Regional aviation safety organisations: enhancing air transport safety through regional cooperation

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Chapter 1

Research Questions, Methodology and Structure of the Study

'When we look at the future of aviation,
we must … look at the future of safety.'[1]

Roberto Kobeh González
President of the ICAO Council (2006-2013)

1.1   OBJECTIVE OF THE STUDY

This study is a first comprehensive attempt to analyse, from a legal and institutional point of view, how regional cooperation and more specifically the so called Regional Aviation Safety Organisations (RASOs) can contribute to the improvement of civil aviation safety and the achievement of the objective of 'uniformity in regulations, standards, procedures, and organization' as formulated in Article 37 of the Convention on International Civil Aviation (hereinafter 'Chicago Convention').[2]

So far the bulk of analysis related to RASOs has been performed by the International Civil Aviation Organization (ICAO).[3] With the exception of a few articles published in air law journals (see Section 1.6), there has so far been no attempt in the academic world to address this phenomenon.

There is also at present no internationally agreed definition of a RASO, and ICAO and its Member States tend to treat this concept as a broad category encompassing different forms of regional cooperation. For the purpose of this study a specific definition and typology of regional aviation safety bodies is proposed in Chapter 3.

The scope of this study is limited to civil aviation and primarily focuses on commercial air transport. It addresses regulation of civil aviation safety understood in broad terms. This includes functions of: rulemaking, including the development and promulgation of civil aviation safety laws and operating regulations; certification and continuous oversight, including the issuance of approvals and continuous assurance that the certificate holder meets the applicable safety re-

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[1] ICAO, 'Journal', 1 (2012), p. 4.

[2] 'Convention on International Civil Aviation', Chicago, 7.12.1944, 15 UNTS 295.

[3] ICAO, 'Safety Oversight Manual, Part B: The Establishment and Management of a Regional Safety Oversight Organization', Doc. 9734, (2011). See also: ICAO, 'Manual on Regional Accident and Incident Investigation Organization', Doc. 9946, (2011).

quirements; and enforcement designed to ensure compliance. In addition, this study also analyses regional accident investigation organisations.

With a view to reaching the study's primary objective of verifying the extent to which RASOs meet the expectations vested in them by the international aviation community, seven specific research questions have been formulated:

(1) What should be the role of RASOs in global governance of civil aviation safety?
(2) Can the optimal RASO model be identified from a legal point of view? If yes, how can it best be defined and structured?
(3) In which domains can RASOs yield maximum safety benefits, and under which legal conditions?
(4) For which States are RASOs most relevant?
(5) What is the expected future evolution of RASO type bodies?
(6) Are there any shortcomings in the current international legal framework that pose an obstacle to further development of RASOs?
(7) What are the international responsibility and civil liability implications resulting from RASOs establishment and functioning?

In addition to addressing the above research questions, this study will also propose, in Chapter 5, a practical methodology or a 'tool-box' for the setting up of RASOs. The author made a preliminary presentation of this concept at the ICAO Symposium on Regional Safety Oversight Organisations (Montréal, 26-28 October 2011), which was positively received by the participants, and is reflected in the final conclusions of the Symposium.[4]

1.2   CIVIL AVIATION SAFETY AS A GLOBAL CONCERN

Civil aviation is a global industry that directly and indirectly supports the employment of 56.6 million people, contributes over 2 trillion USD to global gross domestic product, and carries over 2.5 billion passengers and 5.3 trillion USD worth of cargo annually.[5]

Commercial civil aviation is also a very safe mode of transportation. Worldwide the number of passenger fatalities per 100 million passenger-kilometres flown in commercial air transport has fallen from 0.8 in 1960 to 0.08 in 1980, 0.03 in 1990, and has ranged between 0.05 and 0.01 since then.[6]

Between 2009 and 2013 there were on average 3.7 accidents each year per one million aircraft departures, involving both fatalities and non-fatal outcomes, in worldwide commercial scheduled air transport.[7] Taking into account that the average annual volume of commercial traffic in those years was nearly 30 million flights, this is a very good safety record.[8]

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[4] ICAO, 'Outcomes of the Symposium on Regional Safety Oversight Organisations', Oral report by the ICAO Secretary General, (194th session of the ICAO Council, 2011). See also: ICAO, 'Review of the outcomes of the Symposium on Regional Safety Oversight Organizations', C-WP/13810, (195th session of the ICAO Council, 2011).
[5] ICAO, 'Global Aviation Safety Plan', Doc. 10004, (2013), p. 2.
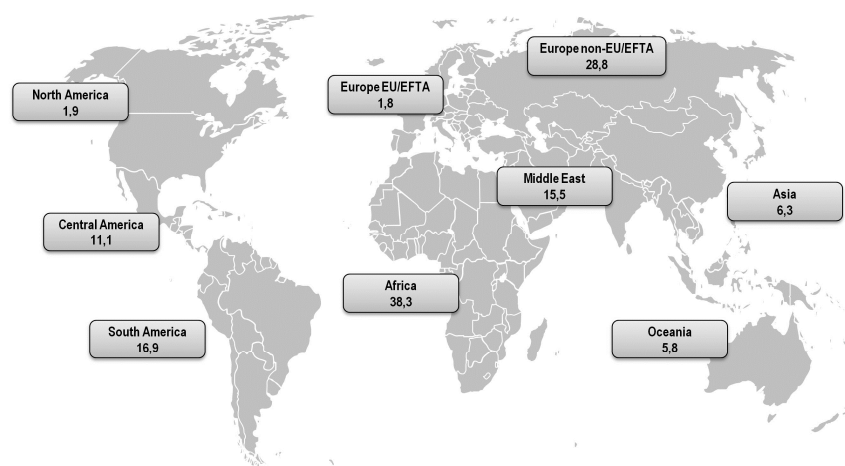[6] ICAO, 'Outlook for Air Transport to the Year 2025', Circular 313, AT/134, (2007), p. 15.
[7] ICAO, 'Safety Report', (2014), <www.icao.int> [accessed 17 July 2014], p.8.
[8] ICAO, 'Annual Reports of the Council (2009-2013)'.

However, when looked at in detail, the picture is more complex. First of all, as Figure I demonstrates, actual safety levels are far from being uniform across the world and there are concerns that as the air traffic and complexity of the global air transport market grow, the rate of accidents may also start to increase.[9]

Figure I: Scheduled Commercial Air Transport Fatal Accident Rate per 10 Million Flights by World Region, 2004-2013

Source of data: European Aviation Safety Agency, Annual Safety Review (2013)

It is predicted that in Europe alone the volume of flights in the European Organisation for the Safety of Air Navigation (EUROCONTROL) area is likely to increase to 14.4 million flights per annum by 2035, or 50% more than in 2012.[10] Even more growth is expected in other parts of the world, with ICAO predicting a doubling of global aviation traffic in the next fifteen years.[11]

Secondly, the level of implementation of international civil aviation safety requirements mandated by the Chicago Convention and its Annexes,[12] although improving (see Chapter 2), is still not satisfactory. In August 2014 the global average level of implementation of the eight Critical Elements (CE)[13] of State safety oversight, as measured by ICAO under its Universal Safety Oversight Audit Programme (USOAP),[14] was standing at 62%.[15] In addition, there are significant dif-

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[9] 'Global Aviation Safety Plan', *supra* note 5, at p.2.

[10] EUROCONTROL, 'Challenges of Growth 2013: Task 4: European Air Traffic in 2013', (2013).
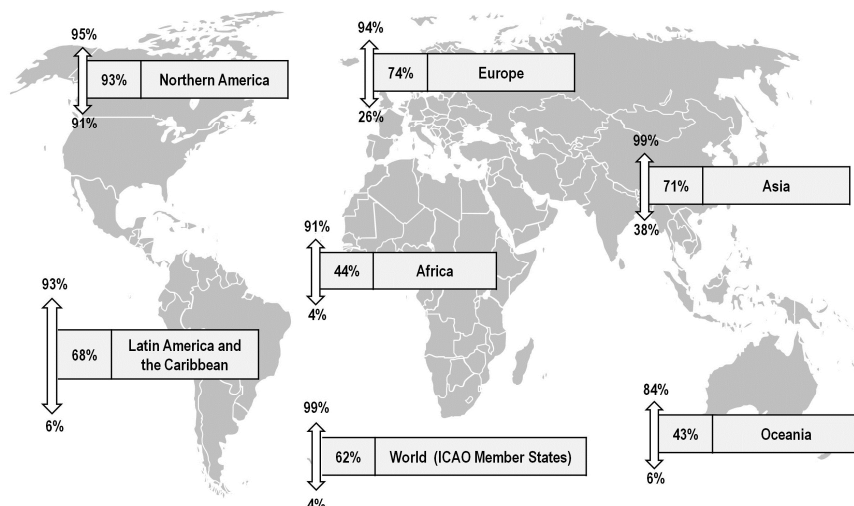
[11] ICAO, 'ICAO Journal', *supra* note 1, at p.5.

[12] There are over ten thousand International Standards and Recommended Practices (SARPs) promulgated by ICAO in nineteen Annexes to the Chicago Convention. The vast majority of these SARPs concern civil aviation safety; see: ICAO, 'Notification and publication of differences: Summary of Decisions', C-DEC 177/14, (177th session of the ICAO Council, 2006).

[13] The eight CEs of safety oversight system encompass the whole spectrum of civil aviation activities. They are the building blocks upon which an effective safety oversight system is based. The level of effective implementation of the CEs is an indication of a State's capability for safety oversight; see: ICAO, 'Universal Safety Oversight Audit Programme Continuous Monitoring Manual', Doc. 9735, (2011). See Table I below for an overview of the eight CEs and their correlation with actual accident rates.

[14] A more detailed presentation of the USOAP is given in Chapter 2.

ferences in implementation of CEs between the ICAO regions, as well as within these regions. As Figure II demonstrates, in 2014 this spread ranged from 4% to 99% depending on the region. In August 2014, 43% or 79 of ICAO Member States were lacking basic safety oversight capabilities to certify their aviation service providers.[16]

Figure II: USOAP Effective Implementation Level by United Nations Region

95% / 93% Northern America / 91%

94% / 74% Europe / 26%

99% / 71% Asia / 38%

91% / 44% Africa / 4%

93% / 68% Latin America and the Caribbean / 6%

84% / 43% Oceania / 6%

99% / 62% World (ICAO Member States) / 4%

Source of data: ICAO, Regional Performance Dashboards (2014)[17]

The wide spread between the ICAO regions in respect to actual safety levels measured by accident rates and fatalities, as well as levels of effectiveness of States' oversight systems measured by USOAP, is a concern because aviation safety is significantly influenced by the inherently international nature of this sector - the main consequence of this being that civil aviation is only as safe as the weakest link in the system. International cooperation is thus essential to ensure network safety and implementation of coordinated policies and globally agreed standards as mandated by the Chicago Convention.[18]

What can also be observed (see Figure III) is that two of the three United Nations (UN) regions which between 2005 and 2012 experienced the highest rate of traffic growth (Latin America and the Caribbean: 17%; Africa: 20%; Asia: 38%), also demonstrate the lowest level of effective implementation of the USOAP protocols (Latin America and the Caribbean: 68%; Africa: 44%; Asia:

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[15] ICAO, 'Regional Performance Dashboards' <http://www.icao.int/safety/Pages/Regional-Targets.aspx> [accessed 4 August 2014].
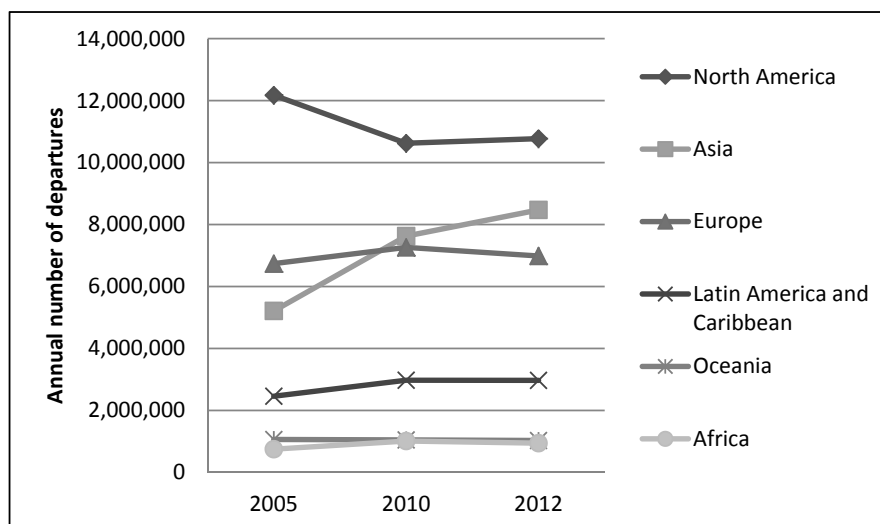[16] Ibid.
[17] ICAO, 'Regional Performance Dashboards' <http://www.icao.int/safety/Pages/Regional-Targets.aspx> [accessed 4 August 2014]. This data is the copyrighted property of the ICAO and is reproduced here with its expressed knowledge and permission. It may not be cited by or reproduced in any other publication without subsequent approval being granted by ICAO.
[18] 'Chicago Convention', Article 37.

71%). In these regions implementation efforts should be increased to ensure that this capacity expansion can be safely accommodated in the years to come.[19]

Figure III: Departures in scheduled commercial air transport per UN region

Source of data: ICAO, State of Global Aviation Safety (2013)[20]

The monitoring of the level of effective implementation of the eight CEs of State safety oversight is important because it was demonstrated by ICAO that a correlation exists between accident rates and USOAP results at individual State level.[21] As Table I demonstrates, this correlation is the strongest for those CEs which are directly related to the capacity of a State to ensure effective initial approval and continuing oversight of its operators, aircraft and aviation personnel and to resolve the identified safety deficiencies.

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[19] Each of the ICAO regions covers a large number of States, with the resulting aggregation of USOAP results at a relatively high level. As Figure II demonstrates there are large variations within each of the regions as regards the effectiveness of State safety oversight. Within each region there will therefore be States with very good safety records, as well as poor performers. For example the African region, which has today the lowest level of effective implementation of the eight ICAO CEs, aggregates information regarding both Democratic Republic of Congo which, based on the latest ICAO data, has a level of effective implementation of eight CEs significantly below the world average, and Kenya which, also based on the latest ICAO data, has a level of effective implementation above average for most of the domains. Similarly, the European ICAO region will cover the European Union Member States, as well as some of the former USSR republics; see: ICAO, 'Safety Audit Information' <http://www.icao.int/safety/Pages/USOAP-Results.aspx> [accessed 14 March 2014].

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[21] Nancy Graham, 'Briefing on the State of global aviation safety', ICAO High Level Safety Conference (Montréal, Canada, 2010), <http://www.icao.int/Meetings/AMC/HLSC/Pages/default.aspx> [accessed 5 August 2014].

Table I: Critical Elements of State Safety Oversight System and their correlation with accident rates

Critical Element	Correlation with accident rates
CE-6: Licensing, certification, authorization and/or approval obligations	Very strong
CE-7: Surveillance obligations	Very strong
CE-3: State civil aviation system and safety oversight functions	Strong
CE-4: Technical personnel qualifications and training	Strong
CE-8: Resolution of safety concerns	Strong
CE-1: Primary aviation legislation	Medium
CE-2: Specific operating regulations	Medium
CE-5: Technical guidance, tools and provision of safety critical information	Medium

Source: ICAO, Report on the USOAP Comprehensive System Approach, Analysis of Audit Results, Reporting Period April 2005 to December 2008, Second Edition[22]

The correlation identified by ICAO means that improving the level of implementation of Standards and Recommended Practices (SARPs), especially in States or regions which are expected to experience significant traffic growth in the years to come, should effectively contribute to further reduction of global accident rates, or at least to maintaining the absolute number of accidents at the current levels, while taking into account the ongoing traffic increases.

In line with the ICAO findings, a study conducted by the International Air Transport Association on accidents which occurred between 1 January 2001 and 31 December 2008 and involving commercial air transport operators located in sub-Saharan African States, showed that 'deficient regulatory oversight by the States of the operators' was one of the top contributing factors in the accidents analysed.[23]

Last but not least, in addition to challenges related to continuous improvement of safety performance, States as regulators of civil aviation face an ongoing challenge of optimising their working methods. In financially challenging times, the regulators have to accept as the *'new normal'* that budgets for safety oversight are not necessarily going to increase and that to safely accommodate the traffic growth, new methods of oversight, closer international cooperation and exchange of information across national borders is no longer nice to have, but has become an essential element of doing business.[24] The need for close international

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[23] Gaoussou Konate, 'Air Safety Situation in Africa, Current Problems: need for innovation', Symposium on Regional Aviation Safety Agencies (Livingstone, Zambia, 2009), <http://easa.europa.eu/newsroom-and-events/events/symposium-regional-aviation-safety-agencies-rasa> [accessed 21 July 2014].

[24] 'Session 10 - panel report', EASA/FAA International Aviation Safety Conference (Paris, France, 2013), <https://www.easa.europa.eu/events/events.php?startdate=12-06-2013&page=EASA-

cooperation and exchange of information in order to foster aviation safety has most recently been brought to the forefront of the public debate in the aftermath of the tragic downing of the Malaysian Flight MH17 in July 2014 and the ensuing discussions about assessing risks affecting aircraft operations over conflict zones.

1.3 THE ICAO GLOBAL AVIATION SAFETY PLAN

The latest edition of the ICAO Global Aviation Safety Plan (GASP), adopted at the 38th ICAO Assembly, 'sets out a continuous improvement strategy for States to implement over the next 15 years through the establishment of core, and then more advanced, aviation safety systems.'[25]

The GASP framework is organised around three high level objectives and associated timeframes:

(1) Near-Term (by 2017): Implementation of an effective safety oversight system;
(2) Mid-Term (by 2022): Full implementation of the ICAO State safety programme framework;
(3) Long-Term (by 2027): Advanced safety oversight system including predictive risk management.

The logic of the GASP objectives is strongly anchored in the correlation that was mentioned in Section 1.2 above between the effectiveness and sophistication of States' safety oversight systems and the actual levels of safety. The GASP objectives envisage that over the next fifteen years, States will gradually be moving towards more advanced methods of safety oversight and that this evolution should bring further reductions in the number of accidents and associated fatalities.

The GASP objectives are supported by a number of safety performance enablers, which include: more uniform implementation of ICAO SARPs; closer collaboration between States, industry and regional initiatives such as Regional Aviation Safety Oversight Organisations; continuing investment by States in maintaining, upgrading and replacing aviation infrastructure and investment in technical and human resources; and finally exchange of safety information.[26]

The implementation challenges faced by States under the GASP will not necessarily be smaller than those of implementing the more traditional approaches pursued by ICAO so far. Implementation of the GASP targets will necessitate the use of sophisticated tools and expertise which is not yet available in all the States, as the USOAP results show. It is questionable whether all of the States will be able to deliver. As pointed out by the Director of ICAO Air Navigation Bureau, during the 2010 High Level Safety Conference (2010 HLSC):

> States that have not yet implemented the eight critical elements of a safety oversight system effectively must first resolve these deficiencies and develop a sound foundation upon which to build their State Safety Programmes. Only those States having mature safety

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FAA_International_Aviation_Safety_Conference_2013#tabPresentations> [accessed 11 March 2014].

[25] 'Global Aviation Safety Plan', *supra* note 5, at p. 3.
[26] Ibid. at p. 4.

oversight systems will be able to realize the benefits associated with safety management principles, and achieve further reductions in their accident rates.[27]

Thus, a further question which needs to be asked is whether States which today face difficulties in establishing reasonably functioning safety oversight systems will be able to overcome these difficulties in the future, as the focus is switching more and more towards sophisticated safety management techniques.[28] If not, there is a danger that the gap between States with good and poor safety performance could widen even more.

It is in this context that ICAO and the international aviation community are exploring not only new approaches to managing aviation safety, but also looking for more efficient and sustainable means of ensuring adequate administrative capacity of States which is required for overseeing and regulating aviation activities. Regional cooperation, such as regional safety oversight programmes and RASOs, is one potentially promising approach, and is the subject matter of this legal study.

1.4 TOWARDS REGIONAL COOPERATION ON CIVIL AVIATION SAFETY

The global regulatory framework for civil aviation safety is set out in the Chicago Convention and Annexes thereto. Originally this framework was designed chiefly to ensure the development of uniform standards and procedures for international civil aviation, while the implementation of these requirements has been left to individual States.[29]

With the establishment of the USOAP, which was launched in 1992,[30] ICAO and its Member States came to a realisation that not only does the level of implementation of SARPs vary across the world, but that there are also States which lack the administrative capacity to administer these requirements in an effective manner. Over the last fifteen years, all but one of ICAO Assemblies[31] expressed concern about the level of implementation of SARPs and safety oversight capabilities of some of the ICAO Member States.[32]

USOAP results demonstrate that States whose level of effective implementation of ICAO requirements has been judged as not sufficient often do not have enough resources or expertise to overcome the safety concerns identified by the ICAO audits:

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[27] Graham, *supra* note 21.

[28] ICAO, 'Safety Management Manual ', Doc. 9859, (2013).

[29] Jiefang Huang, Aviation Safety through the Rule of Law: ICAO's mechanism and practices, (2009), pp. 24-42.

[30] ICAO, 'Assembly Resolution A32-11: Establishment of an ICAO universal safety oversight audit programme', (32nd ICAO Assembly, 1998).

[31] With the exception of the 34th, extraordinary session of the ICAO Assembly, which dealt with limited matters related to elections to the ICAO Council and financing of aviation security.

[32] ICAO, 'Assembly Resolution A33-9: Resolving Deficiencies and Encouraging Quality Assurance', Assembly Resolution A33-9, (33rd ICAO Assembly, 2001). ICAO, 'Assembly Resolution A35-7: Unified strategy to resolve safety related deficiencies', (35th ICAO Assembly, 2004). ICAO, 'Assembly Resolution A36-5: International Financial Facility for Aviation Safety (IFFAS)', (36th ICAO Assembly, 2007). ICAO, 'Assembly Resolution A37-8: Regional cooperation and assistance to resolve safety-related deficiencies', (37th ICAO Assembly, 2010). ICAO, 'Assembly Resolution A38-5: Regional cooperation and assistance to resolve safety deficiencies, establishing priorities and setting measurable targets', (38th ICAO Assembly, 2013).

[T]he most common reason a State fails to establish an effective safety oversight capability is its inability to provide the required financial and human resources. There is often an insufficient number of qualified personnel available for States to fulfil their safety oversight responsibilities. In addition, due to a lack of financial resources, training may not be adequate to ensure the currency and competency of technical personnel.[33]

For some States this problem could be a vicious circle, as even though the primary and secondary aviation legislation have been promulgated *on paper*, the State still requires appropriate organisation, qualified personnel and the tools for effective implementation of the legislation. Similarly, surveillance obligations and resolution of identified safety concerns, two elements for which a strong correlation exists with the actual accident rates (see Table I), will need adequate technical and legal tools to ensure effective and efficient implementation.

With national budgets under pressure, States may find it difficult to secure adequate funding for their national civil aviation administrations.[34] Even when they are able to secure the funds, it is not uncommon that the newly recruited inspectors and specialists, once trained and qualified, leave the national administrations to take up better paid employment opportunities in the private sector.[35]

In the African region in particular, the situation is made additionally complicated by the fact that the still low levels of aviation traffic (see Figure III above) cannot generate the funds required to support effective national safety oversight systems.[36] In some African States aviation was heavily subsidised in the past, but cannot continue to depend on subsidy any more due to other pressing needs in sectors such as health or education.[37]

It has also been proved that:

[P]oor safety oversight results in more expensive insurance premiums and the inability to develop code sharing and other business arrangements, and that it also scares away potentially high-yield international customers and potential private sector investors.[38]

The problems associated with effective implementation of ICAO safety requirements can also lead to international tensions. This is because States with a good safety record, such as the United States (US), or Member States of the European Union (EU) have developed programmes to protect their citizens from unsafe operators, which in practice lead to operating bans or restrictions on operators or States which have been found, under these programmes, not to be compliant with the minimum ICAO requirements.[39]

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[33] ICAO Doc. 9734 Part B, *supra* note 3, at Paragraph 2.1.3.

[34] Ibid., at Paragraph 1.1.2.

[35] ICAO, 'Report of ARRB – Report of the Audit Results Review Board (ARRB): Summary of Decisions', C-DEC 191/2, (191st session of the ICAO Council, 2010).

[36] Haile Belai, 'Air Transport Safety: Africa', Symposium on Regional Aviation Safety Agencies (Livingstone, Zambia, 2009), <http://easa.europa.eu/newsroom-and-events/events/symposium-regional-aviation-safety-agencies-rasa> [accessed 10 August 2014].

[37] Charles Schlumberger, Open Skies for Africa: Implementing the Yamoussoukro Decision, (2010), p. 165.

[38] Ibid. at p. 174.

[39] Aviassist, 'Insight into the EU Blacklist', Safety Focus: Quarterly Journal on African aviation safety, (2010), <http://www.aviassist.org/> [accessed 5 August 2014].

The above considerations have led ICAO and the international aviation community to look for new ways to assist States, especially those in regions with higher than average accident rates, in resolving the identified safety deficiencies. USOAP is obviously at the centre of this strategy, as a main diagnosis tool. This strategy also involves technical assistance and safety promotion initiatives that ICAO coordinates through a Safety Collaborative Assistance Network which was established following the 2010 HLSC.[40]

Most importantly however, ICAO has in recent years been carefully following the development of regional organisations dealing with civil aviation safety matters. The Secretary General of ICAO observed during the 2010 HLSC that these organisations are seen by ICAO as an 'alternative solution' to national based safety oversight, and one which can play a 'strategic role' in the new global safety approach.[41]

The concept of regional cooperation in civil aviation is not new. The International Civil Aviation Conference in 1944 discussed a number of principles with a view to making regional cooperation an integral part of the post-war aviation institutional and regulatory order.[42] Organisations such as the European Civil Aviation Conference (ECAC), African Civil Aviation Commission (AFCAC) or Latin American Civil Aviation Commission (LACAC) today constitute well established landmarks on the worldwide aviation horizon. The Chicago Convention makes reference to regional cooperation in its Articles 55, 77 and 78.

Similarly, the regional civil aviation safety bodies have already established a certain tradition. The history of some of the organisations functioning today can be traced back to as early as the 1970s, as Chapter 3 will demonstrate.

The current renaissance and renewed attention to these bodies can however be attributed to a number of new factors. First of all, the general trend towards regionalisation of governance, which has particularly accelerated in the second half of the twentieth century,[43] secondly the increased visibility and success of some of these organisations such as the European Aviation Safety Agency (EASA) in the EU (see Chapter 4), thirdly the increasing pressure on the budgets of many authorities which necessitate sharing and optimisation in the use of resources, and

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[40] ICAO, 'State of Global Aviation Safety', (2013), <www.icao.int> [accessed 6 March 2014], p.22.
[41] Raymond Benjamin, 'Closing remarks, Final Report of the Conference', ICAO High Level Safety Conference (Montreal, 2010),
<http://www.icao.int/Meetings/AMC/HLSC/Pages/default.aspx> [accessed 5 August 2014].
[42] 'Canadian Revised Preliminary Draft of an International Air Convention', proposing to establish Regional Councils of the International Air Authority, which were to be responsible for regional aviation matters and certification of international air operators established in States of a given region; see: 'Canadian Revised Preliminary Draft of an International Air Convention', Volume I, Part II – Work of the Committees, Committee I – Multilateral Aviation Convention and International Aeronautical Body, International Civil Aviation Conference (Chicago, USA, 1944), <http://www.icao.int/ChicagoConference/Pages/vI_pII_ctteeI.djvu> [accessed 17 July 2014].
[43] For a general overview of the relationship between the universal and regional international organisations and the role of regionalism in global governance see: Laurence Boisson de Chazournes, 'Les relations entre organisations régionales et organisations universelles', in: L'Académie de droit international de la Haye: Recueil des Cours, (2010), pp. 79-406. For an overview of regionalisation trends in civil aviation governance see: 'EC-ICAO Symposium on Regional Organisations', (Montréal, Canada, 2008),
<http://ec.europa.eu/transport/air/international_aviation/european_community_icao/ec-icao_symposium_en.htm> [accessed 5 August 2014].

finally the increased awareness of the international aviation community of the global safety picture as a result of the implementation of the USOAP.

ICAO has been encouraging the development of regional aviation safety bodies for some time, but it has really been since 2010 that its policy on this subject gained additional momentum with the adoption of the new ICAO 'Policy on Regional Cooperation'. This new policy aims at integrating the 'regional dimension' more closely with the overall ICAO strategic objectives, in particular in the area of aviation safety.[44]

The current ICAO position with regard to regional aviation safety cooperation was reconfirmed by the 2013 Assembly, which recognised that:

> [E]stablishment of subregional and regional aviation safety and safety oversight bodies, including regional safety oversight organizations (RSOOs), has great potential to assist States in complying with their obligations under the Chicago Convention through economies of scale and harmonization on a larger scale resulting from the collaboration among Member States in establishing and operating a common safety oversight system.[45]

By mid-2014 a number of more or less successful examples of regional cooperation in civil aviation safety matters existed in many regions of the world. As will be demonstrated in this study, these regional initiatives take many different legal forms and have different scopes of activity and objectives. They also attract increasing attention, as expectations concerning their added value have been raised by ICAO and the international community.

At the same time the legal conditions under which such regional schemes or bodies are able to provide optimal benefits for States and regions concerned, and thus to lead to the actual enhancement of aviation safety, have not yet been subject to comprehensive research.

1.5   RESEARCH METHODOLOGY AND MAIN SOURCES USED

The methodology used in this study is in the first place based on analysing case studies of existing RASOs. In this respect a *core sample* of fourteen organisations was selected, the list of which is attached as Appendix. Where a RASO functioning today had a predecessor or an *institutional forerunner*, this has also been studied to the extent necessary. For this purpose the founding documents of all RASOs from the core sample were obtained and studied, as well as other available documents relevant to the organisations in the sample.

References to other RASOs, that are not included in the core sample, or their institutional forerunners, are also made in the study when needed to extrapolate the findings or illustrate a certain observation.

A more detailed case study has been performed on the EASA and the EU aviation safety system in general, as it can be considered at present as the most comprehensive regional civil aviation safety system in operation. In this respect the archives of the EU Council in Brussels have been consulted. A selection of materials has also been obtained from the archives of ECAC in Paris for the purpose of the analysis of EASA's predecessor - the Joint Aviation Authorities (JAA).

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[44] ICAO, 'Assembly Resolution A37-21: Cooperation with regional organizations and regional civil aviation bodies', (37th ICAO Assembly, 2010).
[45] Assembly Resolution A38-5, *supra* note 32.

Primary material to supplement the case studies was also derived from the 2010 HLSC which took place in Montréal, 29 March - 1 April 2010, and in which the author participated, and the following symposia and conferences on regional aviation cooperation:

(1) Symposium on Regional Organisations organised jointly by ICAO and the European Commission, Montréal, 10-11 April 2008;
(2) Symposium on Regional Aviation Safety Agencies organised by EASA, AFCAC and the Civil Aviation Authority of Zambia, Livingstone, 13-15 July 2009 (author participated);
(3) ICAO Symposium on Regional Safety Oversight Organisations (RSOOs), Montréal, 26-28 October 2011 (author participated);
(4) ACAC/ICAO Seminar/Workshop on Regional Safety Oversight Programmes, Rabat/Morocco, 10-12 December 2012.

In addition ICAO documentation related to regional cooperation and RASOs, including the relevant ICAO Assembly and ICAO Council documentation, has been analysed, as well as the new ICAO manuals on the 'Establishment and Management of a Regional Safety Oversight System',[46] and 'Regional Accident and Incident Investigation Organization'.[47] Reports on the implementation of the USOAP programme and other ICAO as well as EASA safety reports have been used to support the study with up to date and reliable aviation safety data and statistics.

A number of interviews were conducted with people involved in the establishment and running of RASOs in Europe and other parts of the world. The list of interviews conducted is included in the bibliography of the study. All the interviewees contributed in their private capacity.

A review of relevant international, EU and national case law and legislation was conducted to support the discussion on international responsibility and civil liability of States and RASOs for safety regulation and negligent safety oversight.

A review of the literature was conducted focusing mainly on previous writings concerning legal and institutional aspects of civil aviation safety regulation, Chicago Convention and ICAO. The main aviation law journals, including Air and Space Law Journal (ASL), Annals of Air and Space Law (AASL), Journal of Air Law and Commerce (JALC), and ICAO Journal, were reviewed.

In addition, university theses on aviation safety regulation were consulted in the libraries of the Law Schools of Leiden University in the Netherlands, and of McGill University in Montreal, Canada. A summary of the main literature concerning the subject of international law and aviation safety is presented in Section 1.6 below.

A review of the main contemporary writings was undertaken concerning the theory of international organisations, State and international organisations' responsibility, delegation of powers under international law, and enforcement of international law, mainly for the purpose of Chapter 6.

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[46] ICAO Doc. 9734 Part B, *supra* note 3.
[47] ICAO Doc. 9946, *supra* note 3.

Available reports on the effectiveness of the functioning of EU agencies have been also consulted for the purpose of the case study of EASA and the EU system.

Last but not least, the author draws on personal experience of over eleven years of work as a civil servant in both national and regional civil aviation safety administrations in Europe, including in the Civil Aviation Administration of Poland, the Air Safety Unit of the Directorate General for Mobility and Transport of the European Commission, and in the International Cooperation Department of EASA.

The research was finalised in mid-2014, and unless indicated otherwise, the study reflects the situation which existed at that time

1.6   REVIEW OF THE PRINCIPAL LITERATURE ON INTERNATIONAL LAW AND AVIATION SAFETY REGULATION

In the existing literature, the regulation of international civil aviation safety is usually addressed as part of the broader discussion of the general ICAO framework. These studies focus on the presentation of the ICAO regulatory functions, especially the development of the SARPs, and the oversight of their implementation through the USOAP.[48]

As part of the discussion on the effectiveness of ICAO in ensuring 'the highest practicable degree of implementation of SARPs', there are also studies dedicated to the subject of transparency mechanisms, which are used by ICAO as a *quasi-enforcement* tool, and which together with technical cooperation and assistance have contributed to the improvement of civil aviation safety.[49]

One of the most comprehensive works to date addressing the international legal framework for civil aviation safety is the dissertation of Dr. Jiefang Huang, focusing on the notion of aviation safety as an obligation *erga omnes* under international law, and which also advocates closer regional collaboration between States, in order to counterbalance the dominance of the main powers in the ICAO decision making machinery.[50]

In the European context the question of the regulation of Air Traffic Management (ATM) and more generally the implementation of the Single European Sky (SES) has also been addressed in recent studies.[51]

In addition, from the perspective of this study, of particular importance is the work undertaken by Dr. Niels van Antwerpen related to the delegation of tasks and responsibilities in the area of Air Navigation Services (ANS), and the need for safeguarding transparent lines of State responsibility in case of delegation.[52]

As far as the specific issue of RASOs is concerned, some work has been undertaken on describing the process of establishing EASA in the EU and the re-

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[48] Michael Milde, International Air Law and ICAO, (2012); Ludwig Weber, International Civil Aviation Organization: An Introduction, (2007).

[49] Jimena Blumenkron, Transparency and the International Civil Aviation Organisation: Implications of increased transparency in safety audit information, (2011).

[50] Huang, *supra* note 29.

[51] Daniel Calleja Crespo and Pablo Mendes de Leon, 'Achieving the Single European Sky: Goals and challenges'*,* (2011).

[52] Niels van Antwerpen, Cross-Border Provision of Air Navigation Services with Specific Reference to Europe: Safeguarding Transparent Lines of Responsibility and Liability, (2008).

lationship between this agency and its predecessor - the JAA.[53] A very limited number of articles have been published on the RASO concept and their relationship with ICAO.[54]

1.7   STRUCTURE OF THE STUDY

This study is composed of seven chapters, including this Chapter 1 with introductory remarks, five chapters describing the research findings and their analysis, as well as the final Chapter 7 with general conclusions and recommendations.

Chapter 2, which follows, summarises the main principles of the Chicago Convention and assesses their impact on safety regulation at national level. It evaluates the strengths and weaknesses of the ICAO regime and offers explanations on how they influence the effectiveness of the global aviation safety system. Chapter 2 then presents the regional aviation policy of ICAO, including on aviation safety. It argues that regional cooperation should not only be seen as a tool for helping States to raise their level of compliance with SARPs and increase the effectiveness of their safety oversight systems, but also as a way to change the architecture of the current - predominantly national based and largely inefficient – system, into a more efficient Global Aviation Safety Oversight Network (GASON).

Chapter 3 is based on case studies of RASOs and pre-RASOs from different parts of the world, including Africa, South America, the Pacific Region, and the Commonwealth of Independent States. It introduces the notion of a RASO and pre-RASO, presents different types of such organisations and categorises them on the basis of the specific features of their legal and organisational set-ups. Chapter 3 also proposes a RASO definition, taking into account the elements which would stimulate the introduction of the most efficient forms of such organisations.

Chapter 4 is a detailed case study of EASA providing a specific example of a RASO which is part of and relies for its functioning on a Regional Economic Integration Organisation (REIO). This chapter demonstrates how EASA, which is currently the RASO of reference for many other similar organisations, contributes to the improvement of aviation safety and efficiency of regulatory processes, notably by taking advantage of the EU's legally binding and directly applicable legal framework. It demonstrates, from the Chicago Convention point of view, the consequences of the far reaching delegation of safety functions from EU Member States to EASA, and considers the feasibility of transforming this agency into a single civil aviation authority for Europe.

Chapter 5 offers more general observations and conclusions on the extent to which the various functions of RASOs and the continuing evolution of these organisations contribute to the improvement of global aviation safety and achievement of the objectives of uniformity in regulations, procedures and operations in civil aviation. This chapter in particular offers a classification of the dif-

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[53] Frank Manuhutu, 'Aviation Safety Regulation in Europe: Towards a European Aviation Safety Authority', ASL, 25 (2000). Thaddée Sulocki and Axelle Cartier, 'Continuing Airworthiness in the framework of the transition from the Joint Aviation Authorities to the European Aviation Safety Agency', ASL, 28 (2003).

[54] Michael Jennison, 'Regional safety oversight bodies deliver economies of scale and greater uniformity', ICAO Journal, 61 (2006). Ruwantissa Abeyratne, 'Ensuring regional safety in air transport', ASL, 35 (2010). Mikołaj Ratajczyk, 'Regional Safety Oversight Organisations: an overview', The Aviation and Space Journal, X (2011).

ferent levels of delegation arrangements that States use when creating RASOs. It also presents the different types of safety functions that RASOs may exercise, and analyses key trends that can be observed around the world regarding the setting up and functioning of these organisations. It also addresses the functioning of RASOs as international actors.

Chapter 6 examines the consequences that the establishment of RASOs may have in terms of international responsibility and civil liability for wrongful acts in relation to the Member States of the RASO, and third countries, as well as the regional body itself. It clarifies and systematises the general principles and concepts concerning the attribution and delegation of State safety functions to aviation authorities from the perspective of domestic and international law. Chapter 6 also examines whether there are any provisions in the Chicago Convention or its Annexes which could limit the possibility of delegating State safety functions to RASOs, or more generally to exercising these functions on a non-national basis. On this basis it considers the conditions which would have to be met in order to trigger international responsibility of the RASO or its Member States. Chapter 6 also conducts a review of case law and principles related to tort law liability of civil aviation authorities and extrapolates the findings of this review to RASOs functioning. Finally, it assesses the need for amending the Chicago Convention in view of the emergence of RASOs.

Chapter 7 formulates general conclusions of the study, makes recommendations based on its findings, and suggests further areas of research.