Centre for Defence and International Security Studies

Aviation Security and the Potential Terrorist Threat to Air Cargo

A Global Perspective

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INDEX

EXECUTIVE SUMMARY

1.   This report assesses the threat posed by terrorism to the air cargo industry, particularly cargo carried on all-cargo aircraft, in the light of the tragic events of 11 September 2001. It builds upon two earlier reports on this same subject written by Dr Bruce Hoffman in the late 1990s. However, in contrast to the Hoffman reports which were European in their scope, this report is global in coverage.

2.   All-cargo aircraft are less attractive as a terrorist target when compared to high-profile "flag" passenger carrying aircraft. This view is supported by the empirical data contained in sections 3.6 and 3.7 of this report relating to events post 2000 which complement and support the data and related analyses contained in the earlier, above-mentioned Hoffman reports which examined incidents between 1970 and 2000. It reflects the fact that terrorists generally prefer to inflict a "big event" on the unsuspecting public, one that results in a major loss of life, as would be the case with an aircraft that is carrying a large number of passengers, and that provides maximum publicity for the minimum of effort. They aspire to achieve their social and political aims and attract attention to themselves and these aims by carefully co-ordinated attacks on easy, or 'soft', targets.

3.   In many respects, passenger carrying aircraft represent a softer target for terrorist action than all-cargo aircraft, mainly because the latter operate to different, less publicised schedules and the cargo does not necessarily move directly between points of collection and delivery. Whilst technology certainly exists which could explode a bomb placed in a cargo consignment at any given latitude and longitude above a large city centre, the terrorist would find it extremely difficult, if not impossible, to know whether his cargo consignment would be flown across that point, or indeed whether it would have been flown at all. Thus, the predictability that terrorists strive for in their operations is negated.

4.   This unpredictability factor is also relevant to potential terrorist attacks involving Weapons of Mass Effect (WME). While the air cargo industry should never underestimate the possibility that it could be used in such an attack, and clearly it is not doing this when one already looks at the enormous sums of money invested by air cargo operators in recent years in acquiring and using up-to-date radiation and other detection equipment, the sheer time, effort and, in many instances, significant expense involved in producing these weapons, combined with their potential to cause mass casualties, demands that their movement be controlled at all times, from the point of production through to the final target. Such total control could never be achieved by using the air cargo industry, especially all-cargo aircraft, because of the inherent unpredictability of

movement. The air cargo industry could, however, be an unwitting player in the transportation of constituent parts of a WME.

5.   The report makes use of the recent United Nations report of the "High Level Panel on Threats, Challenges and Change", which examines the nature of terrorism on a region by region basis, recognising the inter-relationship between the terrorist threat and other threats to world peace such poverty and inter-state conflict. It acknowledges the need for a comprehensive system of collective security, treating threats as a whole rather than in isolation. This report uses the same methodology, employing the UN report cluster analysis on a regional basis.

6.   The empirical data contained in this report on sabotage and attempted seizures of aircraft over the past 30 years dispels many of the misconceptions that may exist regarding the frequency of terrorist attack on civil aviation. It shows a significant downward trend in such incidents as airport and aircraft security has been improved and strengthened. The report also highlights significant incidents over the past 5 years, only one of which involved an all-cargo aircraft.

7.   Clearly, while the **threat** of an all-cargo aircraft being used as a weapon in the manner of 9/11 is the same as that for a passenger aircraft, it is apparent that the **risk** is considerably less. This is mainly because an all-cargo aircraft has no passengers who might overpower the crew, and all-cargo operators minimise the risk by vetting and/or screening the crew and by cooperating with airport authorities in enforcing the highest levels of security on the airside area of cargo operating airports.

8.   Post 9/11, governments and regulatory bodies worldwide focussed their collective attention on the aviation industry and introduced some profound legislative changes. The report highlights these changes, starting with Annex 17 to ICAO's Chicago Convention, followed by measures taken in the United States by the Transportation Security Administration (TSA) and finally detailing the work done within Europe to amend ECAC Doc.30, which, in its revised format, was then used as the basis for the mandatory European Union Regulation 2320/2002. Significantly, these two European instruments continue to recognise the lesser threat level to all-cargo aircraft when compared to the more conspicuously high profile passenger aircraft – the 'flag carriers', by providing for different security requirements for cargo intended for transport on all-cargo aircraft. Similarly, recognising different levels and types of threat, the US TSA Notice of Proposed Rulemaking on Aviation Security identifies two critical risk areas in the air cargo environment: the hostile take-over of an all-cargo aircraft leading to its use as a weapon and the use of cargo to introduce an explosive device onboard a passenger aircraft in order to cause catastrophic damage.

9.   The report concludes that a terrorist campaign against the air cargo business in general and all-cargo aircraft in particular is highly unlikely because:

- Stringent aviation security measures introduced both before and since 9/11 make other targets more attractive, as shown in the bombings in Bali, London, Madrid and Sharm El Sheikh;
- If economic targets were again to become popular, big business targets would more likely be easily recognisable multinational conglomerates than air cargo or all-cargo operators; and
- In the case of the air express operators, their meticulous and detailed automated accounting and tracking of all express shipments, combined with their insistence that only safe cargo can be moved by air, based upon the application of known consignor/account customer procedures supported by modern risk management and threat assessment applications, serve as a real deterrent to would-be terrorists.

1.   INTRODUCTION

"The key factors that spawned international terrorism show no signs of abating over the next 15 years. Experts assess that the majority of international terrorist groups will continue to identify with radical Islam. The revival of Muslim identity will create a framework for the spread of radical Islamic ideology both inside and outside the Middle East, including Western Europe, Southeast Asia and Central Asia." – Report of the US National Intelligence Council's 2020 Project.

1.1   The new global security environment, as it has evolved over the last ten to fifteen years, is completely different in nature from the comparative stability of the Cold War. No longer is the world divided between the forces of communism and the forces of capitalism and the attendant surrogate wars. Terrorists are no longer dedicated to the overthrow of a specific government within a specific sovereign state. After the events of 11 September 2001, the world woke up to the fact that non-state actors can and will take on not just a small state, not just a large hegemonic power such as the USA, but the entire Western World.

1.2   The increasing globalisation of the world economy and the proliferation of pan-global communication and transportation networks have together amplified the significance of the air cargo industry. This is typified by the ability of the major air express operators to transport and deliver in excess of 30 million packages every day to over 200 countries around the world, operating within very strict time-frames to support just-in-time supply, production and distribution systems. These same technological developments, however, combined with the ready availability of weapons and explosives, have produced a new environment in which terrorist organisations have an enhanced ability to operate across borders; yet the forces of law and order have recognised this threat and responded to it. There are no longer many 'safe havens' where the terrorist can easily hide – although some still try; regional security organisations, individual states and pan-global corporations have targeted terrorist groups and made so-called 'asymmetric operations' harder to plan, finance and execute; terrorist organisations do still operate – to which the Madrid bombings of 2004 and the London bombings of 2005 bore shocking witness - but they have had to adopt new tactics and develop new modus operandi. Organisations have become more diverse and less clearly defined, some groups have dispersed and others mutated, new players will almost certainly appear. There is a sense in the intelligence and security sectors that there is an Al Qaeda franchise, rather like an automobile company franchise or dealership; a dispersed collection of small groups sailing under the AQ flag of convenience. How is the threat from these groups likely to materialize, transmute and transform in the near and more distant future?

1.3   Aircraft were used as weapons to attack specific targets on 11 September 2001 and the aviation industry has been regarded as high value, high impact, and a high visibility target by terror groups both before and since that date. Two reports for the air cargo industry by Bruce Hoffman of the Rand Corporation[1] examined this relationship - the juxtaposition of aviation security and terrorism - but these reports were written before that fateful date. Regulations have been enacted and countermeasures put in place since then to mitigate the specific threat and protect the aviation industry worldwide. An overt police presence and covert surveillance cameras have been in evidence at all international airports; security screening of passengers for weapons and background security checks of aircrew and ground crews are now the accepted norm. Yet how effectively is 'New Security' dealing with 'New Terrorism' in the 21st century?

> **The aim of this report is to provide a review of the threat posed by terrorism to the Air Cargo Industry and to examine the current security response, thus enabling the industry to attain the optimum allocation of security resources**

1.4   In order to achieve the aim, the report will cover the following topics:

- The Nature of Terrorism – posing the questions
    - What is terrorism?
    - Who are the terrorists?
    - What are their motives?
    - How do they operate?
    - How is terrorism driven by globalisation?
    - How are the terrorists likely to exploit new technology?
    - How does the terrorist threat relate to other threats -UN Report on terrorism?

- Targeting by terrorists – analysing i) how and why terrorist organisations choose their targets and ii) data from a number of sources to show how the aviation industry has been the target of terrorist attacks in the past, with specific reference to a number of important incidents,
- Security Regulatory Framework – examining the historical development of aviation regulations, particularly those pertaining to air cargo.
- Conclusions – drawing together the potential terrorist challenges to the air cargo industry with the security responses in order to assess the true threat.

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[1] Bruce Hoffman, *Aviation Security and Terrorism: Analysis of the Potential Threat to Air Cargo Integrators* (March 1996) and *Aviation Security and Terrorism: A reassessment of the Potential Threat to Air Cargo Integrators* (May 2000)

2. NATURE OF TERRORISM

'Terrorism' is the name we give to the form of basic war that people who are otherwise powerless wage against governments that have caused them some real or imagined grievance and that they cannot wage by conventional means'[2]

2.1 What is terrorism?

The definition above may seem rather over-complicated, but terrorism is a complicated concept and even these words fail to fully paint the whole picture. Just as in Elizabethan Europe "one man's pirate was another man's patriotic privateer", there is the hackneyed phrase that "one man's terrorist is another man's freedom fighter". What Stevens' definition fails to state is that terrorists usually employ terror not against the governments themselves but against innocent members of civil society. There are many definitions of terrorism, indeed Schmid in 1983 listed 103 of them[3]; yet most of them, like the US State Department's, display a degree of moral relativism and a clear national and/or ideological bias. The politically neutral one that will be used here will be:

> **"Terrorism is politically (including ideologically, religiously or socially) motivated violence, directed generally against non-combatants, intended to shock and terrify, in order to achieve a strategic outcome".[4]**

Two things follow from this definition:

- Terrorist attacks are never, despite the assertions of much of the popular press and some politicians, random or mindless. There is always a motive and logic behind each attack, however twisted these may appear to the victim and outside observer.
- The effect of the event will be calculated to intimidate the target group, organization or government and in consequence lead to a change in its behaviour.

2.2 Who are the terrorists?

The myth that terrorists are impoverished, illiterate, ignorant, young men with nothing to live for and everything to die for was exploded once and for all with the aircraft attacks on the World Trade Centre. In common with some of the Marxist-inspired extremists of the 1960s and 70s within Europe, the 9/11 terrorists were intelligent, well-educated individuals from middle class

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[2] Anthony Stevens, *The Roots of War and Terror* (London, 2004), page 80

[3] A Schmid, *Political Terrorism: a Research Guide to Concepts, Theories, Data Bases and Literature* (Amsterdam 1983)

[4] Clive Williams*: Terrorism Explained* (New Holland, 2004), page 7

backgrounds and apparently motivated by religious fervour not economic despair. There seems to be a part of every man's psyche that makes them want to drive off intruders and Dr Samuel Johnson recognised that "every man thinks meanly of himself for not having been a soldier or not having been to sea"[5]. Perhaps this means that every man (and perhaps some women too) has the potential to become a terrorist if they feel that their way of life is threatened or their devotion to their religion is challenged.

2.3　　What motivates the terrorist?

Terrorist groupings can be divided into three broad categories:

- Ideological terrorism, both of the extreme left and extreme right.
- Nationalist and ethnic discontent.
- Religiously motivated terrorism.

Ideological terrorism, both of the extreme left and extreme right, plagued many societies in the seventies and eighties, especially in Western Europe. By the nineties, however, the most prominent of the groups responsible had been crushed and the clear failure of communism to provide an attractive alternative to liberal capitalism and democracy removed their ideological driver.

This does not mean, however, that ideological terrorism will not be revived in a new form, as has already happened with the animal rights cause. The banners of anti-globalization, anti-capitalism and even defence of the environment could well attract support for as-yet unformed, new groups. No country is immune from egocentrics, fanatics and malcontents who can convince themselves that they will save their country or even the whole world through bombing and assassination. Like their far-left predecessors and for the same reasons, however, they are unlikely to gain a significant level of support.

Nationalist and ethnic discontent has been, and continues to be the greatest inspiration for terrorism worldwide. In Europe, for example, the two oldest movements, the Basque Separatist ETA and the IRA in Ireland have proved remarkably durable, as has the somewhat newer Kurdish Workers' Party. Unlike the ideological groups, they have enjoyed a substantial popular base in the populations they claim to represent and protect. However, ETA's support has dwindled and both the other two have declared an end to violent struggle in favour of peaceful politics.

The only highly-active ethno-terrorists remaining today are those making life uncomfortable for Russia over the issue of Chechen independence and stirring up trouble in the other areas of the Caucasus region. The effects within Russia

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[5]Anthony Stevens, *The Roots of War and Terror* (London, 2004), page 97

and the wider implications for the rest of the world are covered separately in the Annex to this report.

As can be seen from the Chechen case, such ethno-nationalist movements tend to confine their attacks to the people and interests of the state they oppose and are careful to be discriminate even when operating abroad; they have no desire to create a backlash against them in other countries, although the piracy perpetrated by the Tamil Tigers is a notable exception to this rule. This general rule will likely continue to be the pattern if such other groups arise.

Religiously motivated terrorism is the major threat to states in the modern world, the main danger being posed by Islamic militants. There are at least six groups with cells in Europe alone, most of them having aims currently limited to changing regimes in their home country or expelling Israel from the occupied territories. They could, however, extend their operations to include countries they accuse of supporting the regimes they wish to topple, especially if they fell under the dominant influence of Pan-Islamism.

At present, this cause is principally espoused by Al Qaeda, which as a movement - it is both more and less than an organisation - has global rather than narrowly national aims. It seeks to: expel westerners from Islamic countries; overthrow secular governments in Muslim states; and ultimately, restore a pan-Islamic Caliphate. With its call to kill crusaders and Jews wherever they are and its desire to inflict maximum punishment on states that support Israel or imperialist intervention in Muslim countries, it poses the greatest terrorist threat today.

It is important to point out that often the above three categories are not clear cut; the sectarian divisions in Northern Ireland were along the religious divide between the Catholics and Protestants, yet the perception that all wealth of the province was concentrated in the hands of the Protestant majority gave the 'troubles' economic, political and ideological dimensions.

2.4 What is the modus operandi of the terrorist?

It is generally agreed that the terrorist wants to create a 'big event'; in the case of Al Qaeda this has been extended to a well co-ordinated attack on a number of targets. There have been attacks on economic and political targets – the oil terminals in Iraq, the USS Cole in Aden and the oil tanker Limburg off the coast of Yemen; however, these have been the exception rather than the rule. Experts agree that most international terrorist acts will either be aimed at a symbol of government or designed to kill and maim large numbers of the public in order to attract attention to the cause.

2.5   The globalisation of terrorism

"The characteristics of the globalisation trend include the internationalising of production, the new international division of labour, new migratory movements from South to North, the new competitive environment that accelerates these processes, and the internationalising of the state…making states into agencies of the globalising world"[6]

The last twenty years has seen a marked acceleration in the trend towards 'globalisation'.   Driven by the increasing ease and availability of worldwide travel, the ongoing revolution in information technology and the creation and expansion of worldwide communications and financial networks, the world has become increasingly distance-less and border-less: in effect, a smaller place.

Unfortunately, however, the benefits arising from the opening of the global communications and transportation networks have not been confined to legitimate entities. Globalisation has also increased the scope and reach of other actors, among them terrorist groups and criminal networks. It has provided the means for terror groups to operate within a global context, to the extent that global terrorism has now become the biggest challenge to the globalisation trend. Furthermore, the intensity and reach of the 'globalised' media has created a platform onto which any terrorist incident can be projected in a matter of minutes, if not in 'real-time'. This enables the terrorist groups to touch a wider 'target audience' and 'publicise' their cause across the world.

2.6   Terrorism and Technology

It is anticipated that most terrorist attacks will continue to employ mainly conventional weapons and techniques but that novelty and surprise will continue to characterise attacks in order to keep counter-terrorist planners off balance. As the London bombings demonstrated, there is an attraction in synchronised attacks as they demonstrate sophistication, planning, command and control and global reach. This was a prime characteristic of the 9/11 attacks.

It is a safe assumption that terrorists will strive to leverage technology to the optimum degree and thus will be interested in advanced explosives such as the fuel/air bomb, robotics, the use of unmanned aerial vehicles (UAV's), advanced IT and biotechnology. But above all, the greatest concern is Weapons of Mass Effect (WME) with a particular focus on the terrorist use of biological agents.
It is important to stress that the nature of terrorism is changing and therefore that countermeasures should also evolve in tandem with the threat. Jason Pate, an American academic, heads the Weapons of Mass Destruction Terrorism Project at the Monterey Institute of International Studies. His remarks are succinct and

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[6] Robert Cox in *"The Globalization of World Politics, An Introduction to International Relations"* John Baylis and Steve Smith (eds), Oxford University Press, Oxford, 1997, pg 15

telling: "Trends in terrorism over the past 15 years indicate that loosely linked transnational networks motivated primarily by religious ideologies seeking mass casualties are replacing more "traditional" terrorists who are motivated primarily by politics. These ominous trends suggest the potential for mass-casualty attacks, and because biological agents could be used in this fashion, the potential for mass-casualty bioterrorism may be at hand."[7]

Defences against the bioterrorism threat are generally weak and all industries, including air cargo, need to be aware of this. The hallmark of asymmetric attack is to attack weakness. At the International level there are very few instruments that are effective against the potential bioterrorist. The 1972 Biological and Toxin Weapons Convention (BWC) is the main international treaty in this area but it has no enforcement or verification mechanism.

George Tenet, recent head of the CIA, remarked that; "*Although terrorists we've pre-empted still appear to be relying on conventional weapons, we know that a number of these groups are seeking chemical, biological, radiological or nuclear agents. We are aware of several instances in which terrorists have contemplated using these materials.*"[8] While the air cargo industry should never underestimate the possibility that it could be used in a WME attack, and clearly it is not doing this when one already looks at the enormous sums of money invested by air cargo operators in recent years in acquiring and using up-to-date radiation and other detection equipment, the sheer time, effort and, in many instances, significant expense involved in producing these weapons, combined with their potential to cause mass casualties, demands that their movement be controlled at all times, from the point of production through to the final target, and such total control could never be achieved by using the air cargo industry, especially all-cargo aircraft, because of the inherent unpredictability of movement. The air cargo industry could, however, be an unwitting player in the transportation of constituent parts of a WME.

2.7   UN Report on Terrorism

The recent report to the UN Secretary General ("A more secure world – our shared responsibility" – Report of the High Level Panel on Threats, Challenges and Change) has addressed the future of global security in general and the threat of terrorism in particular. The report is endorsed by the Secretary General who concludes that:

> "*What is needed is a comprehensive system of collective security: one that tackles both new and old threats, and addresses the security concerns of all states – rich*

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[7] "*Anthrax and Mass-Casualty terrorism*" Jason Pate, Monterey Institute of International Studies

[8] "*Defending America – Terrorist Organisations and States and WMD.*" Anthony Cordesman. Center for Strategic and International Studies (US)

and poor, weak and strong. Particularly important is the report's insistence that today's threats to our security are all interconnected. We can no longer afford to see problems such as terrorism, or civil wars, or extreme poverty in isolation."[9]

This important report notes that terrorism flourishes in environments of "despair, humiliation, poverty, political oppression, extremism and human rights abuse." Significantly the report recognises two new dynamics; firstly the global reach of an armed non-State network such as Al-Qaeda and secondly the aspiration to cause mass casualties. These are significant for the Aviation industry which is itself global and may offer a potential means of inflicting mass casualties, although, for reasons stated elsewhere this report, such developments and threats are mitigated by the way in which air cargo operators in general and express operators in particular actually transact their business.

Significantly the UN Report identifies 6 "clusters" of threats which will endure into the future and this report will use this model with which to measure the nature of the challenge in each region. It allows the placing of the terrorist threat in relation to other threats. The clusters are:

- Economic and social threats, including poverty, infectious disease and environmental degradation.
- Inter-State conflict.
- Internal conflict, including civil war, genocide and other large-scale atrocities.
- Nuclear, radiological, chemical and biological weapons.
- Terrorism
- Transnational organised crime

The United Nations will continue to be crucial in defining the legitimacy of conflict and authorising and endorsing action by international bodies. It is for this reason that the regional reviews in the Annex to this report are harmonised with such a significant and current report.

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[9] From UN website - http://www.un.org/secureworld

3.   TARGETING BY TERRORISTS

3.1   General principles

'Traditionally' motivated terrorists, whether ideological or nationalist, have had a clear political aim in using violence. Their actions have been designed to:

- draw attention to neglected issues and injustices, seizing the imagination of their intended constituency and compelling governments to redress grievances;
- act as a cleansing force in society and at the same time demonstrate the incumbent government's inability to protect its citizens and their property;
- create destabilizing economic problems (and simultaneously provide funds through bank raids, kidnapping, etc);
- create a sense of fear to undermine societal cohesion and faith in government and force the latter into an excessively repressive and de-legitimizing posture;
- force a government into a change of direction, either in domestic or in foreign policy;
- win some international support for the cause;
- maintain discipline within the organisation's own ranks and keep the public cowed and thus unprepared to cooperate with the security forces.

When making targeting decisions, the 'traditional' terrorist is faced with a difficult balancing act between being effective (i.e. putting real pressure on the target government) and being counter-productive (i.e. hardening enemy resolve and endangering support from his domestic and international constituency). While attractive as 'legitimate' targets, attacks limited to the security forces generally fail the first test, save when terrorism is carried out in support of an insurgency when tying down military forces is useful.

Attacks on high-value economic, civilian targets are often seen as more likely to undermine the will of governments and their electorates to resist terrorist demands. They are also generally more vulnerable and thus easier targets. But groups with limited, local aims do not wish to turn neutral or supportive populations against themselves. They therefore confine their attacks to the economic interests of the state they wish to influence.

'New' terrorist groups like Al Qaeda, with global aspirations, have no such desire to confine or restrict their activities. Nor, as the 9/11 attacks on symbolic structures so dramatically demonstrated, do they limit their actions for fear of antagonizing governments and peoples throughout most of the world. Indeed, it could be argued that, for many of their supporters, their ultimate goals are less important than their desire to punish the wicked and destroy the existing order:

propaganda by deed, an over a century old tactic, is satisfying in itself, and no target or means of attack is too outrageous for such terrorists.

Ideally, attacks will hurt the economy of the target country to produce longer-term and not merely transient effects. But this calculation takes second place to the desire to produce terror. This is most easily done by hitting targets that are but lightly protected. It is easier to bomb a nightclub than it is to produce a catastrophic explosion in a nuclear power plant, and small groups generally lack the money and expertise to take on difficult targets.

It is frequently argued that security has to be lucky all the time while terrorists only have to be lucky once. While this may well sum up the general relationship between the two, it is not true of any specific terrorist group. Terrorists need fairly constant success if their organization is to gain additional adherents and funds to thrive and strike again. Failed attacks put little pressure on governments, contribute little to the desired climate of fear and lower the group's reputation. Indeed, failure has a tendency to cause defections of supporters and to induce emasculating splits. Accordingly, terrorists tend both to seek soft targets and to rely on proven methods; when a new vulnerability is found or a new technique proves to work, there follows a rash of imitations.

3.2   The attractiveness of air cargo as a target

The air freight business boomed in the nineties. By 2000, it accounted for 29.7% of international trade by value and by 2004 this figure had risen to approximately 40%.[10] Global economic interdependence, the globalization of business, inventory management concepts like 'just in time' and 'zero stocks', the appearance of new air-eligible commodities and the vast development of high value and limited time-consumable commodities all point to further, accelerating expansion: high value goods are central to the expanding new economy.

Such phenomenal growth also attracted the politicians, especially in the US, who began to highlight the threat to air cargo in high risk areas of the world. They maintained that the growing importance of air cargo operations to economic activity and development made the sector an increasingly attractive target for terrorists. Serious and prolonged disruption would exercise a ripple effect throughout the economy. Moreover, they argued, opportunity flows from a combination of the size of the industry, the 'time-is-money' imperative and the fact that air cargo screening and inspection is less extensive than that of people and their checked baggage for passenger flights.

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[10] Boeing World Air Cargo Forecast, 2002-2003

In 2003, the US Transportation Security Administration [TSA] was also of the opinion that cargo was likely to become, or already was, the primary aviation target for terrorists in the short term.[11] Were the TSA's fears fully justified? Or did they, perhaps, overact somewhat as part of the traumatic post September 11 atmosphere? If they were justified as far as the USA was concerned, need non-American carriers fear the same level of threat?

3.3   Passenger carrying sector of aviation as a 'target'

The passenger aviation industry certainly presents an attractive target for terrorists. Hijacking an airliner carefully selected for the symbolic importance of the carrier and/or the nationality of its passengers brings in its train three highly desirable results: innocent civilian hostages make good bargaining counters to extract political concessions and/or ransoms for the cause; the act of seizing an aircraft demonstrates the inability of a government to protect its citizens; above all, huge publicity attends such an event, possibly over many days, thus getting the perpetrators' message over to the widest possible public.

The last two benefits accrue regardless of the outcome. However, the tightening of security which followed the rash of 100 such hijackings in 1968-69 reduced the incidence of such attacks to 18 *per annum* in the seventies and eighties and 14.4 in the nineties. As hijacking became more difficult, and security forces became more skilled at ending plane seizures violently and successfully, bombing became more attractive to some of the more ruthless terrorists who were unconcerned with the PR consequences. Even so, there were only 67 attempts, successful or otherwise, between 1968 and 1996, again with numbers declining as security was tightened.[12] A more recent analysis of attempted seizure acts shows that the downward trend has continued into the 21st century (see para. 3.5 below)[13]

3.4   All-cargo aircraft as 'targets'

All the attacks mentioned above were mounted against passenger aircraft and all-cargo aircraft were ignored. There are good reasons for this apparent neglect:

- All-cargo air carriers do not meet the criteria of an attractive target. Attacks on a high-recognition airline, probably carrying a majority of passengers from the country of origin, are guaranteed the publicity the terrorist craves. So too are the multiple deaths of civilians, especially women and children. A cargo aircraft lacks the symbolic resonance of flag-carriers and its seizure or destruction will not attract anything like the

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[11] Elias, ibid.

[12] Bruce Hoffman: 'Aviation security and Terrorism: Analysis of the Potential threat to Air Cargo Integrators' (Working paper, St Andrews University, 1997)

[13] Table extrapolated from an article in 'Civil Aviation' magazine - Issue 37 (July 2005)

same media attention: Polar Air, Heavy Lift, Air Bridge, TNT, DHL, UPS or FEDEX do not have the resonance of United Airlines, British Airways or Air France. And the lack of such symbolism would make such an attack seem random and pointless: with no obvious linkage with the perpetrators' goals, the act would be robbed of its political *raison d'etre*.

- Bringing such an aircraft down over a specific city, or at its airport, to cause mass casualties would interest some terrorists. However, the organization of the cargo aviation business and the air express operator in particular makes it extremely difficult to determine precisely where, by what route and when a cargo will be landed. This uncertainty diminishes the attractiveness of the potential delivery system; without generally published schedules, specific flights are difficult to be targeted, at least without the aid of an individual with an extremely detailed knowledge of the air operations and easy access to the aircraft. Of course, a man-portable SAM could be used to shoot down an aircraft as it takes-off or lands, perhaps crashing it into a built-up area. Again, though, a passenger aircraft would be a more attractive target.

- The meticulous and detailed automated accounting and tracking of all-cargo express shipments, combined with the insistence that only safe cargo can be moved by air, based upon the application of known consignor/account customer procedures supported by modern risk management and threat assessment applications, serve as a real deterrent to would-be terrorists. It is exceedingly difficult for them to introduce either bombs or attackers onto all-cargo aircraft without creating suspicious anomalies in standard procedures. Furthermore, if they did manage, or even try, the paper trail and forensic evidence that is inevitably left would materially assist law enforcement in hunting them down.[14]

3.5　Historical trends

If one examines the incidence of sabotage attacks over the last thirty years, it is evident that the aviation industry as a whole has experienced a drop in the number of sabotage acts as a result of enhanced security measures.

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[14] Hoffman, ibid, goes into these points in more detail.

Sabotage Acts
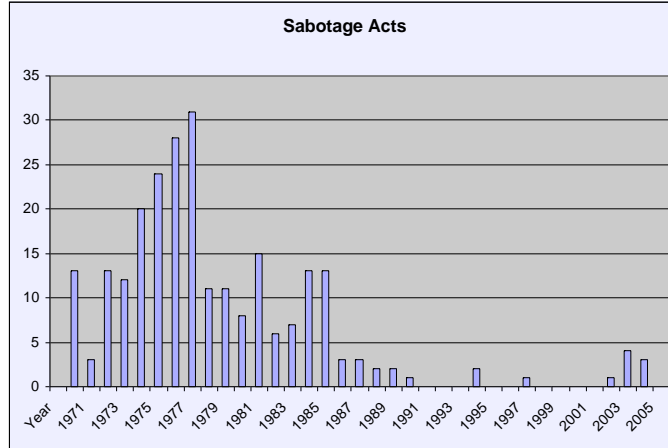
A similar trend can be seen in the number of attempts to seize commercial aircraft over the same period, although the downward trend is not as steep. Although the events of 2001 may have created a 'blip' in this trend, it continued downward in subsequent years.

Attempted seizure acts
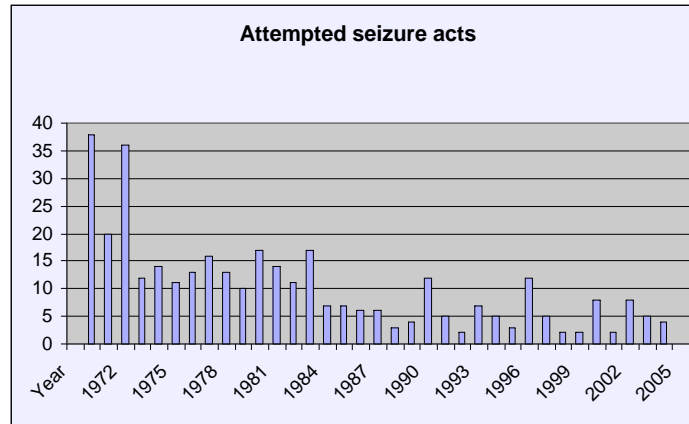
3.6   Recent Terrorist Incidents

A more detailed analysis of a series of incidents within civil aviation in recent years (2000-2005) tends to suggest that many so-called 'terrorist attacks' are often driven as much by purely economic motives – basic theft - as by political and religious considerations. Some are merely acts of apparently disturbed individuals with no apparent motive. [15]

It can be seen from this list of the incidents since 9/11 that only one event, highlighted below, involved an all cargo aircraft, an Airbus that was chartered to the US forces in Iraq and was leaving Baghdad after delivering cargo. It may therefore have been considered a legitimate military target by the insurgents in what might be described as a war zone. However, it is also noteworthy that the weapon used in this incident (a surface-to-air missile) is designed to destroy

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[15] Aviation Security International (ASI) magazine [http://www.asi-mag.com/aw.htm]

military aircraft and when used against the greater bulk of a large commercial aircraft it has less effect. Indeed this aircraft was able to make a successful emergency landing at Baghdad with no loss of life.

Terrorist Incidents involving commercial aircraft since 11 September 2001

Date	Location	Aircraft	Outcome
22 Dec 2001	Paris	Boeing 767 - 300	Reid caught trying to light detonator to shoe bomb.
07 May 2002	Dalian Airport	McDonnell Douglas MD-82	Authorities blamed the crash on a fire started by a passenger who insured his life for $170,000
14 Aug 2002	Bakavu Zaire	Antonov-28	Militiamen shot and killed Captain whilst a/c on the ground. First officer took off again and landed back at base
11 Nov 2002	Cayo Hueso, Florida	AN-2	Hijacked aircraft flew to Florida
28 Nov 2002	Kenya	Boeing 757	Two SA-7's were fired at the aircraft during climb out, but missed. No fatalities.
13 Feb 2003	London Gatwick	Boeing 777	Bengali-born Venezuelan found with grenade on flight from Venezuela.
19 Aug 2003	Oran	Boeing 737	Flew from Algiers to Oran where hijacker surrendered to security services.
17 Sept 2003	Bangkok	Target unknown	Police arrested suspected AQ planning attack on El Al aircraft
22 Nov 2003	*Baghdad*	*Airbus A.300B4-203F*	*The Airbus was hit by a surface-to-air missile while climbing through 8000 feet*
08 Jan 2004	Baghdad	Lockheed C-5B Galaxy	The no. 4 engine was reportedly hit by a surface-to-air missile. The crew reported excessive engine vibrations and declared an emergency. The plane returned to the airport and landed safely.
29 Sep 2004	Bodø Airport	Dornier 228-212	A man attacked the pilots with an axe. Emergency landing at Bodø. The assailant was an asylum seeker whose application for asylum had reportedly been rejected.
24 Aug 2004	Rostov Oblast, Russia	Tu-154	These two incidents occurred with 3 minutes of each other. Carried out by two Chechen women. Incidents were claimed both by Islamic and Chechen rebels. All dead.
24 Aug, 2004	Tula Oblast, Russia	Tu-134	
8 Aug 2005	Caruru, Columbia	DC-3 passenger/cargo	FARC rebels opened fire at a/c on short finals. A/c damaged but landed safely

3.7   Recent Trends

The report by Hoffman[16] relied upon a database compiled from various sources but generally unpublished. It has not been possible to update the tables in that report and some of his deductions cannot be substantiated by the authors of this report. However the following table does show the number of incidents that have occurred year by year, having been drawn from various databases[17] and from work conducted by Martin Lydall, a former Metropolitan police officer.

Clearly these are not all terrorist incidents but the figures from the limited database available reflect the continuing downward trend in incidents worldwide. This is particularly the case since the extra security arrangements were put in place globally post 9/11.

Major Incidents involving commercial aircraft since 2000

YEAR	2000	2001	2002	2003	2004	2005	Total
Incident							
Hijack	23	10	5	7	1	1	**47**
Surface to Air		2	1	4	1	1	**9**
Bomb			2		2		**4**
Destroyed on Ground		4					**4**
Suicide			1				**1**
						Total	**65**
Target Aircraft							
Passenger	22	15	7	8	3	2	**57**
Private							**0**
Mil/ Police		1	2	1	1		**5**
UN / NGO	1			1			**2**
Cargo				1			**1**
						Total	**65**

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[16] Hoffman, ibid

[17] http://aviation-safety.net/database and http://www.airdisaster.com

4. SECURITY REGULATORY FRAMEWORK

4.1 International Civil Aviation Organisation

In 1944, at the invitation of the United States, a convention was held in Chicago as a result of discussions between the US and the Western Allies. Fifty-four States attended this Conference at the end of which a Convention on International Civil Aviation was signed by 32 States. The Convention set up the permanent International Civil Aviation Organization (ICAO) as a means of securing international co-operation and the highest possible degree of uniformity in regulations standards, procedures and organisation regarding civil aviation matters. In April 1947 the Convention was signed and ratified and ICAO came into being. As of September 2005 it has 189 member States.

The Chicago Convention, as it is more commonly known, covers various aspects of aviation but Annex 17 specifically deals with Security: Safeguarding International Civil Aviation Against Acts of Unlawful Interference. Annex 17 is now considered to be the cornerstone of aviation security and details what is required to produce a valid national aviation security programme.

Annex 17 requires each State to have a security organisation and their national regulations apply to that State's aircraft. They are defined in each State's National Aviation Security Programme (NASP). The NASPs normally apply to the Aerodrome Managers, Aircraft Operators (of that State) of passenger and all cargo aircraft worldwide and overseas operators of similar aircraft in that specific country. It also applies to Regulated air cargo agents and Directed catering companies[18].

The events in New York on 11 September 2001 called for rapid responses throughout the aviation industry. The concept of using an airliner as a missile was not unheard of, if one considers the Japanese Kamikaze pilots of World War Two; but it was unprecedented in modern times. ICAO quickly introduced appropriate changes to Annex 17, including the establishment of a Universal Security Audit Programme (USAP) which provides for the conduct of universal, mandatory and regular audits, at both the national and airport level, of the aviation security systems in all ICAO member states.

4.2 United States

On 19 November 2001 the US Congress enacted the Aviation and Transportation Security Act which created the Transport Security Administration (TSA) as part of the Department for Transportation where it had the responsibility for ensuring security in aviation matters as well as other forms of transportation.

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[18] UK NASP Restricted document but typical of National regulatory documents

Subsequently, with strong bipartisan support President Bush signed the Homeland Security Act which was passed on 25 November and transferred the TSA to the newly created the Department of Homeland Security – the most comprehensive reorganization of the Federal government in a half-century. The Department of Homeland Security consolidates 22 agencies and 180,000 employees, unifying once-fragmented Federal functions in a single agency dedicated to protecting America from terrorism[19].

The Aviation Security Advisory Committee (ASAC) is a body of both Federal and industry representatives that was established in the wake of the Lockerbie disaster. In April 2003 three ASAC working groups met to establish ways of improving the security of air cargo. In October 2003, they published almost 40 recommendations which advised the authorities, inter alia, to:

- Strengthen the Known Shipper Program
- Leverage new technology
- Enhance regulation of Indirect Air Carriers (IAC)
- Strengthen security for all-cargo aircraft [20].

The ASAC report also recommended that unknown shipper cargo be allowed on passenger aircraft provided that it is subject to physical screening before it is loaded onto the plane. Such shipments, which had been suspended since 9/11, previously constituted a major source of business. This can be best summed up by the IBM response to the NPRM:

> It is important to note that while the amended regulation will directly affect the day-to-day operations of the regulated parties (estimated 3,800 Indirect Air Carriers (IACs), 226 domestic and foreign aircraft operators, and less than 500 airport operators) there will be an oblique impact upon the 5,000,000 US businesses that use air freight (including over 400,000 currently identified as Known Shippers). Many industries, such as high tech, depend on air to fill many of their transportation demands. Currently, approximately 60% of air freight capacity is provided via passenger aircraft. Removing that capacity from the air cargo system would have an enormous impact upon the multiple billions of dollars of American commerce that flows on this mode of transportation. In addition to air cargo capacity needs, companies like IBM rely on the additional flight availability provided by passenger aircraft to meet customer demands for timely shipments, fulfil demands of our "just in time" manufacturing and distribution systems, and meet emergency needs (e.g., parts for "system down" situations). [21]

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[19] http://www.whitehouse.gov/infocus/homeland/index.html

[20] Aviation Security Advisory Committee Fact Sheet published by TSA 1 October 2003

[21] IBM response to TSA NPRM TSA-2004-19515-119

It will be seen that it is not just the air-cargo industry that will be adversely affected but all aspects of modern business.

The ASAC recommendations were reviewed by the TSA. The TSA then published a Notice of Proposed Rulemaking (NPRM) in Docket TSA-2004-19515-16 on 10 November 200 requesting comments from the public by 10 January 2005. It is significant to note that in the introduction to the NPRM it is stated:

Within the USA, the TSA has identified two critical risks in the air cargo environment:

- The hostile takeover of an all-cargo aircraft leading to its use as a weapon.
- The use of cargo to introduce an explosive device onboard a passenger aircraft in order to cause catastrophic damage.

The magnitude of these risks is determined by factoring in the presence of credible threats and the existence of possible vulnerabilities that a terrorist could exploit. Many steps taken since 11 September 2001 have reduced the capabilities of international terrorist organizations; however, the terrorist threat remains. Likewise, new aviation security requirements have reduced the vulnerability of the air cargo system[22].

Thus, the TSA has recognized at the outset that there are different threat levels and security risks for all-cargo aircraft and passenger aircraft and has accordingly mandated different security requirements A review of these comments shows that the vast majority of industry did not want the restrictive processes being proposed. Even the TSA recognised that the cost of screening every item of cargo could result in an unworkable cost of more than $650 million in the first year of implementation[23].

At the time of publication of this report , the Final Rule concerning the Air Cargo industry has not appeared. Deadlines have come and gone; it was due to be issued on 15 August 2005 and the TSA has been the target of some criticism from various sources including some members of the various sub-committees[24].

So it will be seen that the US carried out major restructuring of the security assets and combined all the elements into a single organisation. Elsewhere in the world the vast majority of the States had a different structure and, in the main, these remain relatively unchanged. Within the UK the responsibility for airborne security transferred to the Department for Transport (DfT) who already had the

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[22]Docket TSA-2004-19515-16 NPRM para1.3.b
[23] See TSA Document Regulatory Evaluation for the Air Cargo Security Requirements NPRM, Table 1
Ten- year Undiscounted Cost Summary for passenger and all-cargo screening
[24] Letter to Secretary Chertoff from Committee of Homeland Security members dated 18 August 2005

responsibility for security on the ground. Similar anachronistic organisational changes were made around the world but what it striking is that through the good offices of ECAC, ICAO and IATA nearly all States have introduced very similar countermeasures

4.3   Europe

In 1951 the Council of Europe decided to investigate the closer cooperation of European States. The process of establishing a European agency was done through the good offices of ICAO initially and the European Civil Aviation Conference (ECAC) was founded in December 1955 by 19 States as an intergovernmental organisation. In close liaison with ICAO and the Council of Europe, the main aim of ECAC is to "promote the continued development of a safe, efficient and sustainable European air transport system that has regard to environmental requirements. 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"[25].

ECAC's policy document, so-called Document 30, is now the European aviation security 'standards manual'. This has been developed over the past 30 years by the ECAC Member States and contains 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 process has turned full circle with policies adopted by ECAC in Doc 30 subsequently being included in ICAO Annex 17. After 11 September 2001, a revised Doc 30 was completed early in 2002.

Recognising the merits of ECAC's work, the EU based its legislation on ECAC's security measures. This is 2320/2002, a mandatory Regulation that came into effect on January 19, 2003 and sets the standards in aviation security at all EU airports.

Regulation 2320/2002 established an Aviation Security Regulatory Committee to ensure technical adoption of the Annex to Regulation 2320/2002 and the development of the necessary implementation tools. The Regulatory Committee is chaired by the Commission and consists of experts representing all Member States. EU Regulation 622/2003 was developed in the Regulatory Committee and contains the operations standards needed to ensure harmonized implementation of standards set forth in Regulation 2320/2002. The implementing Regulation 622/2003, as well as all subsequent implementing Regulations, is also developed in the Regulatory Committee[26].

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[25] ECAC website. http://www.ecac-ceac.org/index.php?content=static&section=page3
[26] European Commission Press Pack - Oct 2004

4.4   International Air Transport Association

Although not a regulatory body but a trade association, the International Air Transport Association (IATA) has a voice that is listened to with respect throughout the industry. It represents over 280 airlines and historically has roots in the technical aspects of aviation but over the years has continued to provide ICAO with the commercial perspective to operations. Today, that pioneering work is reflected in the currently applicable IATA Resolutions dealing with these and many other subjects. Notable examples are:

- Passenger and Cargo Services Conference Resolutions: These prescribe a variety of standard formats and technical specifications for tickets and air waybills.
- Passenger and Cargo Agency Agreements & Sales Agency Rules: These govern the relationships between IATA Member airlines and their accredited agents with regard to passenger and cargo.

IATA, among others, has raised the question of lack of harmonisation;

> While the Commission is proposing that each Member State should test and certify the equipment, we advocate an EU-wide certification. The Commission should appoint competent authorities to perform the certification and establish common equipment standards[27] .

The spectre that individual States may introduce differing standards of equipment performance drives a wedge through EU standardisation and the benefits that it brings. Already in Europe there is speculation that France may wish to use a different standard for the screening machines in common use elsewhere.

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[27] William Gillard, Director IATA. Speech AVSEC 2003 Athens 18/11/2003

5.   CONCLUSIONS

5.1   A campaign against the air cargo business would make sense only to a terrorist group for which economic effects took primacy over the desire to create terror. Hostility to capitalism and globalization would provide such motivation. However, as already noted, there is, as yet, no group in existence that is dedicated to such an enterprise, and it is difficult to imagine that such a group would find enough recruits, funding and expertise to initiate a campaign of this nature. Were one to arise, the USA would be the obvious prime target, and there would probably be more effective means of disrupting economic activity: for example, cyber-terrorism, which requires individual computer skills rather than bomb-making

5.2   Security measures that have been put in place both before and since 9/11 have ensured that the aviation industry as a whole and the express air cargo sector in particular, is taking the threat seriously and achieving commensurate results. The authors of the report are grateful to the Global Express Association members for allowing site visits which reinforced this belief that security is tight and the threat of terrorism is taken very seriously. No-one who visits a major cargo hub can be in any doubt that the industry employs modern, efficient screening and security procedures in respect of both items of cargo and the personnel who handle them.

5.3   The 30 year downward trend indicated in the data analysis in section 3.5 above would suggest that the aviation industry has been able to thwart the terrorist, a conclusion that is further enhanced by the more recent analyses in sections 3.6 and 3.7 above which indicate that the downward trend has continued into the 21st century. As airport and aircraft security tighten, air attack on population centres will be easier to accomplish, at least for well-funded organizations, using simple Unmanned Aerial Vehicles. It would take little expertise to create a copy of the World War II German V1 flying bomb. With a Biological Weapon payload, such a delivery means could be devastating; even conventional explosive can produce significant casualties, as London discovered in 1944.

5.4   The situation would, of course, become more threatening if there is a revival, in a more systematic and sustained way, of state sponsored terrorism. Few states today can defeat intervention by a US-led coalition using purely conventional means. An asymmetric approach, designed to convince the interventionists that they cannot achieve their objectives by force, will be necessary. With the lessons of Milosevic's defeat in 1999 and two wars against Iraq firmly in mind, most countries will realise this. They may decide that, in addition to a guerrilla resistance to invasion, they should carry the fight to the

homelands of their attackers. The aim would be to undermine the political will of their enemies by convincing their peoples, and thence their governments, that intervention is not a cost-free, spectator sport.

5.5　With the resources of the state behind a terrorist campaign, more could perhaps be accomplished than by even wealthy and dedicated non-state actors. Efforts could be concentrated on inflicting economic damage, in which case the air cargo business could, along with others such as financial services, provide attractive targets, although the selected targets would probably be the easily recognisable multinational conglomerates. Both physical attacks and/or interference with the computers used to control electricity and water supplies, air traffic control, commercial activities and the like could be employed. However, such an economic campaign would have to be both prolonged and largely successful to produce a political change of direction. More immediate results, plainly desirable, might be expected from terror operations designed to inflict maximum civilian casualties. While easier to conduct, though, such an approach could actually prove counter-productive (the reaction of democracies being notoriously hard to predict).[28]

5.6　Given their lack of symbolic significance and even news-worthiness (compared with attacks on the general population), all-cargo aircraft cannot, at present, be seen as priority targets for terrorists. Nor, given the complexity of the air-freight business and the uncertainties that bedevil targeting, is it an easy objective for physical attack. Hacking into the computer systems of the aviation sector would appear to promise much more, and create more widespread commercial damage with a higher level of the certainty that terrorists crave. It would be premature to over-regulate aviation security at considerable financial cost and at the cost of inflicting delays on a time-sensitive business. Making sure that the existing system is working well, for instance by ensuring adequate background checks on 'known consignors/shippers' and cargo handling staff, will probably suffice. As long as the industry remains a difficult target for terrorists, the enemy will look elsewhere for headlines.

5.7　When facing up to and combating the new age of global terrorism the most important single message is that the appropriate security regulations should be put in place and appropriate technology must be applied. The regulations must be standardised across the globe as far as possible and not applied piecemeal by individual states; they cannot be allowed to restrict the legitimate trade that fuels the global economy; and they must keep pace with the developments within any particular industry. Technology must be appropriate to the known threat, must enable rather than hinder legitimate commercial operations and must be affordable.

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[28]　CJ Dick, op cit.

Notwithstanding our deductions, it is important to expect the unexpected. Future terrorist attacks will be novel, shocking and probably synchronised. The entire aviation sector faces the potential threat of attack by terrorists; however, the risk of such an attack on all-cargo aircraft would appear to be less.

ANNEX - REGIONAL REVIEWS

RUSSIA

The terrorist threat in Russia stems largely from the Chechnya dispute and others in disputed areas of the former Soviet Union. However, organised crime, narcotics, arms smuggling and corruption are endemic in many former Soviet states and pose a serious threat within Russia and beyond.

Russia's ability to maintain her current level of nuclear weapons out to 2025 is doubtful as almost all the systems that were constructed under the Soviet system will have reached the end of their lives before then. That said, nuclear weapons are important to Russia in terms of profile, status and psyche and thus it can be expected that the retention of nuclear forces will be accorded a higher priority than other programmes. The significance for this review is that Russia will be a world leader in nuclear technology and this is guaranteed to attract the attention of international terrorist groups. Russia today holds 90% of all fissile material outside of the United States and some of it is definitively at risk of terrorist theft or bribery. There were reports in 2003 of a major black market run by a top Pakistani scientist (Abdul Qadeer Kahn) and this is further reflected in the section on Pakistan below. Given the extraordinary rise in international criminal groups within Russia there will be some "crossover" between the two and it is likely that Russia will become a focus for the acquisition of nuclear components by international terrorists. This is unlikely to place the air cargo industry itself at risk but may expose the industry as unwitting carriers.

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[29] Graphic reproduced courtesy of the University of Texas Libraries, The University of Texas at Austin

In short Russia will present a number of indirect challenges for the air cargo industry; these will stem largely from economic weakness, ethnic and regional disputes, migration and a surge in organised crime. The security of nuclear material will remain a major concern in order to prevent terrorist groups acquiring it.

UN Cluster Risk Assessment
- Transnational organised crime
- Nuclear, radiological, chemical and biological weapons
- Internal conflict, including civil war, genocide and other large-scale atrocities
- Terrorism
- Economic and social threats, including poverty, infectious disease and environmental   degradation
- Inter-state conflict

Comment
The region is unlikely to spawn terrorist groups with a global grievance. Attacks are likely to be directed more towards the central Moscow regime rather than another country.

EURASIA

Within this review Eurasia embraces the countries of Central Asia and the Southern Caucasus. Central Asia is made up of 5 countries: Kazakhstan, Kyrgyzstan, Uzbekistan, Turkmenistan and Afghanistan. The fundamental problem in this region is one of endemic instability in that none of these 5 countries are genuine nation-states in their own right. Borders were devised in the Soviet era as administrative divisions that have no respect for ethnicity, economy or natural resources including water. All countries contain large minority populations and ethnic tensions are likely to endure. 30% of the population of Kazakhstan, for example, is Russian. Economic conditions throughout the region are poor, the population will grow by over 40% by 2025 and there is already a chronic water shortage. All the countries have border disputes and, with the exception of Kazakhstan, all are largely Sunni Muslim. The potential for Islamist movements to destabilise the region is great.

The problem for the west is that this backward and troubled region also possesses substantial mineral and oil resources. There are huge oil reserves which amount to about one tenth of those of the Middle East and even greater reserves of natural gas. Russia, China, Europe and the USA are all queuing up to establish a stake in the region. In short, by 2025, this region will be economically hugely significant but at risk from endemic civil war, warlordism, crime, corruption and Islamic terrorism. For Russia, China, Europe and the USA, Central Asia has the potential to become a "cockpit" of terrorism that may threaten to destabilise the entire region.

Central Asia represents a major security challenge. The continuation of conflict in the region can almost be guaranteed. Georgia shares a border with Turkey, and should Turkey join the EU, as seems likely, she may inadvertently become a

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[30] Graphic reproduced courtesy of the University of Texas Libraries, The University of Texas at Austin

magnet for refugees from the region and for the rivalries and terrorism that they bring.

UN Cluster Risk Assessment
- Internal conflict, including civil war, genocide and other large-scale atrocities
- Transnational organised crime
- Terrorism
- Inter-state conflict
- Nuclear, radiological, chemical and biological weapons
- Economic and social threats, including poverty, infectious disease and environmental   degradation

<u>Comment</u>
Eurasia represents a high risk environment for the Air Cargo industry in that the risk of terrorism is already high and is rising. There is already an Islamist element to the disputes and this will place westerns interests in the region at risk.

INDIAN SUB-CONTINENT

It is generally agreed that the probable emergence of China and India as new major global players by 2025 will transform the global landscape. While at present, the economies of China and India are considerably smaller than that of the US, some estimates conclude that China is likely to overtake and India equal the US economy in size by the middle of this century. China's aggregate GNP has grown by about 10% a year since the late 1970's and India's by about 6% since 1991 – compared to a USA economic growth of about 3.5%. However, some believe that India will soon become the fastest growing economy in the world for a number of reasons. Its working-age population will continue to increase whereas China's will diminish. India has a well established democratic tradition and is therefore perhaps less vulnerable to political instability and India has already developed a reputation as a "knowledge centre" and is host to a large number of international businesses. The implications for the air cargo industry are considerable. Business in this region will increase rapidly, the profile of the industry will be heightened within the region and vulnerabilities may be exploited. However the international terrorist risk from within India will remain low. The same can not be said about Pakistan or Afghanistan in which the forces of radical Islam are already confronting the west. Given that both

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India and Pakistan are nuclear powers, this adds a particularly serious dimension to the threat.

Within Pakistan a government offensive against Islamic militants has exposed Al Qaeda plans for strikes both within Pakistan and abroad showing that Pakistan continues to the a key operational bases in the global Al Qaeda network. Some arrests have disrupted activities in the short term but its structure tends to be quickly rebuilt and adjusted. The Pakistan hub of the Al Qaeda network is well illustrated following the arrest of a Pakistani Al Qaeda activist and computer expert, Mohammed Naeem Khan. Reconnaissance reports on a number of financial buildings in the US were found on his computer.

From a bioterrorism perspective, India has a well-developed biotechnology infrastructure that includes plants that work with lethal pathogens. Pakistan's capability in this area is less well developed but nevertheless has the capacity to operate a limited biological warfare R&D effort that could be infiltrated by sympathisers, activists or even terrorists[32].

UN Cluster Risk Assessment
- Nuclear, radiological, chemical and biological weapons
- Terrorism
- Inter-state conflict
- Internal conflict, including civil war, genocide and other large scale atrocities
- Economic and social threats, including poverty, infectious disease and environmental degradiation
- Transnational organised crime

Comment
This region offers a high risk of terrorist attack against the west and those industries, such as air cargo, that are associated with western interests. The amalgam of the Islamist and nuclear dimensions is particularly serious. Second only perhaps to the Middle East, the region offers the highest risk to the industry.

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[32] *"Defending America – Terrorist Organisations and States and WMD."* Anthony Cordesman. Center for Strategic and International Studies (US)

SUB-SAHARAN AFRICA

Sub-Saharan Africa is facing major security challenges and there are no optimistic signs. Corruption, incompetence, ethnic rivalry, famine and AIDS combine to produce a thoroughly depressing strategic outlook. The result is a spiral of distress and implosion as witnessed in Zimbabwe, Ivory Coast, Niger, Mali and Sudan. There is no indication that the endemic tradition of bad governance will change over the period. Governments in the region are likely to remain nepotistic, corrupt, inefficient and oblivious to the plight of their people. Any trends towards democracy are likely to be limited as traditionally most African societies are not democratic. Power is traditionally gained through a military coup or a victory in a civil war.

Unlike in North Africa, a region that presents an Islamic dimension, Sub-Saharan Africa is a region that is almost self-obsessed and hence any terrorist threat is likely to be local rather than global. The most threatening groups for the air cargo industry are north rather than south of the Sahara.

UN Cluster Risk Assessment
- Economic and social threats, including poverty, infectious disease and environmental degradation
- Internal conflict, including civil war, genocide and other large-scale atrocities
- Terrorism
- Inter-state conflict
- Transnational organised crime

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[33] Graphic reproduced courtesy of the University of Texas Libraries, The University of Texas at Austin

- Nuclear, radiological, chemical and biological weapons

Comment

Sub-Saharan Africa is likely to lack economic growth between now and 2025 and misrule, conflict, poverty and natural disaster will continue to be the hallmarks of the region. More states will fail and individual and western states are likely to despair of the region. Failed states, however, will offer a haven for those who might be actively hostile to western nations and these should attract the attention of the air cargo industry. Sub-Saharan Africa tends not to attract the attention of the US indeed the continent does not feature in many US future strategic assessments and this is significant for an industry that has such a large US perspective.. Threats and challenges are likely to have to impact on US national interest in order to act as a catalyst for action.

CHINA

The advance of China will be a formative influence in Asia and some of her activities may have global, as well as regional implications. A stable and powerful China will be constantly challenging the status quo in Asia, whereas a weak and unstable China might fall back on foreign adventurism to bolster power at home. Terrorism is not currently widespread in China, with only a handful of groups operating there, most notable among them the Eastern Turkistan Islamic Movement, the Uygur Holy War organization and the Tibetan Independence forces. However, terrorist activities in the region may increase.

Chinese foreign policy will also be a determinant factor in the level of terrorist activity regionally. As China becomes a significant global player, she will have to decide between a co-operative or competitive stance. The Chinese leadership may deem any actions which might compromise or interrupt the substantial flow of direct foreign investment into the country to be too risky and against the national interest. The debate over Taiwan's independence, or closer relations with China, may prove a catalyst for terrorist activity. Equally, the questions over the future of Tibet and Hong Kong might, in time, incite extremists to political or religious violence.

UN Cluster Risk Assessment
- Nuclear, radiological, chemical and biological weapons
- Inter-state conflict
- Internal Conflict, including civil war, genocide and other large-scale atrocities
- Economic and Social threats, including poverty, infectious disease and environmental degradation
- Terrorism
- Transnational organised crime

EAST ASIA

Over the next twenty years, East Asia is likely to rise to a position of increased prominence on the international stage, and, China's fortunes depending, may be on the way to becoming a new global centre of gravity. This 'recentre-ing' of the map will be due primarily to the current period of sustained high economic growth, an anticipated phase of science and technology development, rising population sizes and expansion of military capabilities.

Regional political dynamics are changing. The Korean Peninsula may well become a reunited entity over the next two decades, although a substantial improvement in bi-lateral relations will have to occur if the transition is to be a peaceful and successful one. The reintegration of Taiwan into China may occur, perhaps under duress if the Taiwanese government pursues independence at all costs or refuses to negotiate on China's terms. Japan's long-standing relationship with the US may decline due to mounting popular feeling that Japan should play a more assertive national and international role. There is little to suggest that any of these events would result in a heightened risk to the air cargo industry. That said, it is difficult to predict to what degree any of these factors might contribute to a radicalization of popular feeling or prove to be a catalyst to politically-oriented violence and terrorist activity, and therefore their potential to do so should not be discounted.

In the Philippines, an eclectic mix of terrorist groups is at work. These include: Communist activists, such as the New People's Army and its former ally, now rival faction, the Alex Boncayao Brigade, thought to be responsible for a number of anti-globalisation incidents; Islamist fundamentalists, including the Moro

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[35] Graphic reproduced courtesy of the University of Texas Libraries, The University of Texas at Austin

National Liberation Front, the Moro Islamic Liberation Front and Abu Sayyaf; and federalist groups, such as the Indigenous People's Federal Army. The groups operating in the Indonesian archipelago are similarly diverse, ranging from Christian separatist groups such as the South Maluku Republic, to Islamic groups like Kumpulan Mujahidin Malaysia, Jemaah Islamiya and the Free Aceh Movement to the Anti Communist Command.

Although the majority of recent terrorist incidents in the region have been perpetrated in the Philippines and Indonesia (of the 336 incidents that occurred in the South East Asian and Oceanian region[36] between January 2001 and September 2005, 310 were in Indonesia or the Philippines[37]), other groups are active in Cambodia, Thailand, East Timor, Laos, Malaysia, China, Japan and Vietnam and these are similarly wide-ranging in their scope, numbering among them Communist, Christian and Muslim groups, state-sponsored terrorists, secessionists, anti-secessionists and militias.

A number of the fundamentalist Islamic terrorist groups are thought to be co-ordinating their activities, sometimes with input and funding from the Al Qaeda network, which has become increasingly active in the Philippines, Malaysia, Singapore and Indonesia. These include the Philippines-based group, Abu Sayyaf and the Moro Islamic Liberation Front and Jemaah Islamiah, active in Indonesia, Malaysia and the Southern Philippines, and which was believed to be responsible for a blast at the cargo-handling facility at Manila International Airport in December 2000.

A further worrying dimension of the terrorist threat in South East Asia is the possibility of use of nuclear materials. There is increasing concern that, regionally, the risk of nuclear agents and delivery mechanisms falling into terrorist hands has been heightened due to the expansion of nuclear energy and research and the inadequate procedures by which nuclear and radioactive material is protected, controlled and accounted for. However, "reports detailing the involvement of Jemaah Islamiyah operatives in Al Qaeda's plan to develop CBRN weapons, plus evidence of Southeast Asian links to the recently uncovered black market in nuclear materials and expertise, have acted as a wake up call to officials both inside and outside the region, spurring a greater sense of urgency amongst some governments and organisations to ensure that strict standards for nuclear security are introduced and enforced."[38]

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[36] Region defined here as including Australia, Cambodia, East Timor, Indonesia, Laos, Malaysia, New Zealand, the Philippines and Vietnam. Source Memorial Institute for Prevention of Terrorism Database
[37] Source, MIPT Terrorism Knowledge base
[38] Dr Tanya Obilvie-White, "Preventing Nuclear and Radiological Terrorism: Nuclear Security in Southeast Asia", *The Australian Centre for Peace and Conflict Studies, Occasional Paper Series*

> **UN Cluster Risk Assessment**
> - Nuclear, radiological, chemical and biological weapons
> - Internal conflict, including civil war, genocide and other large-scale atrocities
> - Inter-state conflict
> - Terrorism
> - Economic and social threats, including poverty, infectious disease and environmental degradation
> - Transnational organised crime

Comment.

There is justified concern about the threat posed by terrorist groups within East Asia. This arises from the high incidence of terrorist activity known to be ongoing within the region, the sheer number and diversity of the various terrorist groups in operation there and the failure to date adequately to address the challenges of control, storage and transport of fissile and radioactive materials. However, despite the extent and intensity of this activity and notwithstanding a marked change in targeting or tactics, there is little evidence to suggest that an attack on an air cargo facility would rank highly on the groups' priority lists. The exception to this might be the Islamist fundamentalist groups which are, and will remain, keen to target what they perceive to be western interests and infrastructure.

MIDDLE EAST

Developments in the Middle East over the course of the next 2 decades are extremely difficult to predict. However, regardless of what the future holds, the region is likely to remain of considerable significance to the express integrator industry due to its volatility and propensity towards religious and political extremism. The area is already a focus of global interest due to its position as supplier of half the world's energy needs. As demands for energy increase and the number of global actors reliant on Middle Eastern resources multiplies, the economic and geo-strategic importance of the area will intensify. Furthermore, concerns about the activities of state- and non-state actors in the region and their implications for global security will continue to retain widespread interest. Assuming that the Arab-Israeli dispute is likely to remain unresolved for the foreseeable future, the Middle East will continue to represent a nucleus of global conflict.

Radical Islam will be likely to attract those seeking a unifying force in opposition to existing regimes and a vehicle through which to voice their dissent and express their religious, rather than national identity. Fundamentalist Islamic groups are already operating throughout the Middle East (many of them under the Al-Qaeda 'umbrella'), with prominent groups active in:
- **Iran** - the Islamic Movement of Uzbekistan and Islamic Action in Iraq.
- **Iraq** - Ansar al-Islam, the Ansar al-Sunnah Army, and the Tanzim Qa'idat al-Jihad fi Bilad al-Rafidayn group, under the leadership of Abu Musab Zarqawi to name but a few.
- **Israel** – Hamas and the Palestinian Islamic Jihad
- **Lebanon** – Hezbollah

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[39] Graphic reproduced courtesy of the University of Texas Libraries, The University of Texas at Austin

- the **Occupied Territories** – the Jenin Martyrs' Brigade
- **Saudi** – the al-Haramayn Brigades and al-Qaeda in the Arabian Peninsula
- **Syria** – the Palestinian Islamic Jihad
- and **Turkey** – the Islamic Great Eastern Raiders Front

The trend is likely to intensify and the number of groups increase but the movement will probably remain fractured. The level of commitment to the cause from the support base, however, will not curtail terrorist groups from targeting western interests in the region and it is here that the express integrator industry may be most at risk. While US or coalition forces are present in the region, e.g. Iraq and Saudi, they will continue to represent a more attractive target, but in other areas and subsequent to any significant force withdrawal, other western interests will be considered an equally-attractive and legitimate target.

Non-jihadist groups may represent a threat also. Terrorists acting on behalf of groups such as the Democratic Front for the Liberation of Palestine (a Marxist-Leninist Palestinian security movement), the Jewish nationalist extremist group Kach, the TKEP/L (the Turkish Communist Labour Party-Leninist group, an extremist communist terror group), the KHKP-C (a Marxist anti-Western group operating out of Turkey) or one of the Kurdish groups might attempt to strike at Western interests in an attempt to draw public attention to their cause.

Systemic changes to the regional status quo may affect the level of threat to the transportation industry in general and express integrators in particular. The power struggle internally in Iran, the status of Iraq, the potential for conflict overspill from neighbouring regions, or any escalation in ethnic unrest might all produce new terrorist actors or prove catalysts for the air cargo industry to rise up the ranks of desirable targets. Furthermore, the state sponsorship of terrorist activities may intensify. The backing provided by certain states to groups perceived as sharing a religious or political ideology, or whose activities could prove advantageous, can bolster significantly those groups' operational scope. Sponsorship of terrorist activities by states such as Iran and Syria is testament to this. "Iran remained the most active state-sponsor of terrorism in 2003. Its Islamic Revolutionary Guard Corps and Ministry of Intelligence and Security were involved in the planning of and support for terrorist acts and continued to exhort a variety of groups that use terrorism to pursue their goals"[40]. Similarly, "the Syrian government in 2003 continued to provide political and material support to Palestinian rejectionist groups. HAMAS, the PIJ, the Popular Front for the Liberation of Palestine – General Command, and the Popular Front for the Liberation of Palestine all operate from Syria"[41]. Any increase in the number of state sponsors of terrorist groups would be likely to have a profound impact of

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[40] Patterns of Global Terrorism 2003 Report, pg 88, April 2004, US Department of State
[41] Ibid, pg 93

their operational ability, their *modi operandi*, and the types of institutions or infrastructure they would look to target.

Furthermore, the proliferation of WME within the region and the development of delivery systems and components cannot be ignored. On the one hand, the proliferation of these materials globally might prompt both passenger and all-cargo to consider their position vis-à-vis becoming an inadvertent accessory to the illegal transportation of these elements. On the other, there will need to be a reassessment of the threat posed to the air transportation industry should these capabilities fall into terrorist hands. Considering that Iran, Syria and Israel are all known already to possess chemical weapons or at least the component elements and the means to produce them, and that a number of states regionally are also estimated to be not far behind, this reassessment should be conducted in the short- to medium-term.

UN Cluster Risk Assessment
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Comment
The Middle Eastern region, along with North Africa can be considered to pose the most significant terrorist risk to the express integrator industry. Many of the terrorist groups operating in the region are jihadists or have a specific anti-western orientation. Western forces and western interests are considered to be highly desirable targets and, an attack on an express integrator, perceived as western in orientation and global in scope, would represent a significant success. Due to accelerated proliferation within the region, the WME dimension should not be overlooked. In the near- to medium-term future it is likely that Middle Eastern terrorist groups will acquire more sophisticated WME capabilities, perhaps involving the use of nuclear, biological or chemical weapons. The implications of this for the air transportation industry as a whole merit a separate assessment and this should be considered a short-term priority.

NORTH AFRICA

The states of North Africa face a troubled economic future. Growth prospects remain flat, and in some cases, negative. High levels of unemployment will accompany youth bulges, rising inflation and excessive external debt. Across the region, with the possible exception of Libya, the potent amalgam of high population growth and economic stagnation will continue to generate popular instability as economic and social aspirations are thwarted and living conditions decline. Libya is likely to reap the benefit of Middle Eastern instability, a steady increase in the price of its oil, but without comprehensive economic modernisation, increasing prosperity will only be open to the ruling elite. Resentment over income disparity will serve to create the kind of frustration among ordinary Libyans that is ripe for exploitation by organised groups of a particular religious or political persuasion, a phenomenon occurring throughout the North African region. The explosive nature of the area does not constitute a direct threat to the NATO Alliance, but will increase concern amongst its members about the possibility of confrontation should there be any serious escalation of inter-state tensions in addition to existing intra-state ones.

The extent of arms proliferation across the region and the effects of this on the strategic environment will prove a significant concern internationally. The region is already high-militarised but with the fear of regional rivals, or the possibility of an 'Islamist bomb', states' desire to acquire chemical, biological and nuclear capabilities are likely to increase. The situation is currently constrained but Algeria, Egypt and Libya are all suspected to be running biological and chemical weapons programmes and may achieve their desired end-state in the next decade, let alone by 2025. It is highly possible that all three will look to test their own nuclear capabilities by 2015 and we can expect any capability to have been honed by 2025. In a less predictable and more volatile security

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[42] Graphic reproduced courtesy of the University of Texas Libraries, The University of Texas at Austin

environment, the recourse to violence is likely to be much easier and swifter than in other areas.

Terrorism, migration, the threat to energy supplies, the possibility of ballistic missile attack and the large-scale proliferation of nuclear weapons constitute a potent cocktail of threats to NATO. The combination represents the issue of 'Southern Exposure' referred to above.

UN Cluster Risk Assessment
- Nuclear, radiological, chemical and biological weapons
- Terrorism
- Internal conflict, including civil war, genocide and other large-scale atrocities
- Intern-state conflict
- Transnational organised crime
- Economic and Social threats, including poverty, infectious disease and environmental degradation

THE AMERICAS

[43] Graphic reproduced courtesy of the University of Texas Libraries, The University of Texas at Austin

Recent events in Latin America have indicated that Islamist terrorists, and specifically Al Qaeda, could be intensifying their operations in the region. The catalyst for concern is the possibility of an attack on American and western interests in Latin America and also the potential breach of the US-Mexican border by Al Qaeda operatives. Recent reports of active Al Qaeda recruiting in Mexico and Central America could indicate a concerted attempt to open this new front. Sensitive locations within Latin America, particularly economically significant installations such as the Panama Canal and international industries, have come under scrutiny as possible targets. Companies that share a national affiliation with those countries who have deployed military forces in Iraq are at particular risk. In Latin America, as elsewhere, the airline industry remains a centre of attention.

Fears that Al Qaeda has a presence in Latin America are not new. There is a US estimate that smuggling in the regions generates over $300 million are in the border area of Argentina, Paraguay and Brazil alone, This is an area in which much of the activity is controlled by Lebanese and Chinese groups. In the Paraguayan city of Ciudad del Este Arabic is the de facto language in many quarters and the area provides a most fertile base for international Islamist terrorists.

Within the United States the internal threat from the Militia Movement cannot be discounted. The movement represents a maverick and unpredictable element that that has a history of involvement in explosives and firearms offences. It is a relatively new right-wing extremist movement consisting of armed paramilitary groups, both formal and informal, with an ideology that is anti-government and often tainted with conspiracy theories. They began to form after the Waco incident in 1993 and have since spread to almost every state. The significance for

the air cargo industry is that militia members may already be employees within the industry. Examples of prominent militia groups include: the Kentucky State Militia, Ohio Unorganised Militia Assistance and Advisory Committee and the Southern California High Desert Militia[44].

The rise of home-grown extremism in America cannot be discounted by the air cargo industry. Recent developments have revealed a rise of "lone wolf" activism, the increased use of the internet to disseminate information and even opportunistic support for foreign ant-American terrorists.

UN Cluster Risk Assessment
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Comment.
America and America's interests must constitute the prime terrorist targets. The wars in Afghanistan and Iraq together with US ambivalence towards the Israel/Palestine dispute continue to fuel the ability of Islamic terrorist groups to justify their actions. Much of the aviation industry is quintessentially American and can therefore be regarded as an attractive target. American and National airlines, for example, have the same national linkages as do Coca Cola, Wal-Mart or Microsoft. The 9/11 attack had a profound effect on the American psyche and could reinforce the attraction, to a terrorist, of a mass casualty attack. It is debateable whether an attack on a US air cargo carrier would be as highly symbolic as an attack on one of the more well-known companies. It must be concluded that the air cargo infrastructure is at risk worldwide, but not high risk.

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[44] Law Enforcement Agency Resource Network (US)