INTERNATIONAL JOURNAL OF LEGAL AFFAIRS AND EXPLORATION

Volume 2| Issue 3

2024

CRITICAL ANALYSIS OF ICAO'S AVIATION SAFETY FRAMEWORK

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ABSTRACT

The International Civil Aviation Organization (ICAO) established the framework that regulates international air travel. Its objective is to enhance the aviation industry's sustainability, efficacy, safety, and security. The ICAO framework is always evolving to address fresh issues like cyber security, climate change, and the sector's changing demands. The ICAO framework is examined in this paper along with its benefits and drawbacks. This article delineates prospective domains for enhancing the framework. Airport security, aircraft design, pilot training, and air traffic control are only a few topics covered by the intricate and comprehensive ICAO framework. The framework is implemented by the ICAO nations that are members and relies on the notion of international collaboration. The primary advantage of the ICAO framework is its global reach. A consistent level of safety and security for pilots worldwide is provided by the framework, which is implemented by all 153 ICAO member states. This framework is revised often to incorporate new shortcomings and to mirror recent advances in technology. Nonetheless, there are serious shortcomings in the ICAO framework. A potential drawback includes the fact that new laws and regulations might be difficult to put into effect. Consensus among ICAO member states is necessary for any alterations to the framework, and this procedure can be protracted. Another drawback associated with the ICAO framework is that it cannot effectively enforce adherence. Member states receive immunity from direct punishment for violating ICAO standards. ICAO instead uses peer pressure and technical assistance to persuade member states to comply with the framework. Regardless of its deficiencies, the ICAO framework remains an essential asset for ensuring the security and safety of international aviation. Besides fostering collaboration amongst ICAO member states, the framework creates an international norm for aviation security and safety.

Key Words: *ICAO, GASP, NASP, RASP, SARPs, SMS*

1. INTRODUCTION

The UN's International Civil Aviation Organisation (ICAO) is in charge of fostering the long-term growth of international civil aviation.[1] It collaborates closely with its Member States and other stakeholders to establish policies and international Standards and Recommended Practises (SARPs) to guarantee a successful, safe, secure, commercially viable, and ecologically sustainable civil aviation sector. Through audits, studies, analyses, and assistance, ICAO helps States become and maintain SARPs compliant, while also building civil aviation capacity and promoting a sustainable civil aviation sector through partnerships.

As "Invited Organizations," businesses and civil society organizations make significant contributions to these ICAO results in addition to pertinent multilateral organizations. States support international cooperation in air transport by funding and guiding the ICAO Secretariat to offer legal, managerial, and technical support. To aid countries in gaining economic benefits from adhering to international standards, the company develops initiatives, guidance materials, and closely coordinated training, implementation support, and auditing initiatives.. A genuinely international aviation network that connects and unites the entire world, as well as an international alignment of air regulations and procedures, are the outcomes of these joint multilateral endeavours by States and ICAO. The ICAO Safety Framework is based on SARPs that member states are encouraged to adopt and implement, which form the foundation of aviation safety.[2] These SARPs address a variety of safety-related topics, such as people licensing, air navigation services, and aircraft operations.[3] Additionally, the framework covers the development of safety management systems (SMS) and the sharing of information pertaining to safety among member states. Every aspect of aviation-related activities, including the air transit system and state security oversight, leads to the "big picture" of overall international aviation safety levels. The Safety Framework's conclusions are presented in this section, which also highlights recently created resources and skills that assist the Organisation in identifying security hazards and results.

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[1] Karen Mingst, *International Civil Aviation Organization,* BRITANNICA, (Aug. 04, 2023, 07.38 PM), https://www.britannica.com/topic/International-Civil-Aviation-Organization.
[2] Nichole Kruger, *What is ICAO's Role in Aviation Safety Management Systems?,* SMS PRO, (Aug. 04, 2023, 7.40 PM), https://aviationsafetyblog.asms-pro.com/blog/what-is-icaos-role-in-aviation-safety-management-systems.
[3] *Ibid.*

2. AVIATION SAFETY

Travel by air prioritizes safety above all else. Commercial flight is now the safest form of transportation according to ICAO, which promotes global cooperation between governments and business associations to assure aviation safety. All the member countries of ICAO, which number to 193, work together on a number of programs and targets with the long-term goal of eliminating aviation fatalities by 2030.[4] While standardizing safety measures to take into account advancements in aircraft propulsion, design, self-sufficient control, and individual mobility, they also aim to preserve or improve the overall network performance.

ICAO SAFETY FRAMEWORK: In March 2010, the ICAO Headquarters in Montreal hosted the High-Level Safety Conference (HLSC).[5] The conference aimed to reduce the global accident rate by identifying potential risks early on and taking proactive measures to mitigate them. During the conference, the HLSC approved various safety initiatives as part of the ICAO Safety Framework. Participants collaborated on a strategy that focused on sharing more information to enhance aviation safety.

3. ICAO GLOBAL AVIATION SAFETY PLAN

The Global Aviation Safety Plan (GASP) outlines a comprehensive approach to enhance aviation safety worldwide.[6] Its prime objective is to reduce the number of fatalities and the likelihood of such incidents by offering instructions for the creation of an integrated aviation safety plan. A consistent and constant enhancement in aviation security standards is what this plan aims to achieve.

The strategy promotes the successful implementation of a country's safety programme, including a surveillance system for safety, a risk-based approach to managing security, and a structured strategy for cooperation among States, regions, and industries. It offers a structure for the creation and execution of regional and national aviation safety plans (RASP and NASP). A key step in helping ICAO establish global action priorities that form the foundation of the GASP goals and targets is recognizing organizational issues. Key elements in the safety planning process include identifying difficulties linked to safety and prioritizing the areas that call for action.

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[4] INTERNATIONAL CIVIL AVIATION WEBSITE, https://www.icao.int/safety/Pages/default.aspx (last visited Aug. 04, 2023).
[5] INTERNATIONAL CIVIL AVIATION WEBSITE, https://www.icao.int/meetings/amc/hlsc/pages/default.aspx (last visited Aug. 04, 2023).
[6] SKYBRARY, https://skybrary.aero/articles/global-aviation-safety-plan-gasp (last visited Aug. 04, 2023).

ORGANIZATIONAL CHALLENGES IDENTIFIED IN THE GASP

ICAO and the aviation community identified the following administrative challenges for the GASP 2023-2025:

a) Making use of a state's safety oversight system's crucial elements (CEs) to guarantee efficient safety supervision.
b) Making sure a State Safety Programme (SSP) is successfully implemented

NATIONAL AVIATION SAFETY PLAN (NASP)

NASP outlines a State's long-term plan for managing aviation safety.[7] It brings up safety-related issues, sets goals regarding security of aviation, and provides safety enhancement initiatives (SEIs) to address discovered safety defects and meet the objectives. Each State shall prepare a national plan in accordance with the goals, targets, and high-risk categories of occurrence (G-HRCs) of the GASP. The NASP shows how committed a State is to promoting safety. A State Safety Programme (SSP) is a coordinated set of policies and initiatives aimed at enhancing safety. Its responsibilities, for instance, include creating technical standards for technical staff and guidelines and instruments qualification, a method for separating risks from amassed safety data, evaluating safety risks, and methods for resolving safety problems are all examples of qualification. Threats to federal operational safety can be identified and reduced by a State with a successful SSP. As a result, the SSP assists in the creation of the State's NASP by empowering the State to ensure the effective management of safety improvement activities in a logical and proactive manner, including keeping an eye on the execution of the plan's SEIs, resolving any issues that are found, and assessing its safety performance. The ICAO published a manual for formulating plans for aviation safety at various levels to help States create their national aviation safety plans (NASP).[8] It emphasizes numerous elements that a State should consider while creating or modifying its NASP in order to implement a strategy that adheres to the GASP and RASP.

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[7] INTERNATIONAL CIVIL AVIATION WEBSITE, https://www.icao.int/safety/GASP/Pages/NATIONAL-AVIATION-SAFETY-PLAN-(NASP).aspx (last visited Aug. 04, 2023).
[8]INTERNATIONAL CIVIL AVIATION ORGANIZATION,
https://www.icao.int/EURNAT/Other%20Meetings%20Seminars%20and%20Workshops/Safety%20-%20NASP/ICAO%20Workshop%20on%20the%20Implementation%20of%20%20a%20National%20Aviation%20Safety%20Plan%20(Baku,%20AZE,%2015-17%20November%202022)/10131_en.pdf (last visited Aug. 04, 2023).

REGIONAL AVIATION SAFETY PLAN

RASP, an overarching planning document, lays out the long-term strategic goal for managing aviation security at the level of the region. It gives regional organisations advice on where they should concentrate their efforts in the years to come to improve safety.

The RASP acts as a framework for the organisation of initiatives aimed at improving regional security as well as a vehicle for securing regional support. Regional aviation safety groups (RASGs) are thought to plan and carry out safety enhancement initiatives (SEIs) primarily at the local level. The RASP is created, supported, and managed by them as the regional organisation. While formulating NASP, the GASP and the RASP must be incorporated even if one exists. G-HRCs (global high-risk categories) and global objectives are clarified by the GASP. It lays out specific objectives that are useful to all Nations as well as safety enhancement initiatives (SEIs), that nations ought to put into practice as part of the worldwide aviation safety plan to increase security both domestically and abroad. The regional goals, targets, and HRCs listed in the RASP supplement some of the GASP's objectives. A State may not be immediately related to some SEIs in the RASP because they may be addressed to the RASG.

4. STRENGTHS OF ICAO's AVIATION SAFETY FRAMEWORK

- *Policy and Standardization:* On a worldwide, regional, and local scale, the aviation sector is a key driver of socio-economic advancement. For achieving this goal while maintaining safety, security, effectiveness, and environmental sustainability, civil aviation must adopt the policies, procedures, and systems outlined in SARPs. All of these initiatives are coordinated by the aims and ideas outlined in the GASP. A new Safety Management Annex is currently in development, which will minimise the possibility of differences or gaps in safety regulations by compiling a number of uniform State-specific safety SARPs.

- *Safety analysis:* Each aspect of aviation, including the air transportation system and state security supervision, contributes to the overall picture when it comes to global aviation safety. In order to assist the Organisation in recognizing security risks and outcomes, the Safety Framework highlights recently created instruments and skills. The comprehensive data generated by these analytical tools will serve as a "safety compass" to direct the more efficient use of ICAO and State resources and serve as the cornerstone for enhanced security intelligence. The SMS provides an organized approach to safety, promoting proactive risk management, ongoing development, and detecting potential dangers. Statistical evidence

emphasises that attaining successful and industry-wide safety results depends on the efficient execution of critical safety oversight system components. Following safety-related ICAO SARPs, pertinent procedures and guidance materials improve these results even further.

- *Safety Monitoring:* Based on statistical evidence, achieving successful and industry-wide safety results requires the effective implementation of essential safety oversight system components. Adhering to safety-related ICAO SARPs, along with related protocols and instruction manuals, also contributes to these outcomes. The ICAO's Universal Safety Oversight Audit Programme (USOAP) conducts regular inspections of its Member States to monitor global compliance with its safety guidelines.[9]

- *A Collaborative Approach:* The ICAO encourages member governments to work together and cooperate internationally. It encourages the sharing of safety knowledge, best practices, and lessons gained, encouraging an international cooperative effort to improve aviation safety.

- *Implementation:* As a natural outcome of its strategy, surveillance, and evaluation operations, ICAO uses a variety of specialised initiatives, tools, training activities, and programmes to promote global aviation safety. These efforts aim to improve safety outcomes across all areas of civil aviation operations. By collaborating strategically with regional organisations and clients, ICAO's regional network supports implementation activities that help its Member States both financially and operationally.

5. WEAKNESS OF ICAO's AVIATION SAFETY FRAMEWORK

- *Compliance and Enforcement:* The ICAO establishes standards, but member states are required to voluntarily adopt and put them into practice. Because of this reliance on national agencies, compliance and enforcement may vary significantly between nations. The efficiency of the ICAO's framework could be hampered by lax regulation and monitoring in some jurisdictions.

- *Resource Constraints:* It takes a lot of financial, technological, and human resources to implement and maintain an effective aviation safety framework. Smaller or less developed nations would find it difficult to commit the necessary resources to achieve the ICAO criteria, which could result in gaps in safety oversight and enforcement.

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[9] Mihail Peytchev, *ICAO's Universal Safety Oversight Audit Programme Training: Is this for you?,* UNITING AVIATION, (Aug. 04, 2023, 07.38 PM), https://unitingaviation.com/news/safety/icaos-universal-safety-oversight-audit-programme-is-this-training-for-you/.

- *Timeliness and Agility:* The aviation sector is dynamic, with new technological advancements, operating procedures, and safety threats appearing on a regular basis. The ICAO's framework might struggle to quickly adjust to these developments, which could postpone the adoption of new safety standards and best practices.

6. AREAS FOR IMPROVEMENT

- *Strengthened Compliance Mechanisms:* By developing more effective procedures for observing and assessing member states' adherence to SARPs, ICAO might improve its compliance mechanisms. Peer reviews, regular safety audits, and harsher penalties for non-compliance could all be part of this.

- *Prioritizing Specific Programmes:* Technical assistance and capacity-building programmes should be given top priority by the ICAO to member governments, especially those with limited resources. This will encourage more uniform use of the aviation safety framework and assist close the gap between governments with different levels of safety monitoring capabilities.

- *Agile Regulatory Approach:* In order to address the dynamic nature of the aviation sector, ICAO should investigate more flexible regulatory strategies that can quickly respond to new safety issues. This can entail putting in place procedures for quick adoption of new norms and making use of technology to make real-time data sharing and analysis possible.

7. CONCLUSION

In conclusion, guaranteeing safe and secure international air travel is made possible by the ICAO's aviation safety framework. The framework is not without its advantages, such as standardisation and the development of safety management systems, but it also has drawbacks including inconsistent compliance levels and resource limitations. By concentrating on improved compliance procedures, strengthening capability.