



RESEARCH PAPER

The Future Security Environment

Prepared for NATO Allied Command Transformation

For further information on this report:
Dr Michael Williams, Head of Programme
Transatlantic Security Issues
+44 20 7747 2633
michaelw@rusi.org

The research described in this report was sponsored by NATO Allied Command Transformation under Purchase Order 701549, 05 Nov 07.

RUSI was founded in 1831, the oldest such institute in the world, at the initiative of the Duke of Wellington. Its original mission was to study naval and military science, what Clausewitz called the 'art of war'.

It still does so: developments in military doctrine, defence management and defence procurement remain central themes in the Institute's work. But RUSI has also broadened its remit to include all issues of defence and security encompassing policy-planning related security studies and homeland security and resilience issues.

RUSI is a British institution, but operates with an international perspective. RUSI's head quarters are located in Whitehall and the Institute also has officers in Washington D.C. and Doha, Qatar.

RUSI is a non-profit Institution, independent of government and non-partisan in nature that contributes to policy and decision making through rigorous research and analysis.

© RUSI 2008

No part of this work may reproduced in any forms by any means electronic or mechanical (including photo-copying, recording, or information storage and retrieval) without permission in writing from RUSI.

Reproduction rights are granted to NATO ACT.

Published 2008 by RUSI
Royal United Services Institute for Defence and Security Studies
61 Whitehall
London SW1A 2ET
United Kingdom
www.rusi.org

Future Security Environment

The twenty-first century security environment will be marked by considerable uncertainty, volatility and increasingly rapid change. New asymmetric security threats are emerging to join more traditional issues in creating a complex environment with no dominant theme such as the predictability of Cold War bipolarity. Globalisation and modern communications technology means that events are unfolding at a speed and pace often exceeding the ability of decision-makers to effectively react. Not surprisingly, many analysts now claim that today's world is more chaotic and unpredictable than at any other period in history.

Prediction is therefore difficult. However, a number of broad trends are clear. So too are the general contours of the security threats and challenges likely to mark the future. This report analyzes geopolitical, traditional threats and non-traditional threats to develop an understanding of how the security environment over the next two decades may unfold as well as some of the capabilities needed address them.

Geopolitics

The future security environment will be shaped by seismic changes in the geopolitical landscape, with shifts in the power of states throughout the globe.

U.S. decline?

US economic, military and cultural predominance impinges on every region of the planet. The U.S. is more than a superpower, it is more correctly termed a hyperpower. As such the role played by the United States in global affairs remains the most important geopolitical factor shaping the international security environment. Whether the United States remains the dominant power in global affairs will be one of the central questions of the security environment in the years ahead.

Talk of U.S. decline, popular in the 1980s, has been given a new lease of life since the invasion of Iraq. Such predictions are largely false, particularly for the period under discussion here. It is reasonable to foresee the United States maintaining its dominant position for at least the first quarter of the twenty-first century. There exists a huge gap in military capabilities between the U.S. and other major world powers; its military budget is equal to the next 14 most powerful states, and most of them are considered allies. The combined military budgets of actual or potential

state adversaries to the United States (Russia, China, Iran, North Korea, Cuba, Sudan, Syria and Libya) only amounts to less than one-third of the U.S. total. American weapons systems are at least a generation of technology ahead of our allies and around two generations ahead of any likely state adversaries.

Economically the situation is also largely positive. American GDP and productivity growth rates are among the highest in the developed world. As an immigrant country with about one-fourth the population density of both the European Union and China, the United States still has considerable potential to grow – both demographically and economically. American dominance of the global economy is also likely to continue. The US has about around 30% of world product and holds superiority in an array of technological fields critical to the "new economy," such as information technology, telecommunications, and biotechnology.

The United States still faces many difficult problems, but based on these factors it seems reasonable to suggest that the United States will remain the sole world superpower for the next two decades and likely beyond. As Paul Kennedy, author of *The Rise and Fall of the Great Powers* notes, "Nothing has ever existed like this disparity of power; nothing. I have returned to all of the statistics over the past 500 years...and no other nation comes close."

Despite the continuation of American dominance for at least the next two decades, it will not be America's century. Power shifts in the international system will undermine the hegemony of the United States thereby ending its unipolar moment.

A multipolar world

For every book claiming the decline of Europe, there is one claiming the twenty first century will be the European Unions. Reform of this political and economic community of 500 million could certainly provide a worthy challenger to the United States. But current demographic and economic malaise suggests that Europe will not be as significant in the coming multipolar world as it is today. Hope lies in the ten eastern bloc countries which have joined since 2004 will take many years to develop to the standards of Western Europe, but states such as Slovenia are well on the path. This will create a large increase in economic wealth and political power.

Rather, it is in Asia that the major power shifts of the geopolitical system

will mushroom. With a population of 1.3 billion, surging economic growth rate and still low levels of development China's development harbors the most radical potential for change in global power relations. The Chinese economy is already the third largest in the world and poised to leapfrog Japan within a decade. Militarily, China is comfortably the world's second largest power. China is cashing in on its new found wealth. Military spending has increased at an inflation-adjusted rate of over 18 percent a year. The PLA is busy upgrading its capabilities, as is the navy with new Shang class nuclear submarines and ambitions to become a great sea power.

China is the new factor in global politics. As its economic and military clout has grown so too has its influence, and not just in East Asia where Chinese emissaries played a crucial role in forcing North Korea back to negotiations after its nuclear test. It's growing clout is being felt also in Latin America and the Middle East. Africa demonstrates most clearly China's rising global aspirations and reach; trade with the continent has increased fivefold since 2000 to \$50bn, a figure which is expected to double again by 2010 thereby surpassing the US and France as the major players in the region.

Once China has established itself as a major world power, possibly as early as 2025, it may feel less constrained in its behaviour, presenting greater challenges to an international system. But it is unlikely to desire the overhaul of that system. Much has been written of a looming US china conflict. The rise of China does not have to trigger a wrenching hegemonic transition. But whether this turns ugly depends largely on policy choices that will be made in Washington and Beijing over the next decade. Moreover, the U.S.-Chinese power transition can be very different from those of the past because China faces an international order that is fundamentally different from those that past rising states confronted. China does not just face the United States; it faces a Western-centered system that is open, integrated, and rule-based, with wide and deep political foundations. Today's Western order, in short, is hard to overturn and easy to join.

It is also possible that these powers will be able to manage the difficulties in their relationship through peaceful negotiations. Thus, it seems sensible to regard a China-US conflict as little more than a remote possibility at this stage.

Often overlooked in favour of China, India is also rising. Another demographic giant, with a population topping 1.1 billion, India's economy is amongst the fastest growing in the world and will soon overtake Japan to become the third largest. It is pushing its influence in

Asia with trade agreements, direct investment, military exercises, aid funds, energy cooperation and new infrastructure. Its circle of friendships spans from Iran to Japan and includes emerging ties with countries like Tajikistan, Thailand, Myanmar and Vietnam. India's military is also retooling to project force more expansively. The navy is said to be leasing nuclear submarines and has announced plans to become the first developing country to build an aircraft carrier - a \$662 million vessel that, were it afloat today, would be the largest from any country outside of Europe and the Americas, officials and analysts say.

In the coming years, it will have an opportunity to shape outcomes on the most critical issues of the twenty-first century: the construction of Asian stability, the political modernization of the greater Middle East, and the management of globalization.

Though it lags behind China, India will likely be a major world power in the coming decades and has the potential for superpower status by the end of the century, if not before.

Regional superpowers

Alongside the likely emergence of global superpowers such as China, a host of regional superpowers such as Brazil, Indonesia and Russia will alter the balance of power in places such as Latin America, Southeast Asia and the Near East. A gradual rise of regional hegemonies with growing - at times extra-regional - goals and ambitions is likely. Though unable to challenge US power globally, regionally they will challenge U.S. power. And weaken the United States' grip on these spheres.

Take Russia as an example. Buoyed by rising oil prices, Russia is flush with petrodollars. New found confidence has translated into nationalism at home and an aggressive diplomacy internationally. In the Baltic states Russia has been blamed for stoking riots in Tallinn, in which one died and 153 were injured, and for a massive 'cyber-attack' on the infrastructure of Estonia. Increasingly it appears the Russian government is mounting a deliberate attempt to destabilise former Soviet republics. Russia has also wielded its veto in the United Nations Security Council to play a spoiler's role with regard to Kosovo and Iran complicating and preventing efforts by the international community to solve these problems.

Security threats

A number of threats will shape the future security environment. Unlike the dominance of superpower rivalry during the Cold War, the future threat landscape will be marked by numerous risks of a traditional and non-

traditional nature.

War

The end of the Cold War was greeted by theorists who naïvely heralded an international system of unprecedented peace and prosperity. Since the collapse of the Berlin Wall, the world has been plagued by numerous and savage conflicts that have left many dead, societies in ruin and exposed utopian promises of an end to history as false. War had not disappeared and it is a certainty that it will not do so in the foreseeable future. The question for the future security environment is not whether war will be present, but in what form; what will be the changing shape of war?

End of Major War?

Those who predicted the demise of war were right in one respect; it has long shrivelled out of existence within the rich global north. Theorists were simply ethnocentrically blind to the continuation of war beyond the borderslands of the West. The absence of military action between the western powers is all but assured thanks to fundamental shifts in the attitude of policymakers towards other prosperous and liberal democratic states and developed states, a convergence of political ideologies, economic interdependence and substantial integration of western military institutions to the point where smaller nation states cannot be classed as having sovereign control over their national military forces. Disputes and difficulties between these states will remain as the split in the transatlantic alliance over Iraq demonstrated in 2003, but these problems would be solved through peaceful means. Great power conflict, arguably the central dynamic of international security in the twentieth century therefore appears to be a thing of the past.

However, how will the rise of great powers no longer confined to the liberal democracies of Europe and North America affect this situation? China's economic miracle and Russia's recent Lazarusian revival marks the return of authoritarian great powers to the international system for the first time since 1945. Nevertheless, from a strategic planning perspective, it seems reasonable to regard large-scale global interstate war - like the two world wars of the twentieth century - as a remote possibility, particularly as China and Russia are intimately linked within the international system, both economically and politically. "The minimal likelihood of such a conflict in the wake of the Cold War," insists Michael Mandelbaum, "sets the twenty-first century dramatically apart from the two preceding eras."

There is now general consensus that it would take a substantial and prolonged breakdown in the global economy to create the

circumstances that might lead to the renewal of the intense rivalry among the Great Powers that produced the global conflicts of previous centuries.

Inter-state war

The lack of major great power conflict does not equate to a lack of interstate warfare which will remain a feature of the future security environment. Military action against Afghanistan and Iraq, alongside the continuing risk of an attack on Iran demonstrate the persistence of violence between state entities.

There exist many hotspots which are pregnant with the possibility of drawing states into conflict with one another. Major concern centres on Asia. Despite recent thaws in Korean relations and positive developments in the six party denuclearisation talks, North Korea remains a tangible threat to its neighbours and hostilities with South Korea could erupt; a series of violent clashes along the Yellow Sea border occurred as recently as 2002. The failure of North Korea to meet end of the year deadlines for declaring its nuclear programme and subsequent pledges to strengthen its 'war deterrent' capabilities do not bode well.

In addition to this Cold War hangover, there is the ever-present and more worrying danger of war between India and Pakistan. Again, a recent rapprochement between the two countries, evident in the first formal talks between their respective foreign secretaries in February 2004, is welcome. But the international community would be wise to remember the Kargil War of 1999, when tensions flared into open conflict, and the 2001-2002 stand-off involving the amassing of troops on either side of the international border. Kashmir, which is the core issue undermining civil relations between these estranged neighbours has not been resolved. Moreover Pakistan is undergoing turbulent political changes and a widening internal threat from violent Islamist extremism which threatens to destabilise an already fraught transition to civilian rule. A collapse of Pakistan's current political structures in the face of continued radicalization and extremist violence and its transformation into an unstable, nuclear-armed entity would present a more dangerous risk for the region and threaten military confrontation, with the ultimate, but at present distant, risk of regional nuclear conflict.

Another serious concern centres on the Taiwan Strait. China continues to assert its One China policy, in 2005 ratifying the Anti-Secession Law which authorises the use of 'non-peaceful means' if Taiwan takes steps to declare formal independence. Under Hu Jintao China has continued to pursue a vigorous military build-up, buying and developing submarines

and fighter jets aimed at deterring U.S. intervention in the case of a conflict.

In a sign that tensions are rising, Taiwan marked its 2007 national day with a military parade for the first time in 16 years while China recently finished a high level military reshuffle manoeuvring military officers with experience in planning for war over Taiwan, into command positions.

2008 is set to be a very turbulent year in cross-strait relations. 2008 will see a new Taiwanese President, a referendum on UN membership for the island under the name Taiwan, and the Beijing Olympics; the potential for an escalation in hostilities remains of considerable concern.

Post-Clausewitzian War

Though classical (inter-state) war will not be cast into the dustbin of history in the near future, its importance will be overshadowed. Most striking for the future security environment is the continued inversion of Clausewitzian war. War is no longer easily recognisable as an "act of violence intended to compel our opponent to fulfil our will", a rationalised continuation of political activity by other means, declared by states, fought by agents of states and terminated by them.

War is increasingly asymmetric. The vast majority of conflicts at the beginning of the new millennium are a complex mixture of civil and inter-state wars containing elements of both which interact in complex dynamics.

States are no longer the main actors in war. The power to wage war has been increasingly privatized. States are joined by communities, networked transnational organizations and other de-territorialized networks of political and economic power. The Iraq war is the most likely model of future wars involving state forces of the coalition, domestic non-state actors such as Moqtada al-Sadr's Mahdi army, foreign forces from neighbours such as Iran and transnational terrorist groups such as al-Qaeda in Iraq. All have fought a chaotic and intergrated conflict involving civil war, intercommunal violence, insurgency, pervasive criminality and widespread disorder.

It is true that not only the actors but also the methods employed are becoming more unconventional, involving guerrilla tactics and terrorism. In the use of violence and the threat of force, military and civil distinctions have become more blurred, particularly as urbanized situations provide the context within which most war takes place. Battle-space will be

increasingly complex, multi-dimensional, non-linear, uncertain, and lethal. Conflict will occur on *variety* of fronts (moral, socio-political, economic, military, abroad and at home).

Due to their post-Clausewitzian nature, wars are becoming bloodier. In a study of 52 conflicts since 1960, a recent World Bank study found that wars started after 1980 lasted three times longer than those beginning in the preceding two decades. Because wars last longer, the number of countries embroiled in them is growing. In Sudan over 2 million people have been killed in civil war since 1983. In the DRC, where government and rebel forces were joined by most of the DRC's surrounding neighbours, an estimated 3.8 million were died as a consequence of war since 1998. Such wars also produce greater refugee flows than interstate wars.

The causes of warfare are more complex as well. Geo-political expansion, militaristic nationalism, and ideological concerns are joined by conflicts over identity and resources. Identity politics based on dehumanizing pseudo-biological claims are commonly regarded as contributing causes (and effects) of wars in Bosnia, Rwanda and Sudan. Resource conflicts, usually over water, oil, diamonds, timber, or various agricultural products are considered to be responsible for the public uprising over water prices in Bolivia, turf wars between rival gangs over oil theft operations in Nigeria and mounting social tensions in water-stressed regions in North China and Africa. If the past decade provides any guidance for the future then it is very likely that much of the instability will be in the developing world. The greatest risks of large-scale conflict will be in areas of economic vulnerability, poor governance, environmental and demographic stress and enduring inequality and hardship, especially where there has been a history of recurring conflict.

Terrorism:

Terrorism will be a major factor in the future security environment for many decades. Indeed the world entered the new millennium through the gates of political violence.

The U.S. found itself victim to a new type of terrorism on September 11th. Terrorism is not a novel phenomenon; Spain, Britain and Sri Lanka have all suffered repeated terrorist threats. What these examples demonstrate is the regional or national motivation and scope of traditional operations. The future security environment will no doubt be challenged by the persistence of local and national based terrorist groups, but transnational, global terrorism will present the international community with the greater challenge.

Globalization is the means through which terrorism becomes super-empowered. Just as multinational corporations have evolved in response to globalization by distributing functions and resources, transnational terrorist groups have followed a similar path. Al Qaeda, for instance, has become one of the most infamous and powerful terrorist groups because it has generalized its strategy and architecture enough to enable individuals throughout the world to claim attacks in al Qaeda's name and occasionally with the group's assistance. This networked and distributed structure is one characteristic of transnational terrorism that has made these insurgency movements more difficult to isolate and remove. Al Qaeda was originally established to overthrow secular governments from Egypt to Pakistan, and a more immediate aim was to protect Muslims from foreign domination in Kashmir, Palestine and Afghanistan. That has expanded to Bosnia, Somalia and Chechnya.

It is this transnational, Islamist variety of terrorism that will require the most pressing attention. Theologically inspired, it will continue to derive much of its energy from political motivations, disadvantage and grievance in the global south. Future attacks on the rich global north emanating from the developing world will be a recurring feature of the security environment. Events such as the July bombings in Britain suggest a new trend towards Islamist radicalisation of middle-income professionals in more affluent societies.

An alarming aspect of modern terrorism is that Brian Jenkins' generally accepted aphorism that terrorists do not want a lot of people dead, but rather a lot watching no longer holds true; terrorism is increasingly deadly and bloody. However, the casualties and amount of damage inflicted will remain low compared to other forms of conflict, but the effect will be magnified by the scale of disruption to infrastructures and the sensationalist value inherent in the 'Propaganda of the Deed'.

Worryingly, the desire of terrorists to kill more people, along with their globalized and hyper-modern structures and networked structures mean that the chances that terrorists will increasingly desire WMD's. Based on technological availability and historic examples, chemical, biological and radiological elements will be viable and credible possibilities for terrorist attack throughout the period, together with a lower possibility of nuclear use. This would pose a grave threat. As the 2002 U.S. national security strategy put it,

The gravest danger our Nation faces lies at the crossroads of radicalism and technology. Our enemies have openly declared

that they are seeking weapons of mass destruction,

The possible nexus of terrorism and rogue states therefore lies at the heart of one of the key challenges in the future security environment. The opportunities for terrorists to obtain WMD's will increase as technology cascades through the state system and nuclear weapons in particular threaten to proliferate. Prospects for the use of chemical and biological agents by state and non-state actors are especially unsettling. Yet in the near term, highly adaptive use of low-cost highly accessible off-the-shelf technologies — both for enabling plans of attack and for conducting them — will be more likely.

Cyber Attacks: A new international security space

"Cybercrime is now a global issue. It has evolved significantly and is no longer just a threat to industry and individuals but increasingly to national security." Jeff Green the senior vice president of McAfee Avert Labs.

Cyber warfare is a relatively new risk in the future security environment, one which will be increasingly salient.

No longer the preserve of independent hackers, cyber attacks perpetrated by organized criminals and networked terrorist groups are on the rise. No state involvement in an attack has yet been proven, but in their 2007 annual report, McAfee internet security company stated that approximately 120 countries have been developing ways to use the Internet as a weapon. China in particular has spelled out in a white paper that "informationised armed forces" are part of its military strategy and a number of western governments claim to have been attacked during the last few years.

Attacks are rapidly gaining in sophistication progressing from initial curiosity probes to well-funded and well-organized operations. Titan Rain hackers gained access to many U.S. computer networks, including those at Lockheed Martin (a leading multinational aerospace company), Sandia National Laboratories (which develops, engineers, and tests the non-nuclear components of nuclear weapons), Redstone Arsenal (the centre of testing and development for the U.S. Army's missile programs) and NASA.

Dangers in the future include threats to military activities that use computers and satellites for co-ordination. Orders and communications can be intercepted or replaced, putting soldiers at risk. Cyber-attacks in the forms of computer viruses, frequency weapons and "denial of service"

attacks threatens the security of critical infrastructure including power, water, fuel and communications. One of the greatest threats posed by cyber-terror lies in the risk to banks, financial institutions, and stock markets. The small depression that followed 9/11 exposed the vulnerability in our highly networked financial, medical and government infrastructures.

The danger increases as our societies become ever more intergrated. Reconceptualisation of cyber warfare as a security risk will rise in direct proportion to the depth of state and society connectivity and expansion of e-government. The attack on Estonia in April of 2007 is indicative of the dangers faced by the international community. Amidst the country's row with Russia over the relocation of a Soviet memorial to fallen soldiers, websites of Estonian organizations, including the Estonian parliament, banks, ministries, newspapers and broadcasters were swamped in a massive three-week wave of cyber-attacks, the first known incidence of such an assault on a state. Estonia is one of the most wired societies in Europe and a pioneer in the development of "e-government". Highly dependent on computers the attacks threatened the very functioning of Estonian society. What may seem a minor inconvenience (the inability to access the internet) could in the future be very serious risk to national and international security.

This is virgin territory for the security and international community. "At present, Nato does not define cyber-attacks as a clear military action. This means that the provisions of Article V of the North Atlantic Treaty, or, in other words collective self-defence, will not automatically be extended to the attacked country," said the Estonian defence minister, Jaak Aaviksoo. "Not a single Nato defence minister would define a cyber-attack as a clear military action at present." However, the increasing threat posed by cyber warfare means that this matter needs to be resolved in the near future.

Nuclear proliferation

Proliferation of nuclear weapons is likely to rise in the future. Many factors are contributing to this including the unchallengeable conventional forces of the United States and weak short-lived sanctions against India and Pakistan after tests in the late nineties. Ironically, considering the avowed aims of the conflict, the Iraq war may be a major factor. It seems likely that states will increase efforts to acquire WMD as part of a denial of access strategy. In other words, states may attempt to gain a nuclear weapon capability sufficient to deter American military action before diplomatic or military efforts are in place to deny this capability. The success of North Korea in this regard will embolden others states

attempting this strategy. The result may be greater WMD proliferation, including the spread of nuclear and radiological weapons.

Notwithstanding the desire to possess these weapons, it is important to recognise that even for moderately industrialized states, nuclear weapons are technically demanding to build. The creation of a first-generation atomic capability is a long way from successful weaponization which requires miniaturization, command and control capabilities and a means of delivery. As a result, the number of states possessing indigenously developed nuclear weapons will remain small for the next decade at least. As technology develops and cascades down the international system the state of affairs might be very different beyond this time frame. Moreover, states may accelerate the acquisition of nuclear capability by obtaining weapons or getting hold of fissile material from external sources. The example of Pakistani scientist Abdul Qadeer Khan who was involved in clandestine export of nuclear technology is important in this regard.

As is clear from the discussion on terrorism, state actors are not the only actors who desire such weapons. Success in this regard would radically alter the balance of political power around the globe by re-introducing the risk of attack to the military infrastructure and civilian populations of advanced nations in North America and Europe while posing new security threats to states invested in maintaining the status quo and their identities as responsible states. Non-state actors are not constrained by the theory of MAD and their use is more likely in their hands. The future security environment will therefore be far more complicated than that which has preceded it.

Failed States

"[September 11th was]...a wakeup call, [leading many]...to realize that even small countries, far away, like Afghanistan cannot be left to sink to the depths to which Afghanistan has sunk." UN Special Envoy Lakhdar Brahimi

Masked by the neat lines of a world-political map is the largely neglected fact that at the start of the twenty-first century a large proportion of the globe confronts a Hobbesian state of nature. Weak or collapsed states are dangerously widespread, spanning a number of regions including the Middle East, Latin America, Africa, South Asia, Eurasia and Central Asia. According to the Failed States List 2007, 32 countries were classified as 'alert'. Crises of governance will persist and have a large potential to expand as other security risks such as pandemic disease, global warming, overpopulation and political instability continue to tax societies and strain

already limited state resources.

The future security environment will be shaped by these 'minor' international actors in a myriad of ways. Forged at the intersection of a number of twenty-first century security risks, failed states are likely to provide a feedback loop exacerbating the threats that caused or contributed to their status (fostering the uncontrolled spread of disease, creating refugee crises in neighbouring countries, and leaving societies without safety nets thereby exacerbating societal tensions and economic hardship).

Suffering from the lack of a modern effective state providing basic socio-economic services and combating the ravages of a complex world these ungoverned spaces can become breeding grounds for political and religious extremism. Failed states such as Somalia and provinces such as FATA, with no effective governance or rule of law also provide a potential refuge for criminal organizations, pirates, drug and armaments smugglers, and most importantly transnational terrorist organisations. Afghanistan under the Taliban regime is a recent example of how non-state actors like al Qaeda used the government of a failed state to carry out a campaign against a state adversary, the United States, with consequences affecting the rest of the international community. Thus, even if a failed state has little significance in the traditional sense of strategic resources or geographical position, it will take on greater strategic importance in the future by virtue of the potential base it offers to powerful non-state actors.

Non-traditional security threats

Collapse of Cold War bipolarity and the growing importance of global social, economic and political processes 'above' the state has opened up the security agenda beyond narrow state-centric, politico-military threats that have hitherto dominated security studies.

It used to be thought that an important distinction existed between social, environmental and economic problems that cause instability in the international system and palpable security threats such as terrorism that explicitly imperil a state's well-being and safety. Such a dichotomy no longer exists. The magnitude of social, environmental and economic problems currently afflicting large parts of the developing world are often as direct a menace to a state's vital interests as terrorism and armed conflict.

Climate change

An overwhelming scientific consensus now exists that climate change (largely attributable to human action) is occurring and that the atmosphere will continue to warm at an unprecedented rate throughout the 21st Century. Uncertainty remains as to the precise rate and character of expected changes over the next century.

International security and the environment have always been intertwined. The 2004 Indian Ocean tsunami, for example, had serious political consequences for the long running separatist conflict in Sri Lanka. Reports indicated that rebel-held territory did not receive relief supplies and both sides accused each other for the failing thereby aggravating hostilities.

Global warming amplifies the relationship between security and the environment, transforming the latter into a direct source of insecurity. Last April Britain warned members of the United Nations that there are few greater threats to security than climate change. A secret report commissioned by influential Pentagon defence adviser Andrew Marshall, warns that the threat to global stability vastly eclipses that of terrorism.

Climate change is the example par excellence of how the future security environment will increasingly necessitate transcending narrow 'national' and 'international' framing of threats. Global warming, by its very definition, will impact all aspects of human activities and influence the welfare of all countries. The future security environment will therefore involve global threats, common to all.

Global warming is likely to increase the severity and frequency of extreme weather events such as droughts, floods and hurricanes, causing devastating property damage, injuries, and death. Natural disasters are already a major security threat: between 1990 and 1999, an estimated 188 million people per year were affected by natural disasters, six times more than the 31 million annually affected by armed conflict. A likely consequence of this will be a large increase in eco-refugees and internally displaced persons (IDPs). Rising sea levels, another result of global warming threatens to submerge coastal settlements and littoral states, with the likelihood of displacing millions of people throughout the world. Last November, the Stern report suggested that 200 million people could be displaced by 2050 by rising sea levels and drought. Migration on this scale can have devastating consequences, particularly for developing states. For the past seven years East Africa has experienced severe drought followed by torrential floods. This rollercoaster weather

forced mass refugee flows into Ethiopia, Somalia, and Kenya, threatening economic, social and political stability.

Climate change will alter the distribution and quality of natural resources such as fresh water, arable land, coastal territory, and marine resources both within and between states. Estimates of the Oceanic and Atmospheric Administration and National Climate Data Center indicate that global warming has caused an approximate 20 percent increase in global water scarcity. Some researchers have speculated that these changes could cause or prolong armed conflict. Violence in Sudan's Darfur region is an example of conflict partly caused by land degradation. The connection between climate change and the outbreak of violence will unlikely be as strong as when natural resources can be exploited for quick financial reward. And because climate change happens gradually, global warming is unlikely to be the primary cause of any particular armed conflict, nor will its contribution to conflict be particularly visible. Nevertheless, regional climate changes, as with other causes of environmental degradation, could make inter and intra-state armed conflict more likely.

Extreme weather and changeable patterns of rain will affect the global economy. The cost of extreme weather can be in the billions of dollars and any increase may begin to erode global economic growth. Last November, the Stern report said the global economy could shrink by one-fifth. Climate change will therefore be a key strategic factor affecting societal stresses.

Conditions of economic stagnation, environmental degradation and instability may reach critical levels or tipping points beyond which state failure becomes more likely.

Security risks related to climate change will not be evenly distributed among states and peoples. The severity of an event and the existing capacity of the country to deal with the resultant damage will determine severity of economic and political damage to the state.

Poor, developing, and failed states are the most likely to suffer from climate change. These states lack the economic, governance, or technical capabilities to adapt to climate change. Climate change may have the effect of exacerbating existing inequalities and tensions between states, perpetuating discrepancies between the global south and the global north with the potential for conflict between the two.

Demography

Several demographic trends will place enormous burdens on global stability in the coming decades.

Current estimates posit a global population swollen to 8.5bn by 2035. The increase will not be globally uniform and though it is dangerous to generalize about the effects on broad regions of the globe, two broad developments can be discerned. Birth-rates in much of the industrialized world are below the replacement rate of 2.1 children per woman. Many states, particularly in Europe will therefore witness a decrease in population. It is in the poorer developing world that 95% of the projected global population growth will be confined to. Sub-Saharan Africa for example is estimated to witness a population explosion of 81% by 2035. These demographic changes have the potential for a number of deleterious effects on national and international security. But the effects will be regionally nuanced.

Less obvious security problems arise from demographic changes in the developed world. The problems arising from demographic trends in the developing world will contribute to security problems in the developed world thanks to the pollution they will create and mass migration and societal stresses which will be placed on countries. In addition, declining and ageing populations will decrease the available workforce, harm economic productivity and place greater pressure on the tax base. The overall ratio of taxpaying workers to nonworking pensioners in the developed world is expected drop by roughly 50% by 2050. This will place a strain on abilities to pay for increasingly expensive and high-tech militaries and could limit a states ability to project military power effectively.

Increasing populations in the developing world, particularly in the Middle East, Sub-Saharan Africa, and South Asia will challenge already weak states to deliver basic services. Many parts of the developing world will face a Malthusian trap; in sub Saharan Africa 15% of the projected increase are likely to be undernourished. Failure to provide services and security may lead to unrest and a growing sense of inequality and frustration. The result may be radical and revolutionary movements intent on overturning the status quo.

Magnifying these problems will be a significant growth in the youth cohort ("youth bulge," 15-29 year olds). Such a shift in demographics is fairly worrisome in a security sense. Recent research has found a strong match between violent outbreaks, ranging from wars to terrorism, and the ratio of

a society's young male population to its more mature segments.¹ Once the ratio grows past having roughly 40 post-adolescent young men for every 100 older male, violent conflict tends to ensue inside society. In fact significant youth cohorts have already contributed to political unrest and civil strife in Algeria, Sri Lanka, Turkey and Iran.

A significant impact of this trend will be increasing demand for vital finite resources. Consumption, even in poverty stricken areas, must increase with population. Belief in the ability of new technology and the free-market price mechanism to transcend resource scarcity is a utopian mirage. Therefore the dynamic of increasing consumption and dwindling resources will generate instability within states as for example, the struggle for control of water in Rwanda contributed to the genocide in that country.

The effects of demographic instability will not be contained within state borders. Demographic changes and the strains it places on resources will foster competition between states. While resource conflict has been a recurring theme throughout history, it is likely to become more prevalent in future decades. The future security environment is likely to witness a return to the Great Game, this time on a global scale and involving new players. Assured or even open access to oil and fresh water resources will, in particular, be a major concern to many states in the future security environment.

Disease

"Conflicts and AIDS are linked like evil twins." Peter Piot, chairman of the Joint UN Program on HIV/AIDS (UNAIDS)

Disease is not just a health issue, it can represent a danger to international security and global stability as well as direct victims of infection.

AIDS is the most obvious window through which disease as an international security issue is evident. Speaking at the UN Security Council session, James Wolfensohn, the head of the World Bank, stated, "nothing we have seen is a greater challenge to the peace and stability of African societies than the epidemic of aids". As the disease becomes prevalent it

¹ Christian Mesquida, and Neil I Warner. "Male Age Composition and Severity of Conflicts." *Politics and Life Sciences*, vol. 18, no. 2 (September, 1999): p. 181-89; Richard Morin,. "Boy Trouble," *Washington Post*, June 24, 2001; "Natural Born Killers," *Profiles*, May 1999.
www.yorku.ca.

starts to destroy the social, economic and political fibres which constitute a healthy nation. For example, 10% of all African teachers are expected to be killed by AIDS by 2005, while between 25-50% of health care workers in stricken states such as Malawi will similarly die from the disease. In the words of Peter Piot, the head of UNAIDS, the disease "...is devastating the ranks of the most productive members of society with an efficacy history has reserved for great armed conflicts."

The disease also stymies the economy by decreasing workforce productivity, scaring away foreign investment and consuming large proportions of the national budget in the hardest hit states. The World Bank considers the disease to be the single biggest threat to economic development in Africa, as it is expected to reduce GDP in many states by as much as 20%, in just the next decade.

The effect on security is clear. AIDS hollows out state power. The weakening of state bodies to the point of crisis has repeatedly been the spark for coups, revolts, and other political and ethnic struggles to secure control. As the recent collapse of the DRC illustrates, warlords, plunderers, and other violent actors effortlessly fill the void left by a failing state.

It is not simply the spread of instability across state boundaries which threatens international security. The disease hollows out military capabilities. The Sierra Leone Army for example, with British assistance, is attempting to restructure itself into an effective military force. Making this more difficult is the discovery that as many as one in three in the SLA is now HIV positive.² The effects of the disease on the institution is thus in a sense non-linear; its impact is not felt just in terms of lives lost, but overall disruption. Militaries, when under this type of pressure from disease, gradually lose their capabilities and are less able to meet their commitments. US policy for the last decade has promoted the Africanisation of peacekeeping operations on the continent; training African peacekeepers to take on African conflicts, carried out under the auspices of the African Crisis Response Initiative. The greatest challenge to this program's success is that many of the militaries participating in it are simply being decimated by AIDS, well before they can make a difference elsewhere.

However, the direct impact of AIDS will certainly not be limited to Africa. Rather, the continent provides the prelude to the disease's likely progression in Asia, Caribbean, Central and South America, and the countries of the former Soviet Union.

² P.Singer, 'AIDS and International Security' *Survival*, Vol. 44, No. 1, Spring 2002, p.153

Diseases such as AIDS have far lower infection rates in developed countries. They are likely to achieve inroads against a variety of diseases and will thus be well insulated from their effects as a result of generous health spending and medical advances. It is the developing world which will experience an upsurge in both infectious and non-infectious disease given that many have grossly inadequate health care systems as a result of poor funding, infrastructure, and education. But the security implications of disease and epidemics will be felt globally. Political and military instability cannot be confined by state borders; decaying states tend to become havens for the new enemies of global order. Sierra Leone's collapse in the 1990s, for example, certainly was of little concern to policymakers in Washington and had little to do with radical Islamic terrorist groups. The tiny West African state, nonetheless, has since served as a critical node in the fundraising efforts of Osama bin Laden's al Qaeda network.

What types of missions will NATO see itself conducting in and around these issues?

The most serious threats facing NATO's members lie beyond the treaty area. Hence, NATO's "area of regard" is growing. The vast majority of threats highlighted in this report will arise in the global south (though not without considerable influences from the global north). The overwhelming majority of NATO's missions will be of an expeditionary nature. This is certainly the case vis-à-vis joint exercises with Partnership for Peace states, as well as monitoring compliance with international agreements or helping to enforce peace in the Balkans. Globalisation and the transnational nature of military threats in the future security environment mean that even potential Article V operations aiding a NATO member state which is the target of aggression will be of an expeditionary nature. Military activities in the coming years will therefore take place at a considerable remove from the home stations of most forces.

Most important from the perspective of an Alliance established to resist large scale conventional aggression, and if necessary wage a full scale war, is the prediction that large-scale global interstate war - like the two world wars of the twentieth century - is a remote possibility. The absence of a major competitor to Western military, the increased intergration of major states in the international system and a subsequent decrease in inter-state war worldwide suggests that NATO military forces will not be conducting missions to defend alliance territory against large scale conventional aggression. The risk remains low despite a rise in cross-strait tensions and Russia's increasingly belligerent international stance,

including the December suspension of the Treaty on Conventional Armed Forces in Europe.

The most prevalent form of conflicts in the twenty first century will be intra-state conflicts. They will also be the most pressing conflicts and the ones which pose the greatest risk to the international community because they pose a feedback loop exacerbating the problems of disease, collapse of the environment and instability of an economic and political nature. The presence of state involvement in these conflicts means that NATO missions may involve combat against conventional state-based military forces and therefore high intensity conflict. However, the dominant form of NATO missions will be low intensity conflict missions such as counter-insurgency or intervention in inter-communal warfare. Such missions will tackle a variety of asymmetric non-state actors such as subversive extremist groups and guerrilla organisations. These conflicts will most often be in urbanized battle-spaces.

The importance of military force in the modern security environment has declined however. Civil wars and other forms of asymmetric warfare such as insurgencies have deep links to economic, social and political factors. The insurgency in Iraq for example is driven in part by a reshuffling of political power in favour of the Shi'a community after the fall of Saddam, and inter-communal ethnic and religious violence. Following peace settlements or indeed at the same time as military operations, in the future NATO will be required to undertake stabilization, reconciliation, peacekeeping and reconstruction missions as ISAF is doing in Afghanistan. These missions would need to embrace support of security sector reform, including demobilisation, disarmament and reintegration, the cantonment of weapons, training militaries and police. Experience has shown the increasing significance of such operations to post-conflict stability.

Conflict prevention is better than conflict cure however. Missions can also be expected to stem the descent into war and engage in conflict prevention including through non-Article 5 crisis response operations, as set out in the Strategic Concept. Such missions would likely involve the monitoring of ceasefires and controlling zones of separation between belligerents. An example would be the deployment of peacekeepers in 1995, by which the transatlantic partners averted civil war in Macedonia.

Environmental degradation, regional demographic shifts, resource depletion, pandemic disease and water scarcity, combined with mass-migrations will act singularly or in combinations to destabilize the security

environment for the next two decades and likely beyond even leading to serious conflict. In some parts of the world these recurring pressures may result in the breakdown of social order, the collapse of governments. Failed states can pose as big a security risk as a well-functioning and strong state threatening its neighbours. They can be harbours of transnational criminal organisations, terrorist organisations and breeding grounds of extremism and regional instability. NATO missions involving stabilization, reconciliation and reconstruction may therefore even be required before conflict has actually broken out or collapse has taken place.

The risk posed by these non-traditional security threats will increase the need for humanitarian operations. As highlighted earlier in the report, global warming is a grave and growing threat. As global temperatures rise, the severity and frequency of extreme weather events will increase. Floods, droughts will undoubtedly lead to an increase in humanitarian crises. Of particular concern is the number of refugees predicted due to rising sea levels (the Stern report suggested that 200 million people could be displaced by 2050). NATO may therefore find itself subject to mission to support humanitarian relief, disaster relief and evacuation operations. NATO is not a humanitarian organisation and it would be expected that any efforts would be led by the UNHCR, however its considerable capabilities complement those of the relief agencies. As such the alliance can play a role in providing many of the basic needs of refugees. NATO's role in the aftermath of the Kosovo war is a good indicator of these types of missions; the alliance coordinated the airlift and storage of relief supplies, built shelters, refugee camps and other infrastructure, provided emergency medical care, eased the pressure on the former Yugoslav Republic of Macedonia by transferring some refugees to NATO countries on a temporary basis; and provided information regarding numbers and locations of internally displaced persons (IDPs). It would also be expected to establish a safe and secure environment within which reconstruction or humanitarian efforts could be provided, particularly if other actors were preventing humanitarian organisations with primary responsibilities in this field from carrying out their tasks.

Following the terrorist bomb attacks in Madrid, NATO foreign ministers issued a Declaration on Terrorism, emphasising that "[D]efence against terrorism may include activities by NATO's military forces, based on decisions by the North Atlantic Council, to help deter, defend, disrupt and protect against terrorist attacks, or threat of attacks..." The continued rise of terrorism as one of the main threats to future security means that NATO will likely find itself conducting many types of these missions because NATO will face a very real threat from terrorism in the near future.

The new nature of transnational terrorism means that missions are likely to be wide-ranging over a large geographical area. Even cases of domestically planned terrorism may have global roots and links.

Counter terrorist operations will be numerous. Allied nations agree terrorists should not be allowed to base, train, stage and execute attacks. Such offensive military action designed to reduce terrorists capabilities will either be short and small, for example, preventing WMD's falling into terrorist hands, or they will be long and protracted such as the maritime operation underway since 26 October 2001 which involved elements of NATO's Standing Naval Forces patrolling the eastern Mediterranean and Strait of Gibraltar to monitor merchant shipping. More than 25,000 ships have been monitored, and those that raised suspicion have been signalled, shadowed and documented. In cases where counter-terrorist operations are part of a more general NATO mission within a failed state or intra-state conflict, winning the trust of local population through psychological and information operations will be crucial.

Although nations have the primary responsibility for the defence of their populations and infrastructures, there is a role for the alliance if a nation requests support. The ever present threat to Alliance homelands indicates that NATO mission are likely to include those which assist national authorities in protecting both civilian populations and critical infrastructure such as during 'Eagle Assist' which took place from mid-October 2001 to mid-May 2002, and involved NATO Airborne Warning and Control Systems aircraft (AWACS) to help protect the U.S. homeland. Consequence management of terrorist atrocities, also the responsibility of national civil authorities may also draw on NATO capabilities such as robust planning and force generation processes to rapidly identify and deploy the necessary specialist assistance. This could include the immediate assistance to civil authorities in areas of chemical, radiological defence; engineering and management of displaced persons.

A final point should be made that the missions NATO will find itself conducting will depend heavily on future decisions by member states concerning what constitutes a direct threat and what is an appropriate response. Paramount are questions over cyber warfare. Currently, acts such as the recent attack on Estonia are not considered military actions. As the threat becomes graver, such attacks, which could effectively shut down a highly networked country may be classified as such. If so then the kind of missions this would involve would also be dependent on the form of the attack.

Likewise, missions will depend on debates over energy security. These

debates were sparked when U.S. Senator Richard Lugar called for NATO to come to the aid of any member of the military alliance whose energy sources may be threatened. If NATO's basic role is updated to include protection of allied countries' energy security (and his idea has received strong support from eastern European members of NATO) the alliance would undertake missions to secure energy supplies from potentially hostile countries. Any interpretation of clause V with regards to energy security would mean that any NATO member whose energy sources are cut off would be able to rely on assistance from the rest of the military alliance. Article 5 could also be interpreted to insinuate that the cutting off of energy to any NATO member would be defined as an act of aggression or an act of war. Energy security and the dwindling of oil resources in the future does not necessarily entail military combat however. Possibilities exist that NATO may engage in protecting tanker traffic and oil platforms in periods

of conflict. It should be noted that NATO governments took part in a military operation in the 1980s explicitly designed to secure the supply of oil. *Operation Earnest Will* was an effort, primarily by NATO states, to protect tanker traffic in the Gulf during the Iran-Iraq War (1980-1988). Other missions may include using satellites to monitor developments in areas where energy resources come under threat. Moreover Partnership for Peace countries, such as Kazakhstan and Azerbaijan, that are important energy producers are also seeking ways to associate themselves more closely with NATO; it is possible that NATO will seek ways to provide security for the energy infrastructure of such countries.

What capabilities are NATO forces foreseen to possess to effectively operate in regards to the identified issues?

The future security environment and the missions it entails for NATO require specific capabilities; hardware, trained people, operational concepts and supporting assets.

The collapse of the Soviet Union means that collective territorial defence of Europe is no longer an urgent requirement. Territorial defence must remain a core function of the alliance of course, but its importance must be diminished however. Globalization and the rise of threats such as pandemic disease, climate change and terrorism which transcend national borders have transformed the meaning of security. The alliance can no longer protect the security of NATO members without addressing the risks and threats that arise far from the alliance core. Problems which seem distant and disconnected will sooner or later arrive on your

doorstep; this was the key lesson of Afghanistan and 9/11.

Terrorism, failed states, and humanitarian crises arising from environmental degradation and political instability will be largely confined to the global south, far removed from NATO's treaty area and the home stations of most alliance forces. The spatial contours of the future security environment and expeditionary nature of the vast majority of NATO missions will increase the demand for capabilities to conduct operations beyond the alliance treaty area. As recent missions such as the Iraqi training operation demonstrates, a transformation to expeditionary forces has already taken place. The NATO Response Force (NRF) is the foundation on which the expeditionary capabilities of the Alliance are based. Supplementing the NRF will be necessary to deal with the full range of expeditionary missions, which include traditional full-scale warfare for Article 5 collective defence to small operations in remote areas.

The challenge is to provide the hardware capabilities for the NRF so it can conduct expeditionary missions successfully. Force mobility will be crucial to effectiveness. On this basis, the Alliance requires sufficient fully deployable and sustainable land forces. This must be backed up by appropriate air and maritime components including extensive transportation assets designed to enable the alliance to intervene militarily further and further outside its own borders. Capabilities such as airborne refuelling are crucial, but most important in this regard is strategic lift capability. NATO's sealift capability is more than adequate, but it lacks strategic airlift. This will need to be remedied and it is a positive sign that fourteen NATO member states have formed a Strategic Airlift Interim Solution (SALIS) consortium to obtain assured access to strategic airlift as a shortfall until the fielding of the planned A400M aircraft and completion of the NATO Strategic Airlift Capability initiative which will provide a multinational fleet of C-17 strategic lift aircraft.

An expeditionary posture will also require logistics and support assets that are either forward based or can move as rapidly as the forces they support. Air bases in and around NATO's new member states should be upgraded as well; air bases in eastern Romania or Bulgaria could support fighter operations over the Near East. The value of forward operating bases such as these is greatly magnified if preparations have been made in advance to support high-tempo operations. Depending on the base, such preparations might entail repairs to runways or facilities, enhancements to fuel storage and pumping capabilities, repositioning of ground support equipment and munitions, and improvements to the physical security of the facility.

Armaments must also be lighter and more mobile and able to cope with demanding and different geographical and climatic environments. An expeditionary posture must entail deployable communications and information systems capable of handling time-sensitive intelligence information. The threat of cyber warfare means these must be secure from concerted and most likely state-supported attacks, particularly in light of the estimate that 120 states are developing information warfare capabilities. China has declared its ambitions to have an 'informationised military', so too should NATO. A repeat of the downing of a NATO web server in a Serb Denial of service attack should not be repeated. Extensive command, control and communications capabilities which provide for a networked information structure and allow for information sharing would greatly increase decision-making during expeditionary missions. Sustainability of all these capabilities is not simply a fashionable buzzword; many operations far from the treaty area will be long term.

An expeditionary NATO able to deal with the security challenges of the twenty first century is a reflection of the transition from a geographical approach towards a functional approach to security. A necessary element of this transformation is the Alliances partnership policy, success of which has been amply demonstrated in Afghanistan, where non-alliance countries Australia and New Zealand participated with NATO forces. Deeper ties with partnership countries and missions involving their militaries requires extensive interoperability and standardisation, not simply between alliance members, but also the flexibility to cooperate with partner forces and, where possible the release of appropriate standards. Capacities should be expanded to develop strategies, tactics and weaponry that can be used in conjunction with the NATO coalition partners the mission requires.

Globalisation is forcing a fast pace of change on the new security environment. The speed of social, political and economic flows around the globe means that the spread of threats is quick and the new security environment dynamic. This could not be a more marked change from the predictable bipolar order of the Cold War. Forces will need to be fast focused and subject to a high state of readiness of forces for time sensitive targets. The example of terrorism is indicative here. Operations must be conducted quickly if terrorist suspects are to be prevented from slipping back into obscurity. Forces must be almost deployable within a small time-frame. Due to the changing and unpredictable nature of the security environment NATO forces must have the ability to adapt force postures and military responses rapidly and effectively to unforeseen circumstances. This requires an effective capability to analyse the

environment and anticipate potential requirements and the necessary flexibility to respond to any sudden shifts in requirements;

Flexibility of movement will need to be supplemented by flexibility of military capabilities. The continuation of inter-state war and likelihood of intervening in crises with elements of interstate conflict means that conventional military forces must continue to be a core capability. Moves by Russia to a more provocative standpoint, and the potential rise of competitors to Europe and the United States such as China reinforce this view. In short, the alliance should ensure core combat competencies and structures are not lost as it confronts new threats and embraces new missions. Core military capabilities are not only decisive for a contingency like the Persian Gulf. They are also important for reasons closer to home in Brussels. First, an adequate conventional force structure offers a rotation and training base for non-article V missions such as the Balkans of which there will be others.

However, from a strategic planning perspective, it seems reasonable to regard large-scale interstate war as a remote possibility. This requires continued moves away from static, defensive military alliance which massed a huge and heavy army to deter Soviet aggression. NATO should therefore continue to refocus its energies away from conventional military forces such as decreasing the number of heavy tanks at its disposal.

State based militaries are no longer the most provocative threat to NATO forces. The dominant form of conflict in the near future will involve many different forms of actors and an interrelated mix of insurgency, civil war and inter-communal hostility. Such complex forms of war necessitate a mix of low intensity counterinsurgency operations, and require special forces, high technology equipment such as precision-guided munitions (PGMs), and night vision equipment to minimise civilian casualties. This latter requirement is crucial in conflicts where battle space is generally urban and 'hearts and mind' campaigns essential. This means that NATO allies will need to continue to invest in their militaries. The current trend on defence procurement is poor and must improve. In addition to procuring new equipment, however, the Alliance should also work on implementing Alliance wide standards for counter-insurgency operations. For decades NATO allies trained together to prepare for a Soviet invasion of Western Europe. The massive land and sea exercises that NATO undertook then should be replicated now, but instead they should focus on preparing all NATO allies for LIC engagements.

But in a world of increasingly complex conflict, military power alone is unlikely to achieve solutions to the problems that will arise. Lasting solutions to the problem of modern conflict will require the effective harnessing of development, diplomacy and security resources to achieve desired ends. An integrated 'whole of government' approach to future operations is necessary. NATO is not a relief organisation nor is it a reconstruction agency but it must have the capability to network with other departments, agencies and organizations. Again Afghanistan offers a case in point; military, diplomatic, development and law enforcement personnel are working together in a collaborative framework to help realize the Afghanistan National Strategy (ANS).

This need to cover the full spectrum of operations, from combat to peacekeeping is hindered by national restrictions and caveats. Progress has been made in removing these, but as the missions NATO undertakes increase in diversity, these caveats inhibit the flexibility and effectiveness of NATO military forces.

The ability to work effectively with other departments, agencies and organisations, particularly civilian law enforcement agencies will be a key part of NATO's ability to combat the effects of global warming and to support consequence management in support of the civil power in the event of natural emergencies. Capabilities must include the ability to contribute more to the protection of the Alliance's populations, territory, critical infrastructure and forces. This is also the case for man-made emergencies such as terrorism. The ability to work together in a comprehensive multi-agency/organisation approach will be key.

With terrorism however, it is not simply consequence management which requires such an approach. Such an approach will be necessary to deter, disrupt, defend and protect against terrorism. NATO forces will need structures and procedures in place to work with civilian authorities.

The threat of terrorism will put a premium on special operations forces which will need particular counter-terrorist specialisations, training and specific technologies such as precision airdrop. Improvements will also be necessary in procuring secure, modern communications and information systems. More importantly, terrorism cannot be tackled without improved intelligence capacities. Human intelligence will be of particular importance given the amorphous and networked threat of terrorism. Special emphasis should be placed on enhancements to capabilities for collecting, processing, and exploiting information. With terrorism now transnational, terrorist cells in one country may be planning attacks in

another and procuring material from a third. Alliance members should develop more broadly and deeply arrangements for intelligence and information sharing.

The rise in proliferation of WMD's which will cascade down the state system, and the threat posed by rogue states and terrorists who have declared their aim to attain such weapons means NATO should certainly have defences against chemical, biological, radiological and nuclear attacks and improved capabilities for operating in environments that may be contaminated by weapons of mass destruction. The launch in 2003 of a new Multinational Chemical, Biological Radiological and Nuclear (CBRN) Defence Battalion designed to respond and defend against the use of weapons of mass destruction both inside and beyond NATO's area of responsibility is noteworthy. Extensive proliferation would require the expansion of this capability.

Bibliography

- *A Climate of Conflict: The Links Between Climate Change, Peace and War*, International Alert report, accessed at http://www.international-alert.org/climate_change.php
- Barkawi, T., *Globalization and War*, (Oxford/2006).
- Biddle, S., 'Afghanistan and the Future of Warfare' *Foreign Affairs* 82, 2 (March/April 2003).
- Brown, C., 'Irony and Modernity: the Responses to September 11th' Al Qaeda and the Modern World', *A Clash of Ideologies: Al Qaeda, America and Academia*, <http://www.fathom.com/course/21701759/session3.html>
- Carson, M., *et al.*, 'Can Terrorists Build Nuclear Weapons?' available on the website of the Nuclear Control Institute in Washington at <http://www.nci.org/k-m/makeab.htm>
- Cooper, M., 'Nuclear Proliferation and Terrorism', *The CQ Researcher*, Vol.14, No.13.
- Cornish, P., 'NATO: the practice and politics of transformation', *International Affairs*, Vol. 80, No.1.
- Cox, M. 'Is the United States in decline—again?', *Foreign Affairs*, 83, 4 (July 2007).
- Edmonds, M., *Future NATO Security: Addressing the Challenges of Evolving Security*, accessed at http://books.google.co.uk/books?hl=en&lr=&id=QfHYBYL7zy8C&oi=fnd&pg=PP7&dq=nato+security&ots=KiiTR_rcdk&sig=ggAZXqwnG2LkzXDwZkiRRshRrKY#PPP4,M1
- Estonia Hit by "Moscow Cyber War" *BBC News*. Accessed at <http://news.bbc.co.uk/1/hi/world/europe/6665145.stm>
- *Future Security Environment (Plan Blue 2006)*, Royal Australian Navy report accessed at <http://www.navy.gov.au/publications/planblue/06/security.html>
- Gat, A., 'The Return of Authoritarian Great Powers', *Foreign Affairs* 2007 (July/August).

- Gray, J., *False Dawn*, (London/2002).
- Gregory, D., *The Colonial Present*, (Oxford/2004). Eberstadt, N., 'The Population Implosion' *Foreign Policy* (March/April 2001).
- *How Solid Are The BRIC's?*, Goldman Sachs Global Economics Paper 134 accessed at http://www2.goldmansachs.com/hkchina/insight/research/pdf/BRICs_3_12-1-05.pdf
- Howard, R., 'Resource Civil Wars', *RUSI Newsbrief*, Vol.27, No.12.
- Hutton, W., *China and the West in the Twenty First Century*, (London/2007).
- Jenkins, B., *Countering the New Terrorism*, (1999).
- Johnston, P. and Roi, M., *Future Security Environment 2025*, Canadian Vice Chief of Defence Staff report accessed at http://www.vcds.forces.gc.ca/dgsp/pubs/rep-pub/ord/fse2025/intro_e.asp
- Juerhensmeyer, M., 'Religious Terror and Global War' in Ed. Calhoun, C., *et al*, *Understanding September 11*, (New York/2002).
- Kaldor, M., *New and Old Wars: Organized Violence in a Global Era*. (London/2006).
- Kupchan, Charles A. *The End of the American Era. US Foreign Policy and the Geopolitics of the Twenty-First Century* (New York/2003)
- Laqueuer, W., *The New Terrorism*, (Oxford/1999).
- Naim, M., 'The Five Wars of Globalization.' *Foreign Policy* 2003 (January/February).
- Nassar, J., *Globalization and Terrorism*, (Oxford/2005).
- Neill, A., 'Cyber Tiger, Hidden Dragon', *RUSI Newsbrief*, Vol.27, No.10.
- Pearlstein, R., *Fatal Future? Transnational Terrorism and the New Global Disorder*, (University of Texas/2004).

- *The National Strategy for the Physical Protection of Critical Infrastructures and Key Assets* Washington: White House, 2003,
www.dhs.gov/interweb/assetlibrary/Physical_Strategy.pdf
- Scholte, J., 'The Globalization of World Politics', Ed. S.Smith and J.Baylis *the Globalization of World Politics*, (Oxford/2001).
- Sebastian Mallaby, 'The Reluctant Imperialist: Terrorism, Failed States, and the Case for American Empire', *Foreign Affairs*, (March/2002).
- Singer, P., 'AIDS and International Security', *Survival*, Vol.44, No.1.
- *The DCDC Global Strategic Trends Programme 2007-2036*, Ministry of Defence, accessed at http://www.mod.uk/NR/rdonlyres/94A1F45E-A830-49DB-B319-DF68C28D561D/0/strat_trends_17mar07.pdf
- *The Failed States Index 2007* accessed at
http://www.foreignpolicy.com/story/cms.php?story_id=3865&page=7
- *The National Security Strategy of the United States of America* (2002), accessed at <http://www.whitehouse.gov/nsc/nss.pdf>
- Thornburgh, N., 'The Invasion of the Chinese Cyberspies (And the Man Who Tried to Stop Them)', TIME, August 29th 2005 accessed at
<http://www.time.com/time/printout/0,8816,1098961,00.html>
- Timperlake Edward and Triplett, William C. *Red Dragon Rising: Communist China's Military Threat to America*, (Washington/2002).
- Walker, W., 'Nuclear Enlightenment and Counter-Enlightenment', *International Affairs*, Vol. 83, No.3.
- *Water for People, Water for Life: The United Nations World Water Development Report*. March 6, 2003.

