airports and airlines
Formula/ algorithm	Count number of runway excursions: a) the local date of occurrence in between 01 January and 31 December of the year in question; b) the circumstances of the occurrence match the definition of CICTT 'RE'; and c) the Occurrence Category has been determined to be runway excursion (RE).
References and examples of use	https://www.mot.gov.sg/docs/default-source/default-document-library/t-50-runway-excursion-in-changi-airport-6-feb-18-final-report.pdf https://www.eurocontrol.int/archive_download/all/node/12148 https://www.eurocontrol.int/archive_download/all/node/9360#page45 https://www.easa.europa.eu/sites/default/files/dfu/easa_asr_2020.pdf https://www.gcaa.gov.ae/_layouts/download.aspx?SourceUrl=/EN/epublication/EPublications/Civil%20Aviation%20Regulations%20(CARs)/CAR%20X%20-%20SAFETY%20MANAGEMENT%20SYSTEM%20(SMS)%20REGULATIONS/CAR-SMS%20-%20SAFETY%20MANAGEMENT%20SYSTEM%20-%20ISSUE%2006%20(corrected).pdf

KPI ID	KPI23
KPI Name	Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC)
Definition	Number of airproxes, TCAS alerts, loss of separation as well as near collisions or collisions between aircraft in flight.
Measurement Units	Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC) / year
Operations measured	• Includes all collisions between aircraft while both aircraft are airborne. • Both air traffic control and cockpit crew separation-related occurrences are included. • Genuine TCAS alerts are included here.
Variants	Variant 1: Number of airproxes Variant 2: TCAS alerts Variant 3: loss of separation Variant 4: near midair collisions Variant 5: midair collisions (MAC)
Object(s) characterized	The KPI is computed for volumes of airspace as designated by the State.
Utility of the KPI	This KPI gives an indication of safety performance improvement in the air.
Parameters	None
Data requirement	For each reported occurrence: Date of occurrence

KPI ID	KPI23
	FIR of occurrence
Data feed providers	ANSPs and airlines
Formula/ algorithm	Count number of airproxes, TCAS alerts, loss of separation as well as near collisions or collisions between aircraft in flight: a) the local date of occurrence in between 01 January and 31 December of the year in question; b) the circumstances of the occurrence match the definition of CICTT 'MAC'; and c) the Occurrence Category has been determined to be airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC).
References and examples of use	https://www.eurocontrol.int/archive_download/all/node/9360#page45 https://www.easa.europa.eu/sites/default/files/dfu/easa_asr_2020.pdf https://www.gcaa.gov.ae/_layouts/download.aspx?SourceUrl=/EN/epublication/EPublications/Civil%20Aviation%20Regulations%20(CARs)/CAR%20X%20-%20SAFETY%20MANAGEMENT%20SYSTEM%20(SMS)%20REGULATIONS/CAR-SMS%20-%20SAFETY%20MANAGEMENT%20SYSTEM%20-%20ISSUE%2006%20(corrected).pdf

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APPENDIX B

Resolution A41-6: ICAO Global Planning for Safety and Air Navigation

Whereas ICAO strives to achieve the goal of a safe and orderly development of civil aviation through cooperation among Member States and other stakeholders;

Whereas to realize this goal, the Organization has established Strategic Objectives, including objectives for safety and for air navigation capacity and efficiency;

Recognizing the importance of global frameworks and regional and national plans to support the Strategic Objectives of ICAO;

Recognizing the importance of effective implementation of regional and national plans and initiatives based on the global frameworks;

Recognizing that further progress in improving the global safety, capacity and efficiency of civil aviation is best achieved through a cooperative, collaborative and coordinated approach in partnership with all stakeholders under the leadership of ICAO; and

Noting the approval by the Council of the 2023-2025 edition of the Global Aviation Safety Plan (GASP) and of the seventh edition of the Global Air Navigation Plan (GANP);

The Assembly:

1. Endorses the 2023-2025 edition of the Global Aviation Safety Plan (GASP) and the seventh edition of the Global Air Navigation Plan (GANP) as the global strategic directions for safety and the evolution of the air navigation system, respectively;

2. Resolves that ICAO shall implement and keep current the GASP and the GANP to support the relevant Strategic Objectives of the Organization, while ensuring necessary stability;

3. Resolves that these global plans shall be implemented and kept current in close cooperation, collaboration and coordination with all concerned stakeholders;

4. Resolves that these global plans shall provide the frameworks in which regional, subregional and national plans will be developed and implemented, thus ensuring consistency, harmonization and coordination of efforts aimed at improving international civil aviation safety, capacity and efficiency;

5. Urges Member States to develop sustainable solutions to fully exercise their safety oversight and air navigation responsibilities which can be achieved by sharing resources, utilizing internal and/or external resources, such as regional and subregional organizations and the expertise of other States;

6. Urges Member States to demonstrate the political will necessary for taking remedial actions to address safety and air navigation deficiencies, including those identified by Universal Safety Oversight Audit Programme (USOAP), through the GASP, the GANP and the ICAO regional planning process;

7. Urges Member States, the industry and financing institutions to provide the needed support for the coordinated implementation of the GASP and GANP, as well as regional and national plans, avoiding duplication of efforts;

8. Calls upon States and invites other stakeholders to cooperate in the development and implementation of regional, subregional and national plans based on the frameworks of the GASP and GANP;

9. Instructs the Secretary General to promote, make available and effectively communicate the GASP and the GANP; and

10. Declares that this resolution supersedes Resolution A40-1 on ICAO global planning for safety and air navigation.

— END —