Section 2

AVIATION SECURITY BACKGROUND

September 2004

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2.1 Summary

- Three distinct phases in aviation terrorism have emerged during the last 50 years:

  - Phase 1: 1948 to 1968 - flight from persecution or prosecution.

  - Phase 2: 1968 to 1994 - the political phase.

  - Phase 3: 1994 to date - the aircraft as a weapon of destruction.

- These phases are marked by major terrorist incidents including Lockerbie, Scotland in December 1988 and the events of 11 September 2001. Hijacking and sabotage have been a consistent approach used by terrorists, what has changed is the philosophy behind the attacks.

- There are a number of international organisations associated with aviation security policy. These organisations have the essential tools to enable standardised national programmes to be established worldwide, but until recently have been unable to ensure implementation of their rules.

- Historically, improvements to aviation security have been reactive, responding to each crisis as it occurs. States have adopted (or not) recommendations put forward by the various international bodies resulting in an approach that is disjointed and incremental rather than a coherent global standardised system essential to address the growing terrorist threat.

- Aviation security policy proposed after Lockerbie in 1988 was not mandatory and on 11 September 2001, most States had not implemented many of the regulations put forward to improve the situation (e.g. passengers and hold baggage screening and positive baggage reconciliation).

- The events of 11 September 2001 resulted in significant policy decisions and the introduction of legislation, in particular Regulation (EC) No 2320 / 2002 in Europe and the Air Transportation Security Act (ATSA) in the US, both of which resulted in fundamental changes to the way aviation security is conducted and managed across the world.

2.2   Introduction

Security has always been a priority for the European aviation industry. Particular events have been catalysts for change in how aviation security measures have developed over the years. In particular, the bombing of Pan Am flight 103 over Lockerbie in Scotland in 1988 and the more recent events of 11 September 2001 have resulted in dramatic improvements in security standards and their implementation across Europe.

This section reviews the background and history of aviation-related terrorism and the development of security policy measures. This section also examines the organisations at the forefront of the development and implementation of aviation security policy and outlines some of the key policy decisions, legislation and measures implemented as a response to the terrorist threat.

2.3   Background and history of aviation security

Since its early beginnings, the aviation industry has been a target for acts of violence and terrorism. Today, modern terrorism and international civil aviation are closely linked.

It is unfortunate to note that most major advances in aviation security have occurred as a direct result of terrorist activities. Appendix B provides a brief chronology of the major aviation terrorist incidents.

Three distinct phases have emerged during the last 50 years. These phases, together with policy, legislation and measures introduced as a direct result of these incidents are detailed in the following paragraphs.

2.3.1   Trends – the 3 phases of the threat

> Phase 1: 1948 to 1968 - flight from persecution or prosecution.

> Phase 2: 1968 to 1994 - the political phase.

> Phase 3: 1994 to date - the aircraft as a weapon of destruction.

2.3.1.1   Phase 1: 1948 to 1968 - Flight from persecution or prosecution

Spanning 1948 to early 1968, this era was characterised by air piracy or 'hijacking' of aircraft where individuals fleeing a State to avoid persecution or prosecution viewed hijacking aircraft as a fast and convenient means of achieving this aim. An early example occurred on 6 April 1948 when three crew members (including the pilot) and twenty one of the twenty six passengers hijacked a Ceskoslovenske Aerolinie (CSA) internal flight from Prague to Bratislava landing in the US Occupation Zone in Munich.

Whilst as a primary means of escape, hijacking has reduced; recent events in China demonstrate that it is not totally obsolete. During the early part of 2003, a number of hijackings were reported where individuals were attempting to reach Taiwan from China.

2.3.1.2   Phase 2: 1968 to 1994 – The political phase

The apolitical nature of aviation terrorism experienced in Phase 1 changed during this phase. 1968 is seen as the beginning of 'modern terrorism' and the link between politics and terrorism against civil aviation.

Although hijacking was still the civil aviation terrorist's most popular tactic (between 1967 and 1996, of the 1,033 incidents against airlines 914 (88%) were hijackings[1]), the terrorist organisations began to use hijackings and bombings as a way of calling attention to their cause.

The aircraft was seen as a proxy for the State with the terrorists attempting to utilise the vast media potential of a hijacking or bombing to exert pressure on the State to change its policy or policies. The objectives of these attacks were invariably to:

• Embarrass their opponents (governments and other terrorist organisations).

• Damage the economy of the target State.

• Use it as a tool for extortion, either for the release of imprisoned colleagues and/or for money.

This phase is marked by three significant acts of aviation terrorism:

• In June 1985, Lebanese terrorists diverted TWA flight 847 en route from Athens to Beirut. One passenger was killed during the two week ordeal; the remaining 155 passengers were released. This hijacking, together with an upsurge in Middle East terrorism, resulted in a number of US actions, among them the International Security and Development Cooperation Act of 1985 that made Federal air marshals a permanent part of the FAA workforce.

• 1985 also saw the bombing of an Air India flight when ground staff allowed a bag with no confirmed seat holder to be checked through to its final destination. This incident led to the inauguration of the International Civil Aviation Organisation's (ICAO) Aviation Security Panel and the rewriting of Annex 17 (Annex 17 (Security) is a Security manual containing operating guidelines and Training Programmes – it is considered the 'rulebook' on aviation security and outlined later in this section).

• On 21 December 1988, enroute from London to New York, a bomb brought down Pan Am flight 103 over Lockerbie, Scotland. All 259 people onboard were killed, as well as 11 people on the ground.

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[1] Ariel Merari, "Attacks on Civil Aviation: Trends and Lessons", in Aviation Terrorism and Security, Paul Wilkinson and Brian Jenkins, 1999

2.3.1.3   Phase 3: 1994 to date – The aircraft as a weapon of destruction

This phase is considered to have begun on 24 December 1994, when Algerian terrorists hijacked Air France flight 8969, enroute to Paris from Algiers. The French government refused the aircraft landing rights at Paris as they had received intelligence that the hijackers intended to blow up the aircraft over the city.[2] On diverting to Marseilles, French police commandos stormed the aircraft and successfully rescued the passengers and crew.

This incident marked a change in tactics for terrorists. Their use of terrorism directed against civil aircraft was not new; using the aircraft to target an entire city was. International civil aviation had become a battle ground for terrorists and aircraft a weapon.

More recently on 11 September 2001, four passenger aircraft were hijacked with two of the aircraft deliberately flown into the New York World Trade Centre. Both 110-storey buildings were demolished within an hour of impact, killing more than 2,800 people. A third aircraft was deliberately flown into the Pentagon in Washington DC.

The events of 11 September 2001 signalled a major change in terrorist activity. With the advent of suicide attacks, the intention is to inflict maximum collateral damage and loss of life. Phase 3 is considered the most dangerous era and certainly the most difficult to defend against.

This unprecedented attack resulted in an immediate and drastic heightening of air transportation security across the world.

2.4   The key organisations involved with improving aviation security

This section of the report provides an overview of the key organisations involved in the development and implementation of aviation security policy across the EU and the rest of the world.

From the early part of the 20th Century, two aviation bodies have been at the forefront of international civil aviation:

- **International Civil Aviation Organisation** (ICAO – the aviation wing of the United Nations).

- **International Air Transport Association** (IATA - the trade association of the world's scheduled airlines).

When aviation terrorism first threatened commercial air services, both organisations took a leading role and many of today's standards, procedures and legislation owe their origins to this early reaction.

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[2] Peter Harclerode, Secret Soldiers, 2001

More recently, two other international organisations have been working with ICAO and IATA to enhance aviation security:

- **The European Civil Aviation Conference (ECAC).**

- **Airports Council International (ACI).**

This section also provides an overview of two organisations at the centre of aviation security policy in the US:

- **Federal Aviation Administration (FAA).**

- **Transportation Security Administration (TSA).**

2.4.1 International Civil Aviation Organisation (ICAO)

The International Civil Aviation Organisation (ICAO), a non-governmental organisation body within the United Nations, came into being on 4 April 1947. ICAO was formed as a result of the ratification of the treaty developed at the Convention on International Civil Aviation (also known as the *Chicago Convention)* on 7 December 1944. ICAO comprised 188 contracting States in November 2003[3].

ICAO's aims and objectives are to "develop the principles and techniques of international air navigation and to foster the planning and development of international air transport"[4].

ICAO's role in enhancing civil aviation security has concentrated on the development of standards and recommended practices (SARPS).

These standards and practices comprise 18 technical annexes to the Chicago Convention and, where implemented, provide a consistent and appropriate level of security worldwide.

ICAO's SARPS are developed and published through a tiered committee structure. Member States are urged to implement these SARPS. It is important to note that ICAO has no powers of enforcement over its members and Governments are able to 'opt out' of regulations which, for one reason or another, they find unacceptable.

ICAO's rules and guidelines are created through the Aviation Security Panel, a specialist body inaugurated in 1985 following the bombing of an Air India Boeing 747. At inception, the Panel was tasked with reviewing international security standards and rewriting Annex 17 (the rule book of aviation security outlined later in this section) to the Chicago Convention.

The resulting work by the Panel remains the basis of today's international security regulations.

A combination of three ICAO initiatives: **Annex 17 (Security)**; **a Security manual containing operating guidelines**; and **Training Programmes** – should enable any State to develop its own efficient response to terrorism aimed against civil aviation.[5] The Tokyo, Hague and Montreal Conventions provide the basis for international law in respect of unlawful interference with aircraft.

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[3] ICAO website, Contracting States.
[4] ICAO Website, Objectives of ICAO.
[5] Aviation Terrorism and Security, Paul Wilkinson and Brian Jenkins, 1999.

Despite ICAO's efforts, the voluntary nature of enforcement of its rules and guidelines means that effective aviation security exists in only a minority of States around the world.

2.4.2 International Air Transport Association (IATA)

IATA, originally founded in 1919, is the trade association for the world's scheduled airlines. Flights by these airlines comprise more than 95% of all international scheduled air traffic.

IATA's principal goal, included in its articles of association, is to "promote safe, regular and economical air transport for the benefit of the peoples of the world, to foster air commerce and to study the problems connected therewith".

IATA's membership comprises more than 280 airlines worldwide, ranging from major scheduled carriers to small inter-island operators.

IATA's secretariat has, from the beginning of terrorist activity against civil aviation operations, adopted a role of developing new initiatives to counter terrorism.

2.4.3 European Civil Aviation Conference (ECAC)

ECAC was founded in December 1955 by 19 States as an intergovernmental organisation. In close liaison with ICAO and the Council of Europe, ECAC's aim is to "promote the continued development of a safe, efficient and sustainable European air transport system that has regard to environmental requirements."[6]

In so doing, ECAC seeks to harmonise civil aviation policies and practices amongst its Member States and promote understanding on policy matters between its Member States and other parts of the world.

ECAC's activities are consultative in nature; however, decisions are not binding on its Member States. Thus, any action taken by the Conference has to be transformed into national law and policies in order to become mandatory.

ECAC is a subordinate body to ICAO and regional in its responsibility. Four Member States (UK, France, Germany and Italy) are G7 powers and permanent members of the ICAO Council. The USA and Canada, both members of the G7, have permanent observer status at ECAC meetings. The balance of States making up ECAC's membership is mainly the industrialised States with a level of affluence higher than that of the average ICAO State.

ICAO must also allow for the differences in economic and managerial capability of civil aviation authorities in the developing world. ECAC's strength comes from the largely common purpose and background of its members. The Conference, when it meets on specialised subjects, is able to bring together small gatherings of experts from its Member States.

In security terms, the level at which security standards can be set by ECAC is considerably higher than can be achieved by ICAO.

Acting independently of ICAO, ECAC can adopt procedures well in advance of those established by the UN body and indeed it can usually draw on its Member States' collective experience of new procedures when proposing or supporting the introduction of standards and recommended practices in the world forum.

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[6] ECAC website.

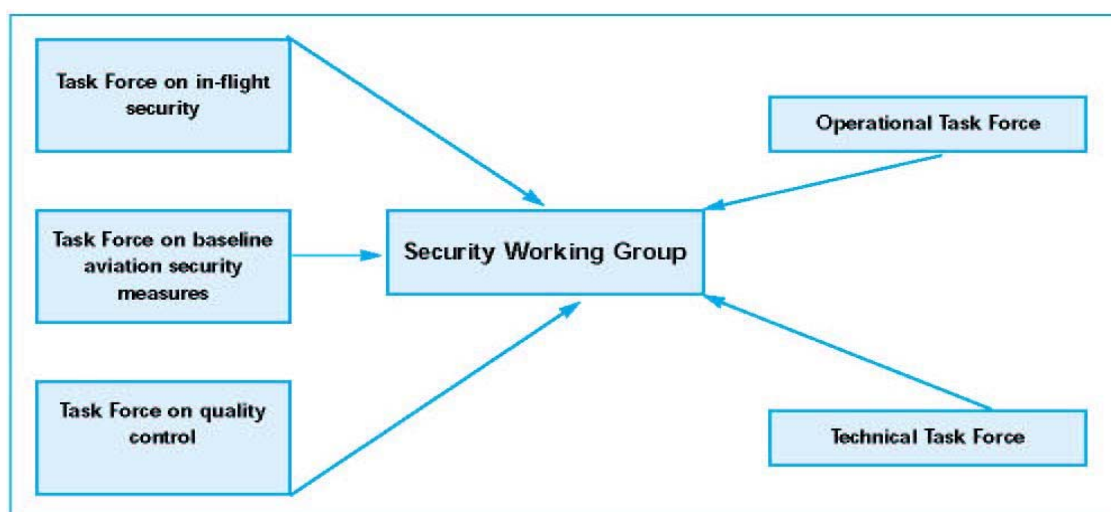IRISH AVIATION AUTHORITY

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Despite this, ECAC shares a common issue with ICAO – neither is able to enforce its rules on its members. They are associations and have no powers to ensure compliance of their members.

2.4.3.1   ECAC Security Working Group

Within ECAC, aviation security is the responsibility of a subgroup referred to as the Security Working Group. Policies are developed by five sub-divisions (Task Forces), which report directly to the Security Working Group.

IATA, the International Federation of Airline Pilots' Associations (IFALPA) and ACI all send representatives to the ECAC meetings.

Figure 2-1: ECAC Security Working Group and Task Force Structure

Source: ECAC

ECAC's main achievements in the field of aviation security consist of:

- The development of a European aviation security manual "Document 30".

- The establishment of a security audit programme.

- An integration and technical assistance programme, including research and training programmes carried out via the ICAO-ECAC European Aviation Security Training Institute (EASTI).

These achievements are outlined later in this section of the report.

2.4.4 Airports Council International (ACI)

While ICAO, IATA and ECAC remain at the forefront of international aviation rule making, ACI has also played a role in enhancing aviation security across the world.

ACI is the representative industry body of the world's airports with a membership comprising 554 airports and airport authorities operating over 1,500 airports across 169 States and territories.[7]

With similar goals to IATA, ACI sees its role as fostering co-operation among airport administrations and with other partners in world aviation. In this capacity, ACI provides a forum for airport administrations to meet and discuss a wide range of mutually beneficial subjects.

The group responsible for aviation security within ACI is the Security Standing Committee. This Committee covers security in airport design; passenger and baggage screening; access control; security technology; the impact of security on airport operations; cargo security; contingency planning for natural disasters; and measures to combat biological and chemical threats to aviation.

2.4.5 Federal Aviation Administration (FAA)

The significance of the US aviation industry means that US rules and regulations frequently impact international carriers and airports in other States. As such, a brief outline of the role of the FAA and more recently the Transportation Security Administration (TSA) in enhancing aviation security in both the US and the rest of the world is included. Section 7 of this report provides a more detailed account of the two US organisations.

The Federal Aviation Agency was established in 1958 as the branch of the US government responsible for the safety of civil aviation. The Agency changed its name to the Federal Aviation Administration (FAA) in 1967, and became part of the Department of Transportation (DoT). Since then the FAA has been the leading authority for the civil aviation industry in the US.

The FAA's mission is to provide a safe, secure and efficient global aerospace system that contributes to national security and the promotion of US aerospace safety. The FAA issues regulations, rules and guidelines to all aviation equipment operators in the US and the rest of the world through Airworthiness Directives, Federal Aviation Regulations (FARs) and Special Federal Aviation Regulations (SFARs).

FAA rules are developed in a largely US domestic environment and may be influenced by US domestic commercial concerns. Regulations can differ from those in force elsewhere in the world.

2.4.6 The Transportation Security Administration (TSA)

Enactment of the Aviation and Transportation Security Act (ATSA) on 19 November 2001 resulted in the establishment of the TSA.

A department within the US Department of Homeland Security, the TSA has overall responsibility for the security of all modes of transportation within the US.

The TSA's objective is to protect all of the US' transportation systems (including aviation) "to ensure freedom of movement for people and commerce"[8]. ATSA and the TSA have resulted in fundamental changes being made to the way in which aviation security operates and is managed

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[7] ACI Website, November 2003.
[8] Source: TSA website.

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in the US. For the first time in US history, aviation security is the responsibility of a single branch of government.

The next part of this report examines some of the key European and US legislation and measures introduced in recent years.

2.5 Key legislation and measures impacting European aviation policy

The past 30 years have seen some key pieces of legislation introduced as a consequence of aviation terrorism, some of which are outlined below.

2.5.1 ICAO Tokyo Convention

In the early 1960s, the international aviation community recognised the growing seriousness of air piracy. In 1963, the Convention on Offences and Certain Other Acts Committed on Board Aircraft (known as the Tokyo Convention) was drafted, requiring the prompt return of hijacked aircraft and passengers.

2.5.2 ICAO Annex 17

The ICAO annex that governs aviation security is Annex 17 (Security: Safeguarding International Civil Aviation Against Acts of Unlawful Interference). Annex 17 is considered to be the rulebook of aviation security and details what is required to produce a valid national aviation security programme. Annex 17 is seen as a compromise document designed to balance the needs of civil aviation seen through the eyes of security specialists with political and economic considerations demanded by the wide-ranging membership of ICAO.[9]

The 1985 bombing of the Air India flight led to the inauguration of ICAO's Aviation Security Panel and the rewriting of Annex 17. Amendment 10 to Annex 17, which came into force on 1 July 2002, is believed to represent the most substantial revision that the Annex has undergone.

2.5.3 ICAO activity

Since 11 September 2001, ICAO has convened numerous meetings and working groups including:

- ICAO Council meetings.

- ICAO Avsec Panels.

- Working Group on ICAO Audits.

- Review of the ICAO Security Manual.

- Working Group on New and Emerging Threats.

- High Level Ministerial Meeting.

The High Level Ministerial Meeting, held in February 2002, resulted in the approval of the establishment of an ICAO Universal Security Audit Programme. Funding has been provided in the region of €15 million between 2002 and 2005.[10]

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[9] Rodney Wallis, The Role of the International Aviation Organisations in Enhancing Security, 1999.
[10] Thena Position Paper Security Issues, 4 October 2002.

2.5.4 The Hague and Montreal Conventions

On 16 December 1970, 50 nations signed the Convention for the Suppression of Unlawful Seizure of Aircraft (the Hague Convention). This convention categorised hijacking as a criminal rather than as a political act. The 1971 Montreal Convention, which came into force in 1973, strengthened the earlier agreement.

Following the loss of Pan Am flight 103, ICAO proposed a revision to the Warsaw Convention of 1929, the legislation that addresses compensation in cases of international air accidents. This revision, to the Montreal Convention, came into force on 4 November 2003[11], almost 15 years after the Lockerbie disaster, and replaces the Warsaw Convention.

2.5.5 ECAC Document 30

ECAC's Document 30 (Doc 30) is the European aviation security 'manual', developed over the past 30 years by ECAC's Member States and containing the European aviation security policy.

First authorised in 1985, Doc 30 was largely based on ICAO's international security procedures (Annex 17). More recently, this has turned full circle with policies adopted by ECAC in Doc 30 subsequently being included in ICAO Annex 17.

The events of 11 September 2001 resulted in a revision to Doc 30, which was completed early in 2002.[12]

2.5.5.1 The ECAC airport audit system

The primary objectives of the ECAC Airport Audit System are to:

- Assess the implementation of Doc 30 recommendations at nominated airports.

- Identify areas of needed improvement and provide appropriate authorities with advice and technical expertise. The programme is to be carried out in a spirit of cooperation with audited Member States.

- To contribute to the harmonisation of security measures in the ECAC area.

- To facilitate the development of one stop security (ECAC's Common Secure Area, outlined later), which supposes that the recognition of security measures has been taken at the airport of origin.

ECAC audits are carried out on a voluntary basis by international teams. The ECAC auditors are trained and certified by 'EASTI', the ICAO-ECAC European Aviation Security Training Institute. The success of the ECAC audit system has resulted in ICAO developing its own audit system, based on the methodology developed by ECAC.

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[11] ICAO website – www.icao.int/icao/en/nr/2003/pio200314.htm
[12] Thena Position Paper Security Issues, 4 October 2002

2.5.5.2   ICAO-ECAC European Aviation Security Training Institute (EASTI).

Inaugurated in November 1997, EASTI carries out both research and training activities. It provides a wide range of ICAO aviation security courses for the whole European region, in the belief that close cooperation for training is essential in order to achieve consistency and higher standards in aviation security.

EASTI frequently organises theme-oriented workshops concentrating on specific aviation security issues, most often in joint ventures with other aviation partners including: IATA, the Association of European Airlines (AEA), the European Union, the International Federation of Air Line Pilots' Association (IFALPA) and ACI.

2.5.5.3   Third world State advice

Another of ECAC's policies is the use of its guidelines to advise third world States on security methodology. ECAC's interest in security standards at airports outside Europe stems from the reality that there is little point safeguarding air transport operations outbound from European airports if the aircraft, their crews and passengers are to be left vulnerable on their return.

The importance of this policy was underlined in 1996 and again in 1997 when a British Airways aircraft, departing from a developing world airport, carried stowaways in the nose-wheel bay of the aircraft. If it was possible for would-be refugees to access an aircraft undetected, terrorists could plant an explosive device in this very vulnerable position.

Following the events of 11 September 2001, the European Council of Ministers determined that ECAC's Doc 30 and the key measures included in it (e.g. the national quality control programme and 100% hold baggage screening) would become the basis of the new EU regulations on aviation security.

2.5.6 The ECAC 'Common Secure Area'

During ECAC's Symposium in 1996, the ECAC 'common secure area' was recommended. The Common Secure Area, commonly known as One Stop Security (OSS) is a step towards the proposed harmonisation of security measures throughout the ECAC region. The aim of OSS is to apply the appropriate security measures at the point of origin only, thereby removing the requirement for these measures to be repeated at the point of transfer[13]. In order to achieve this objective, Doc 30 required updating with an airport audit system to be included.

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[13] ACI Europe Position on the one stop security concept, April 2001.

2.5.7 New EU rules on aviation security following the 11 September 2001 attacks

On 10 October 2001, the European Commission proposed the adoption and enforcement of common security rules for civil aviation across the Member States.

Based on ECAC Document 30, these rules aimed to increase aviation security for both international and domestic flights.

The main objectives of the Regulation were to:

- Establish and implement appropriate Community measures, in order to prevent acts of unlawful interference against civil aviation.

- Provide a basis for a common interpretation of the related provisions of the Chicago Convention, in particular its Annex 17.

These objectives were achieved by the setting up of common basic standards for aviation security measures and appropriate compliance monitoring mechanisms.

The rules were predominantly concerned with:

- Control of access to sensitive areas of airports and aircraft.

- Control of passengers and their hand luggage.

- Control and monitoring of aircraft hold luggage.

- Control of cargo and mail.

- Training of ground staff.

- Definition of specifications for the equipment for the above controls.

- Classification of weapons and other items which it is prohibited to bring on to aircraft or into the sensitive areas of airports.

In view of the degree of technical detail of the standards to be implemented in the draft Regulation, the Commission proposed adopting the implementing measures needed with the support of a committee of representatives of the Member States. The measures would be implemented gradually in a realistic manner to take account of the time needed to train personnel and alter infrastructure. In the event of a more specific threat, Member States would be able to adopt special measures.

2.5.8 Regulation (EC) No 2320/2002 and Associated Implementing Legislation

In December 2002, through Regulation (EC) No 2320 / 2002, the Commission established common rules in the field of civil aviation security across all Member States. Based on the current recommendations of ECAC Document 30, the main objectives of the Regulation were to:

- Establish and implement appropriate Community measures, in order to prevent acts of unlawful interference against civil aviation.

- Provide a basis for a common interpretation of the related provisions of the Chicago Convention, in particular its Annex 17.

The level and quality of aviation security in Europe is widely considered to have improved significantly since the introduction of Regulation (EC) No 2320/2002. For the first time minimum standards have been mandated on the Member States. This has followed years of inertia in the implementation of common security standards caused by the voluntary nature of the ECAC Doc 30 requirements.

These objectives were achieved by the setting up of common basic standards for aviation security measures and appropriate compliance monitoring mechanisms.

The regulation put forward a number of requirements:

- Within 3 months following the enforcement of this Regulation, each Member State "shall adopt a national civil aviation security programme in order to ensure the application of the common standards referred to". [14]

- Each Member State shall designate an appropriate authority responsible for the coordination and the monitoring of the implementation of its National Aviation Security Programme (NASP).

- Within 6 months following the enforcement of the Regulation, each Member State shall require its appropriate authority to ensure the development and implementation of a national civil aviation security quality control programme so as to ensure the effectiveness of its national civil aviation security programme.

- Each Member State shall ensure that their airports and air carriers providing services from that State establish, implement and maintain airport and air carrier security programmes appropriate to meet the requirements of its national civil aviation security programme. These programmes shall be submitted for approval to and monitored by the appropriate authority.

- Each Member State shall require the appropriate authority to ensure the development and implementation of a national civil aviation security training programme.

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[14] Regulation (EC) No 2320/2002

The Commission has since adopted additional, more detailed implementing legislation to complement framework Regulation 2320/2002, in particular:

- Commission Regulation (EC) No 622/2003 laying down measures for the implementation of the common basic standards on aviation security.

- Commission Regulation (EC) No 1217/2003 of 4 July 2003 laying down common specifications for national civil aviation security quality control programmes.

- Commission Regulation (EC) No 1486/2003 laying down procedures for conducting Commission inspections in the field of civil aviation security.

- Commission Regulation (EC) No 1138/2004 establishing a common definition of critical parts of security restricted areas at airports.

Thus European legislation lays down not only minimum security requirements for all EU airports, but also obligations for Member States to have national quality control programmes and also empowers the Commission to undertake inspections of both airports and national authorities to ensure that the EU standards are being applied fully.

The system of inspections undertaken by the Commission differs significantly with the system of airport audits undertaken by ECAC (and described in 2.5.5.1). Firstly, the Commission inspections are fulfilling a control on the correct application of legislation. Secondly, the inspections of EU airports by the Commission are unannounced. Thirdly, the results of Commission inspections are shared with all EU Member States in order to ensure a maximum degree of trust in the application of the standards across the EU. Fourthly, the Commission is seeking to perform a high number of inspections – some 50 airports per year, plus inspections of national authorities.

The level and quality of aviation security in Europe is widely considered to have improved significantly since the introduction of Regulation (EC) No 2320 / 2002 together with a system of legally-binding inspections. For the first time minimum standards have been mandated on the Member States. This has followed years of inertia in the implementation of common security standards caused by the voluntary nature of the ECAC Doc 30 requirements. The Commission inspections programme is also ensuring that the legislative standards do apply not only in theory but in practice in the European Union.

2.5.9 Other measures to improve aviation security

- **Passenger Profiling and Magnetometers (Metal Detectors).** Following the hijacking of eight aircraft to Cuba in January 1969, the FAA created the Task Force on the Deterrence of Air Piracy. This Task Force developed a hijacker "profile" that could be used along with metal detectors (magnetometers) in the screening of passengers.

- **Baggage Screening.** The 1970s saw the introduction of basic x-ray baggage screening which came about in response to a shift in tactics away from the gun and toward the bomb. The introduction of smart X-ray and Computed Tomography (CT) baggage scanning occurred in response to the increasingly sophisticated materials used to make the bombs.

- **FAA introduced the Explosives Detection Canine Team.** In 1967 the FAA created their Explosives Detection Canine Team Programme immediately after a police sniffer dog found an explosive device 12 minutes before it was set to detonate on a TWA jet bound for Los Angeles from JFK international Airport in New York.

- **100% Hold Baggage Screening (HBS).** The loss of Pan Am flight 103 resulted in a dramatic loss of public confidence in civil aviation shocked the world into taking action. At the beginning of 1989, eight proposals were made by the United Kingdom government to ICAO at a meeting in Montreal. These included additional security measures that, amongst other things, were to result in the introduction of 100% hold baggage screening, and passenger/baggage reconciliation.

  Whilst some States, such as the UK, had been moving ahead with 100% HBS, it took the events of 11 September 2001 and the subsequent intervention of the EU make this standard mandatory within Europe.

  The requirement for 100% hold baggage screening became an ICAO standard, with the coming into force of Amendment 10, Annex 17, on 1st July 2002, with a deadline for implementation of 1st January 2006.[15] ECAC had agreed an earlier implementation date of 31st December 2002. The majority of ECAC Member States met this date. [16] The EU also included this measure in their Regulation (EC) No 2320 / 2002 with the same deadline of 31 December 2002. However the date was deferred by a year. A consequence of this is that HBS, along with the other measures in the regulation, became mandatory for all EU Member States on 31 December 2003.

- **Passenger & Baggage Reconciliation.** After Lockerbie, greater attention was focused on the matching of passengers on board an aircraft to the baggage in the hold (baggage reconciliation) as well as the screening of passengers and baggage.

  Several ways have been found to achieve baggage reconciliation and solutions tend to reflect airport size and the profile of airlines using the airport. All solutions have costs associated with them and whilst in many cases the additional time required is minimal for originating baggage, any solution has to take into account the need to include transfer baggage and any rapid baggage transfers that may take place. A positive aspect of passenger/baggage reconciliation appears to be the reduction in misrouted baggage. The experience at many airports that have introduced this measure in recent years is that airlines have reported far fewer bags going to the wrong destination, resulting in both cost savings for the airline and improved levels of customer service. [17]

  By 1995, the UK had implemented baggage reconciliation systems. The UK was also the first State to implement 100% hold baggage screening (HBS).[18] US carriers at European and Middle East airports were required by the FAA to x-ray or hand-search all checked baggage and match the bags of passengers on board an aircraft to the baggage in the hold.

- **Federal Marshal Programme.** In the US, during October 1969, Eastern Air Lines began using Federal Marshals, with four more airlines following in 1970[19]. Although the basic Marshal system proved effective, a hijacking by Arab terrorists in September 1970, during which four airliners were blown up, convinced the White House that stronger steps were needed. On 11 September 1970, President Nixon announced comprehensive anti-hijacking measures that included a broadened Federal Marshal programme.

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[15] THENA, Position Paper on Airport Security Issues, 4 October 2002.
[16] THENA, Position Paper on Airport Security Issues, 4 October 2002.
[17] THENA, Position Paper on Airport Security Issues, 4 October 2002.
[18] UK DfT Website.
[19] US Centennial of Flight Commission, website. www.centennialofflight.gov.

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- **IATA's Minimum Security Standards and Complementary Airport Surveys.** In the 1980s, IATA established a series of minimum criteria for securing airports against acts of terrorism and inaugurated a corresponding programme of airport surveys.

- **The Commission on Aviation Security and Terrorism.** In early 1990, President Bush established the Commission on Aviation Security and Terrorism. This Commission was instructed to report to the White House by May 1990. The Commission recommended 64 changes to US aviation security from both an international and domestic standpoint. These changes included:

  - Changing the emphasis on responsibility for aviation security from US carriers to the Department of State.

  - The FAA should create an active formal technical assistance programme to provide aviation security help to States upon request and concentrate its efforts wherever the threat is greatest.

  - Congress should require criminal record checks for all airport employees.

  - Baggage reconciliation should be mandatory and baggage should not be carried unless the passenger is on board the aircraft.

  Despite Pan Am 103, many of the recommendations were not implemented. The US aviation industry resisted application of security processes that would be funded directly out of their profits or that would have a detrimental impact on the smooth running of operations.

- **The Gore Commission.** In 1996, after the tragedy of TWA 800, the White House established the Gore Commission with a remit to examine the safety and security of the aviation system and, where necessary, make recommendations to address specific deficiencies. The Commission was concerned at the sate of security at airports and made some 30 recommendations to improve the security of US airports and airlines.

  The Gore Commission resulted in a significant investment in security equipment (US$100million+ a year) with the aim of implementing the latest technology (e.g. Explosive Detection Systems (EDS), Explosive Trace Detection (ETD), and Threat Image Projection (TIP)) in airports. Unfortunately, the issue of operating this equipment was not fully addressed and much of it remained idle.[20]

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[20] Jane's, Aviation Security Standards and Technology, 2002.

2.5.10 Further measures to improve aviation security, currently under consideration.

New technology is seen by many as the key to improving security within the aviation industry. Outlined below are some of the technological and non-technological measures under consideration in this area:

- **Biometrics** is the automatic identification or identity verification of an individual based on physiological or behavioural characteristics. The identity of an individual (either passengers or employees) is authenticated by using computer technology in a non-invasive way to match patterns of live individuals in real time against enrolled records.

  The most common physical or behavioural characteristics used by biometrics for individuals are fingerprints, face and hand geometry, iris, palm prints, signature and voice. From these, face geometry, fingerprint and iris scan are emerging as the most effective and accurate methodologies of ensuring a positive recognition.

- **Pre-Flight Measures**

  - Systems to check passenger details against police and immigration suspects lists and systems to check the validity of passports.

  - Acceleration of work on passenger imaging, including metal and explosive detection technology.

  - Extended background checks on airport employees.

- **In-Flight Measures**

  - **Sky Marshals and training to develop a core capability on high-risk flights.** Although there are potential benefits in having trained, armed security officers on board to tackle a hijacker, these benefits may be outweighed by the risks. These include the risk of allowing firearms on board that could damage the aircraft or injure passengers during a struggle, or which could be wrested from the Sky Marshal and used to facilitate a hijack.

  - **Revised flight crew security training.** This will make it more difficult for a hijacker to gain access to the cockpit and take control of the aircraft. Balances have to be struck with safety issues and existing crew working practices. Boeing and Airbus are developing modified cockpit doors and some airlines have installed their own modifications to comply with US and other States' requirements.

  - **Extension of data-link technology to warn of flight deviations.** This would enable warnings to be provided to air traffic control of course deviations etc. outside primary radar coverage. This technology, which is designed for routine aircraft reporting, is installed in relatively few aircraft at present.

  - **A more robust alarm warning system (transponder).** This would allow the aircraft to send a permanent "hijack" code to the ground. Boeing and Airbus are developing kits with availability expected in 2004.

  - **Remote or automated control and recovery of hijacked aircraft.** This would allow aircraft to be flown and landed remotely.

- **Enhanced security regime for flying schools and general aviation.**

2.6   Conclusions

The terrorist attacks on 11 September 2001 have shown that there is an unprecedented dimension to the terrorist threat and that co-ordinated action is required.

As this section of the report has shown, international organisations have limited powers when seeking to enhance aviation security. Their primary role is one of policy development.

ICAO provides the essential tools to enable standardised national programmes to be established worldwide, but is unable to ensure implementation of its standards.

ECAC works within its region to provide policies which will protect civil aviation against changing terrorist tactics. It also offers practical support to Third World States of interest to European civil air operators. Like ICAO, ECAC cannot enforce its own measures.

IATA has pursued a pro-active role, firstly working to develop defences against acts of terrorism and then to promote them through the intra-governmental bodies. IATA seeks to pre-empt such acts by working throughout the world to obtain implementation of international security standards. However, like ICAO and ECAC, their role in respect of implementation is one of persuasion, not enforcement.

Historically, improvements to aviation security have been reactive, responding to each crisis as it occurs. States have adopted (or not) recommendations put forward by the various international bodies resulting in an approach that is disjointed and incremental rather than creating a coherent global standardised system essential to address the growing threats.

Air India in 1985, Lockerbie in 1988 and the events of 11 September 2001 were landmark events bringing aviation terrorism and security to the world's attention. As a result of these events, and in an attempt to address the threat from terrorism, considerable efforts have been made by the international community to improve and standardise aviation security measures across the world.

However, policy proposed after Lockerbie was not mandatory and by 11 September 2001 most States had failed to introduce regulations requiring screening of all passengers and hold baggage on all flights. Positive baggage reconciliation was only being conducted in a small number of States and equipment able to detect plastic explosives was relatively rare.

As a consequence of 11 September 2001, significant policy measure have been adopted and legislation has been introduced, in particular Regulation (EC) No 2320/2002 in Europe and ATSA in the US, which have resulted in fundamental changes in the way aviation security is conducted and managed across the world.