Introduction
A world of risk

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I. Introduction

It seems to be a pattern in human existence that feelings of insecurity expand to fill the space left by the passing of earlier threats and fears. Although the shadow of nuclear extinction has been lifted from the world with the ending of the cold war and the phenomenon of major armed conflict has gradually been reduced to fewer than 20 cases (all of which are intra-state conflicts),[1] the security behaviour of the world's largest power—the United States—has been dominated in recent years by its often costly effort to block new perceived sources of vulnerability. More broadly, advances in world prosperity are giving those who benefit from them the sense of having more to lose, while those whose position has actually or relatively worsened have reason to resent their situation more. The boom in global travel, communications and economic interdependence of all kinds is exposing more and more people to unfamiliar environments and contacts, with all the attendant hazards.

Increasingly, analysts in the field of public security policy are trying to capture all these different dimensions of security challenge by using the word 'risk'—a term perhaps more familiar in the past from business analysis or from more specialized uses in individual and social psychology. Section II of this chapter discusses the reasons why this may be so. Section III addresses the difficulties of defining and assessing 'risk' in such a way that it can be a useful tool of defensive or constructive security policy. Section IV considers the range of different responses to risk, with their strengths and weaknesses, and concludes that active and forceful efforts to eliminate risks (especially those of human origin) sometimes do more damage than their necessarily imperfect results can justify. Section V draws together the results of the analysis and relates them to the critique of contemporary security policies offered under different headings in recent editions of the SIPRI Yearbook. It suggests that a risk-based analysis can give new force to the arguments for a global, cooperative framework for response based on shared human vulnerabilities and the consequent shared interests.

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[1] This estimate uses the definition of a major armed conflict as one that has at some stage caused at least 1000 battle-related deaths in a year; on this and other definitions of armed conflict see appendices 2A–2C in this volume.

II. Risk as a new security paradigm

Since the early 1990s a school of security analysis has developed that focuses on the 'risk society' as a new framework for the making of security policy.[2] Simultaneously, the language of risk has become more widely used by security analysts, commentators and practitioners—including many of SIPRI's own authors—even without their being aware of its theoretical underpinnings. One reason for this is fairly obvious: the word can capture a much wider range of problematic security phenomena than the traditional term 'threat' or even the more general term 'challenge'. 'Threat' was reserved, and perhaps still should be, for problems that are consciously and actively created by one security actor—ranging from an individual person to a state, alliance or international movement—for another. Finding the right way to apply the traditional term is tricky in the case of modern transnational phenomena such as terrorism. Terrorist actions targeted against a particular nation or society can fairly be called a threat to that nation or society. However, since their most characteristic modus operandi is to kill at random, the likelihood that any individual—who may not even be part of the target community but, say, a tourist—will get caught up in a terrorist action may better be defined as a risk than a threat for that person. At the same time, those who are targeted may subjectively feel 'threatened' by terrorism in ways not very different from how they once worried about nuclear war. This helps to explain why, as discussed further below, governments are also tempted to respond to the new problem in ways that are analogous to the old problems.

Modern definitions of 'human' (or comprehensive, or multifunctional) security include many types of danger and damage that do not involve armed violence or where such violence takes forms purely internal to a society, such as gang warfare, gender-based violence or extreme physical oppresssion by the state.[3] To the extent that these represent intentional human behaviour, it is not illogical to say that populations and persons may be threatened or at least feel threatened by them. Yet the range of appropriate responses in this case clearly lies well outside the traditional, state-based security discourse. This is even more the case for dangers that arise from unintentional human behaviour, such as accidents and negligence—as occurred, for example, in Chernobyl in 1986—or those that have causes essentially beyond human control, even if

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[2] 'Risk society' as a concept was coined by the sociologist Ulrich Beck. For an introduction see Beck, U., *Risk Society: Towards a New Modernity* (Sage Publications: London, 1992). For application of the concept in the realm of security studies see e.g. Coker, C., International Institute for Strategic Studies, *Globalisation and Insecurity in the Twenty-first Century: NATO and the Management of Risk*, Adelphi Paper no. 345 (Oxford University Press: Oxford, 2002); and Rasmussen, M. V., '"A parallel globalization of terror": 9-11, security and globalization', *Cooperation and Conflict*, vol. 37, no. 3 (Sep. 2002), pp. 323–49.

[3] On the concept of human security see Study Group on Europe's Security Capabilities, 'A human security doctrine for Europe', London School of Economics and Political Science, Centre for the Study of Global Governance, London, Sep. 2004, URL <http://www.lse.ac.uk/Depts/global/Publications/HumanSecurityDoctrine.pdf>; and University of British Columbia, Human Security Centre, *Human Security Report 2005: War and Peace in the 21st Century* (Oxford University Press: New York, N.Y., 2005), URL <http://www.humansecurityreport.info/>.

human actions can both aggravate and palliate them—for example, natural disasters, the effects of climate change, and epidemic diseases of people, animals and crops.

However inexact, the word 'risk' is likely to be readily understood when it is used to gather all these different kinds of problem into one security perspective. The argument in favour of trying to do so is not just a matter of theory. There has been a growing understanding in recent years that it is difficult to assure the security of a society, a state or an integrated region without taking into account the full range of challenges it faces and, in particular, understanding the ways in which they interrelate. The effort to plan corrective strategies that encompass many fields of security at the same time characterizes the latest thinking about crisis management and post-conflict peacebuilding, as well as many countries' homeland security policies.[4] Any attempt to deal with any type of security threat, challenge or risk will use resources—including intangible ones such as the support or acquiescence of the population—and the only fully rational resource strategy is one that identifies all the areas of related spending before setting priorities and, ideally, seeking synergies among them.[5] If the language and concept of risk can help decision makers and opinion formers to design more comprehensive frameworks of this kind and to avoid priority setting based purely on habit and prejudice, then this alone would demonstrate their practical usefulness.

The notion of risk also carries some baggage from its past applications and current usage in non-security realms, which may give new insights into modern security challenges. Risk is reflexive in that it is human beings' decisions to live in a certain way, to engage in certain activities and to go to certain places that expose them to the hazards concerned in the first place.[6] Just as the financial investments that bring the highest returns are normally also those with the greatest financial risk, the benefits of living in an open, globalized society have multiple risks as their obverse: exposure to terrorist infiltration and attack, aggravation of environmental pollution, exposure to disease, or the collapse of fragile and complicated material and social support systems.

A further level of reflexivity—or feedback—arises from the ways in which individuals and societies perceive and choose to respond to the risks that affect them. One person or group may see more clearly the necessary connections between their own choices and the risks attached and as a result be more ready to live with the latter; another may fail to see the connections and so be less

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[4] See Dwan, R., and Wiharta, S., 'Multilateral peace missions: challenges of peace-building', *SIPRI Yearbook 2005: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2005), pp. 139–66. See also chapter 3 in this volume; and Hansen, A. S. and Wiharta, S., *The Transition to a Just Order: Establishing Local Ownership after Conflict, A Policy Guide* (Folke Bernadotte Academy Publications: Stockholm, 2007).

[5] Hagelin, B. and Sköns, E., 'The military sector in a changing context', *SIPRI Yearbook 2003: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2003), pp. 281–300.

[6] See e.g. Beck, U., Bonss, W. and Lau, C., 'The theory of reflexive modernization: problematic, hypotheses and research programme', *Theory, Culture and Society*, vol. 20, no. 2 (Apr. 2003), pp. 1–33; and Rasmussen, M. V., '"It sounds like a riddle": security studies, the war on terror and risk', *Millennium: Journal of International Studies*, vol. 33, no. 2 (Mar. 2004), pp. 381–95.

ready to accept the consequences of their own actions. One country may grasp that risk is endemic and conclude that even its extreme forms, such as terrorism or the use of weapons of mass destruction (WMD), can only ever be minimized and controlled, rather than tracked to their roots and eliminated. Like a business operating in a high-risk market, such a country will emphasize prevention, defensive measures, resilience and survival strategies in the event of a calamity, alongside whatever equivalent it can find to liability insurance. Another country may view the same risks as unacceptable—without necessarily being ready to give up the types of behaviour that have aggravated them—and will be drawn towards stronger measures including, in the extreme case, forceful pre-emption. The many-layered subjectivity of such judgements is explored further in the next section, and the choice of responses is discussed again in section IV.

III. Measuring the immeasurable

In common with the handling of earlier threats, creating policies to respond to risk calls for the clear identification and, ideally, quantification of the challenge that needs to be met. Even in the context of more traditional military confrontations, such assessments are not easy: data on the other side's military holdings may be hard to obtain or deliberately distorted; judgements need to be made on quality, intention and probability as well as quantitative potential, and so on.[7] When trying to bring the much larger range of risk factors relevant to security within the span of a single assessment, these difficulties are multiplied. This section addresses the complications that arise at the objective, the subjective and the methodological levels, in turn.

Objective definition and assessment

An obvious objective difficulty in assessing security risks is that there are so many that are relevant to the survival and welfare of a present-day population, state or multi-state organization. The chances of a direct military attack may have been greatly reduced for certain states, such as the members of the European Union (EU) and the North Atlantic Treaty Organization (NATO), but none can entirely ignore them. Calculating them is already hard enough for a state that has several obvious potential adversaries or several vulnerabilities. Then come the risks of, and risks created by, internal armed conflicts: both for the territories where they occur and for their neighbours, and often also for

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[7] A common analytical (and political) mistake is to draw conclusions about a country's defence capability and perhaps even its strategic intentions directly from its level of military expenditure. In reality a country's capability consists of the cumulative resources acquired usually over a long period, including some elements that were purchased at market price and others that were not (e.g. gifts of equipment and the services of conscripts). The capability is further conditioned by factors of quality, appropriateness and will. On the difficulty of assessing and applying military expenditure data see Ward, M., 'International comparisons of military expenditure: issues and challenges of using purchasing power parities', *SIPRI Yearbook 2006: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2006), pp. 369–86.

quite remote states that have ties with the scene of the conflict or stand to be affected by refugee flows. Local and transnational terrorist activity, although often linked with the issues of a specific conflict, is notoriously much harder to identify, analyse and anticipate.[8]

A range of other, intentional but less physically violent, human actions can pose substantial risks for both their perpetrators and others: the acquisition of or intent to acquire WMD; denial of or interference with vital energy supplies, other strategic commodities (including foodstuffs) and natural assets (e.g. water), international lines of transport and communication, or international financial systems and relationships; attacks on the Internet and other information technology assets; and deliberate damage to the environment. Internal abuses of human and civic rights have become a 'risk' that affects not only the local victims but, potentially, any responsible state since the international community feels an increasing pressure and duty to intervene in cases where a state maltreats or fatally neglects its own population.[9]

On top of all these risks of conscious human origin come those that have origins that could not be controllable by humans (even if human activities have contributed to them): accidents of all kinds and one-off natural disasters; disease epidemics affecting people, animals or crops; and more gradual or long-term changes in local habitats and the global environment, including the much-discussed (but negligible) risk of a large meteorite or asteroid strike.

Even when addressed from the perspective of a single state or society, these risks are so diverse in nature, origin and degree of 'knowability' that many different experts and disciplines would need to be called upon for a combined assessment. Hitherto, neither governments' security work nor independent security research has generally been organized in a way that brings these different sources of expertise together.[10] Even if all the experts could be gathered in one room, they would still have to face the many practical challenges of building a multi-risk analytical model. What to include and what to leave out can be a subject of almost endless debate, especially when it comes to social and economic factors such as the impact of ageing societies on the viability and external competitiveness of national economic and social welfare systems, or the putative connections between high immigration, multi-ethnic communities, internal disorder and the roots of terrorism. Aberrant internal forces such as terrorists and criminals clearly need to be counted as threat or risk factors. However, should the rest of society be seen as the target on which these and other dangers impact, as some might prefer, or as part of the problem? It cannot be denied that recognizing the intrinsic vulnerabilities of a given society is important for understanding the way in which the events more

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[8] On transnational conflicts see chapter 2 in this volume.

[9] The outcome document of the Sep. 2005 UN World Summit contains important new agreed formulations on the duty of any government to ensure its people's welfare. UN General Assembly Resolution 60/1, 24 Oct. 2005, URL <http://www.un.org/Depts/dhl/resguide/r60.htm>.

[10] Before 11 Sep. 2001 it was unusual for governments of developed countries even to assess external and internal security threats through the same bureaucratic processes. Conflict-ridden developing countries did not have the luxury of distinguishing between them.

readily characterized as risks would impact on it. For example, one epidemic may strike harder against an ageing population, another where there are more children; a divided and unruly society makes it harder both to control crime and terrorism internally and to withstand an outside attack or natural disaster; a society with existing inter-ethnic tensions or high unemployment is likely to have more trouble with a flood of new refugees, and so on. Once more, the logic here seems to point to the desirability of making the work of risk definition, analysis and the study of interconnections as inclusive as possible.

Some traps of subjectivity

Once the scene is set for an overall risk assessment, it is important to be on guard against the many ways in which human perceptions and attitudes may distort the results. All humans face decisions involving the judgement of risk all the time—if only over what to eat and what means of transport to use—yet the human mind is notoriously ill-adapted for the task, at least at the conscious level. Non-experts persistently misunderstand the scientific rules of probability and misread quantified statements about odds and the incidence of various dangers.[11] Further distortions arise, however, from the specific situations of different human observers and the contexts in which opinions about risk are formed. Some of the most obvious examples follow.

1. Unfamiliarity and difference cause a risk to be subjectively rated higher, while familiarity leads to acceptance or even complacency. A US tourist or businessman will accept advice that it is too risky to go to country A at all, while women native to that country are still managing to bear and raise children there.[12] Tourists from country B may meanwhile think it too risky to go to some (or some parts) of the USA's own cities because of levels of street crime. People in country A itself might not want their women to face the sexual and cultural risks that they see as rampant in US society.

2. 'New' risks—especially if highly publicized—tend to drive 'old' ones out of people's minds, so much so that links between the older and newer manifestations and valuable lessons from past experience are commonly missed.

3. Risks on which information is readily available are addressed preferentially over those that are harder to define and quantify.

4. Short-term risks of relatively clear and compact origin are given priority as targets for active policy over longer-term, gradually evolving, more insidious ones.

5. Risk perceptions are skewed not only by the interests but also by the self-defined roles and responsibilities of those making the judgements. Different actors prefer to look for and address the risks that fall within their own per-

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[11] Probably the best-known example is that if a tossed coin has come down heads 10 times running, most people will believe it more likely to come down tails the next time, whereas in fact the odds remain 50:50 on both results.

[12] The advice may of course be logically defended if US citizens, as such, are likely to be selectively targeted for attack.

ceived competences, duties and capabilities. Governments are entrusted with protecting their whole territory and population and possess special powers, ranging from making war to passing binding laws, to do so. Thus, they will naturally be drawn towards risks of definable human origin where there is a target to attack or to negotiate with. They may easily be tempted to use their strongest attribute—military power—for the purpose.[13] Companies that feel primarily responsible for their own operations, profits, suppliers and markets are most interested in risks arising in and directly impacting on the related economic fields, so that, for example, damage to their corporate image, punitive lawsuits or inadequate insurance may come higher on their list of risks than terrorist attack, even if they are constantly exposed to the latter.[14] Citizens, and the civil society groups that represent them, may meanwhile see wrong actions and misuse of power by both government and business—not least when carried out in the name of risk management—as risks they need to mobilize against.

Section IV returns to how these subjectively determined views of risk shape patterns of response. One last complication should be noted here, however: the different degrees to which different human risk perceptions may become combined or interact. Much of the dialogue between the developed states of the North and the less-developed states of the South is about the efforts of the states of the South to make the North recognize and help with their greater exposure to a range of more consistently destructive risk factors. A powerful state (or multi-state organization) can impose its subjectively generated perceptions of threat and priorities on many others who, perhaps, do not objectively share the given problem let alone the same inherent preferences for dealing with it. Similarly, within a country government is normally well placed to impose its own characteristic risk vision on business and society, but it also happens that a business lobby or citizen's movement can impel government to give a higher priority to some risks than it would otherwise have done (for better or worse). All that said, problems arise far more often from the failure of different states and groupings to share and compare their visions, or of governments to discuss these matters with their own business constituencies and with civil society representatives.[15]

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[13] This attitude may be encouraged by the discourse recently prevailing in the field of conflict management that emphasizes the importance of restoring the central authority's 'monopoly of force'. This doctrine might be less prone to misunderstanding and abuse if it were always stressed that good governance is needed to legitimize the state monopoly, and that less use of force rather than more is usually one of the ways a 'good' government is identified.

[14] Ilmonen, U., 'Survival planning for business: a view from Nokia', eds A. J. K. Bailes and I. Frommelt, SIPRI, *Business and Security: Public–Private Sector Relationships in a New Security Environment* (Oxford University Press: Oxford, 2004), pp. 183–86.

[15] Governments addressing themselves to functional aspects of security, such as protecting critical infrastructure or stockpiling drugs, can hardly avoid working with the private sector. However, if such consultation is limited to only a few fields, it merely aggravates the problem of achieving consistency and optimal resource use across the whole field of risk assessment and response.

Methodological complications

Any attempt to assess and prioritize risks more objectively must return to the mundane questions of what is being measured, in what setting, from whose perspective and to what end. The very semantics of the word 'risk' associate it—more so than 'threat'—with notions of incidence and probability. A high risk of phenomenon X is most naturally understood as an increased likelihood that X will happen in a given environment or during a given period. For the purposes of security analysis, however, it is not just frequency or likelihood that is relevant. It may actually be easier for people to adjust to a harmful phenomenon (below the level of mass destruction) that recurs often in a given environment and for government to anticipate and handle that phenomenon in a resource-efficient way. If the aim of analysis is not just to catalogue risks but to improve the quality of policy response, it is equally important to be able to assess the relative gravity of the impact of different events—including their secondary effects—and to judge correctly how far a public policy response is feasible and efficient. When making such judgements, the kind of question to ask is whether human authorities can hope to anticipate, prevent or palliate the eventuation of the risk, or whether thay can only demonstrate their effectiveness in clearing up afterwards. Assessing the factor of connectivity is also very important for policy choices: a type of event that can be triggered by several different causes and that, in turn, can trigger multiple problems in other dimensions should prima facie attract more attention and resources than one that stands alone, however much damage it does at the time.[16]

Where or in what context the risk is being measured is a point that needs reflection. Commercial risk-assessment services, used notably by private business, have now become very sophisticated but still typically take a country-by-country approach that lends itself to portrayal in maps. The indicators measured can range from individual exposure to disease, street crime, kidnapping and so on, to systemic levels of political risk (including armed conflict but also the risk of sudden dispossession by the government) and economic risk (including such basic features of the economy as currency stability or security of supply but also human factors like the adequacy of regulation, policy stability and the degree of corruption). These are tools that are well matched to customers that have to choose between one country and another, be it a business deciding where to trade, a newspaper deciding where to send reporters or a tourist deciding where to travel. However, most such consumers are not the same as those who carry responsibility (in any sense) either for the creation of risks or for the response to them. The government of the country in question, its neighbours and other states or institutions that have an interest or duty to

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[16] This reasoning led a major multifunctional study commissioned in 1991 by the Government of Switzerland to identify a widespread and sustained electricity blackout as the single greatest danger facing the country. Comprehensive Risk Analysis Switzerland, 'Comprehensive Risk Analysis Switzerland (1991–1999)', Swiss Federal Institute of Technology, Zurich, 1999, URL <http://www.crn.ethz.ch/projects/ComprehensiveRiskAnalysis1999.cfm>. See also Braun, H., 'The non-military threat spectrum', *SIPRI Yearbook 2003* (note 5), pp. 33–43.

influence conditions there need analysis that tells them much more about both the causation and the consequences of each major risk factor. Neither of these can easily be confined to the limits of a single state.

This is easy to see in the context of transnational threats and natural challenges, ranging from the operations of global terrorist networks to the spread of epidemics, but it is also true of many intra-state conflicts and even of single policy acts. To take a topical example, it may have seemed natural for a professional risk consultant drawing up a risk map of the world to inscribe the 'risk' of North Korea's testing a nuclear device on North Korea itself. However, the factors that determined the timing of the test doubtless included various features of North Korea's relations with outside players, while the constituencies affected by the test ranged from those in nearby Seoul, Tokyo and Beijing all the way to Canberra, Washington and New York. For people on the streets of Pyongyang, however, the test itself was not a 'risk' in any direct sense, although the consequences of international reactions to it might well be.[17] Again, a map that shows how likely conflict is to break out in country X in the near future cannot answer the other very important questions of which other countries (and non-state actors) may have an interest in starting or stopping the conflict and how likely it is to lead to some form of national, multinational or institutional intervention.

On this showing, country-by-country risk measurement needs to be supplemented by something else in order to capture many of the dynamics relevant for successful forecasting and anticipation, or for determining policy priorities and responses. Larger maps that demonstrate intra- and inter-regional flows and influences are already used to present single-dimension challenges like the spead of HIV/AIDS, the spread of avian influenza, the estimated impact of climate change, terrorist networks, drug-smuggling routes, and so on. Other security-related phenomena (such as linkages and overspills between different conflicts, flows of armaments and other conflict commodities), certain economic interactions (including energy and investment flows) and some human ones (like migration, outsourcing or the flow of remittances from migrant workers) could all be pictured in the same way. Whether separately or combined, the pattern they formed could inform risk estimates by drawing attention to critical nodes, cases of high dependency, rapid shifts in relationships and suchlike. To arrive at a regional or a global equivalent of national risk mapping, it would be desirable not only to integrate as many of these different factors as possible but to begin to sketch the interplay between them. For policymakers who seek (just as at the national level) some sense of the impact of risk, however, another dimension would still need to be added: the vulnerability of the global system and the international human community to a particular risk or set of risks. This, in turn, demands an assessment of international society's capacity to respond (actively or by absorbing the losses) and an opinion on whether such responses would in real life be rational or would tend to make things worse.

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[17] See chapter 12 and appendix 12B in this volume.

If the terminology used here is a little reminiscent of discussions about the international monetary system, this is a useful reminder that economic analysts (both governmental and business-based) have to make similar judgements about a highly connective and interdependent global scene. It would be an interesting exercise to compare and, where possible, combine the techniques of risk assessment and management used in business and other economic contexts with those being developed by governments and multilateral organizations in the context of multifunctional security. The differences in goals and cultures of the two approaches are precisely what make the attempt worthwhile. The dispassionate qualities of a good private-sector assessment of security risk, which prosaically calculates probabilities and costs rather than labelling perpetrators as 'evil' or their acts as 'shocking', may sometimes be a good corrective to public judgements swayed by the subjectivity mentioned above. Private-sector leaders would no doubt also want to urge politicians to take more seriously the security implications of issues that hit business first and foremost, such as overstretched insurance capacity or cyber-sabotage. Government for its part could point out to private actors the many ways in which their own actions or oversights might aggravate risks and the need for them to cooperate positively with both official and social authorities to reduce the damage. Indeed, the more widely the definitions of a modern public security policy are drawn, the clearer it becomes that the private sector today is often the most exposed to functional and transnational risks and among the best placed to devise solutions. This in turn suggests the need for a blending of public and private risk analyses and response strategies, rather than one-sided imposition of a paradigm.[18]

IV. The risks of risk management

This section returns to the challenges that exclusively concern public policymakers in the field of security, together with those who are consulted by such authorities or who seek to control them. It is argued, first, that a number of factors are combining to promote a more active or preventative approach to security risk by some of today's greatest powers and major institutions; but, second, that such behaviour can be counterproductive in at least three ways if pushed to extremes.

The temptation to act

Any security risk that has origins or causes that are susceptible to human influence has the potential to be eliminated, reduced or contained through policy. As noted above, such action will almost invariably have costs, in cash and

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[18] On the issues discussed in this passage see eds Bailes and Frommelt (note 14); and Bailes, A. J. K., 'Private sector, public security', eds A. Bryden and M. Caparini, Geneva Centre for the Democratic Control of Armed Forces (DCAF), *Private Actors and Security Governance* (Lit: Zurich, 2006), URL <http://www.dcaf.ch/publications/kms/details.cfm?id=25736>, pp. 41–63.

other resources, including the cost of diverting resources from other potential uses. However, there are also risks involved in the very process of acting against risk. In the field of traditional, interstate security relations these 'process' risks can be categorized as: (*a*) retaliation by the object of the action, leading possibly to escalation; (*b*) retaliation by another party either supporting the attacked party or simply taking advantage of the occasion; (*c*) domestic risks such as popular objections leading to loss of political support and credibility or, in the extreme case, collapse of the responsible regime; and (*d*) what might be called the moral risk of breaking any relevant normative rules, which could also lead to a type of altruistic retaliation such as sanctions or even forceful intervention by the relevant international bodies.

These points apply *mutatis mutandis* not just to military actions but to other, for example economic, tools used with coercive intent. Although the picture they present is complex, state authorities have long experience of calculating process risks and are familiar with the most obvious secondary choices that may be made in order to minimize them. These include: (*a*) seeking first to overcome the problem cooperatively (e.g. with a non-aggression pact or arms control agreement); (*b*) solving it in a way that avoids or reduces the risk of direct confrontation (examples range from deterrent military postures, through negotiated confidence-building measures, to buying off the opponent or diverting its attention towards another target); (*c*) acquiring allies or creating mutual support groupings to share the liability; and (*d*) seeking prior approval from a higher authority such as the United Nations, or even getting that body to tackle the target itself. Last but not least, in cases where the risk concerned does not jeopardize either the community's or the government's own survival, the calculation of these process risks may produce a rational decision to do nothing or to engage only in preparations designed to cushion the eventual impact.

The challenge for today's policymakers could be defined as the need to extend and adapt this traditional wisdom to the altered, and generally much wider, range of risks that are within the scope of security policy today. New scope for miscalculation exists even in relation to threats of the more familiar interstate type. For a start, the motive to address residual risks actively, and to use more ambitious (pre-emptive) policies, has been strengthened by the removal of the very large risks of retaliation and escalation inherent in the East–West stand-off of cold war times. The means to act are available in abundance, most obviously to the USA as the only remaining military superpower, but also to all the other states that have chosen not to cut their defence effort in proportion to the drop in proximate military threats.[19]

As to the four types of process risks, the USA no longer has reason to fear retaliation by any power of its own size, nor to expect that any of the larger powers would intervene to protect its likely targets, nor that anyone would dream of exploiting the overseas deployment of US troops to venture a mili-

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[19] World military expenditure in 2006 was $1.2 trillion, which is just below its real value at the height of the cold war. The USA accounted for 46% of this total spending. See chapter 8 in this volume.

tary attack on the homeland.[20] The kind of retaliation that might, nonetheless, be expected from different potential US military targets is harder to assess than it was in the case of the Soviet Union because intelligence on them is more scarce, cultural interpretation is harder and their own policies are sometimes inherently unpredictable. The circumstances of the early 21st century have kept the risk of domestic retaliation relatively low for both the US and the Russian administrations. Finally, the policy of the two US Administrations of President George W. Bush has been to downgrade, at both theoretical and practical levels, the importance—and even the legitimacy—of international rules and institutions that might attach moral risk to pre-emptive action.

All these factors could have been expected to generate a more adventurous anti-risk strategy both by the USA and by other powers making similar calculations (e.g. Israel), even in the absence of the terrorist attacks of 11 September 2001. They have, however, also opened the way for many developments that are more widely welcomed by world opinion, such as the proliferation of international peace missions of all kinds; the freedom for NATO to engage itself militarily in Afghanistan; the openings for the EU to develop itself as an intervening power, even in such sensitive locations as the Palestinian territories; and the decisions of the UN World Summit of September 2005 to adopt principles that underpin humanitarian intervention in cases such as genocide.[21] The relaxation of cold war disciplines has allowed former adversaries to accede to what used to be an enemy institution or to work together in ad hoc peace deployments, as in the Western Balkans.[22] The same picture is seen in the building of institutions and action networks to tackle new shared functional threats, sometimes through novel uses of military assets.[23] The fact that so many states have been able to face and overcome the risks involved in transition to a democratic mode of governance in the past 15 years can be traced back in large part to the same strategic shifts, and to their impact on both global diplomacy and global economics. If, therefore, blame needs to be attributed for recent cases of apparently excessive activism linked with false risk calculation, the answer may best be sought in the combination of major changes in realpolitik with new and urgent demands for response to other categories of human risk—including the 'new threats' of terrorism and WMD proliferation—for which recent history offers no single tried and tested model.

Notoriously, part of the USA's stated justification for its 'global war on terrorism' is the principle that one can neither negotiate with terrorists nor

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[20] The same could be said of China or Russia, unless they were to attack the USA itself or one of its allies.

[21] See note 9.

[22] Examples of accession to formerly enemy institutions are the entries of Cambodia and Viet Nam to the Association of South East Asian Nations (ASEAN), 10 Central European countries to NATO in 1999–2004 and 8 Central European countries to the EU in 2004. For the current membership of these bodies see the glossary in this volume. Russian troops were deployed in conjunction with NATO forces in Bosnia and Herzegovina and Kosovo during the 1990s.

[23] E.g. the Proliferation Security Initiative was set up in 2003 to tackle the unlawful transfer of WMD-related consignments by sea. See e.g. Ahlström, C., 'The Proliferation Security Initiative: international law aspects of the Statement of Interdiction Principles', *SIPRI Yearbook 2005* (note 4), pp. 741–67.

deter them by the traditional interstate means. The current US Administration has also applied this principle to its dealings with states potentially engaged in nuclear proliferation. It maintains that negotiation with such states (at least, in bilateral form) is neither morally acceptable nor productive, while the methods of deterrence and containment are too slow and uncertain. The discarding of these familiar policy tools has left the USA with the main options of 'hardening' itself as a target (with missile defences, controls on immigrant and non-immigrant entry, and various counterterrorist measures at home) and of force-fully and actively intervening against the supposed sources of danger abroad. The actual costs and risks that are associated with the choices are addressed in the next subsection. At this point, it may be suggested that the USA's most fateful steps overall have been (*a*) to favour traditional military power in its policy against new threats and (*b*) to assume that the same risk calculus attaches to it as to the tackling of states and other geographically based adver-saries in post-cold war conditions, as described above. Not only is military coercion an approach of limited value for eliminating terrorism as such, but when used against targets defined by an anti-terrorist or anti-proliferation logic it has turned out to be more prone to evoke retaliation and less likely to be rewarded or at least tolerated by the relevant domestic and international constituencies than could be expected in the case of other bilateral inter-ventions and peace missions (whether legally mandated or not).[24]

A more open but intriguing question is how far the USA's and other powers' thinking about active and coercive approaches to risk has been influ-enced by the integration of other risks of non-intentional or non-human origin into the officially recognized security spectrum. Destructive forces such as epidemic disease or natural calamities cannot be negotiated with; unintentional human errors cannot be deterred; and even some types of intentional human behaviour that affect international security relations—such as mass migra-tion—or internal social viability—such as having more or fewer children than the authorities recommend—can only be influenced with a rather narrow and uncertain range of means. Moreover, in none of these areas does strong corrective intervention carry much risk of retaliation as such; and if it misfires or rebounds in other ways, people are less likely to condemn the government for failure than in the case of miscalculations against 'manageable' human opponents. The chance that an active policy of risk elimination or reduction in these fields will run into international legal obstacles or moral prohibitions is relatively low, although it is perhaps highest in the fields of migration and population control. Overall, therefore, it may be posited that these new dimen-sions of security have helped to steer many governments' preferences towards a type of response that places relative emphasis on prevention or pre-emption—even if the means chosen for it are often 'peaceful' and internation-

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[24] For this purpose, contrast the scale of repercussions created by the invasion of Iraq with those of US military actions since the end of the cold war in Panama (1989), the 1991 Gulf War, its handling of peace missions in Somalia, etc. The new ambition and scale of the US action in Afghanistan and Iraq also helps to explain why the international fallout has been greater than in earlier terrorist-related actions such as bombings carried out against targets in Libya in 1986, Sudan in 1998 and Yemen in 2002.

ally cooperative ones—and where the rest of the policy arsenal is reduced to measures for improved resistance and for damage limitation. It is tempting to speculate on how far this model may have influenced paradigms of anti-terrorist policy and, in particular, may have discouraged recourse to the tools of discussion and negotiation (with the basis of human understanding that they require), even among states that do not favour the use of military force for the purpose.

At any rate, consideration of current responses to human security risks serves to underline yet again the variety and subjectivity of national judge-ments both on the severity of risk and on the merits of specific responses. China has been criticized for setting the risks of loss of face and foreign intru-sion above those of spread of infection in the early stages of its response to the SARS crisis of 2003 and possibly to the more recent avian influenza threat.[25] In Russia, concerns in certain quarters about military and scientific con-fidentiality have sometimes hampered acceptance of international help to reduce risks from leftover and unwanted nuclear, biological and chemical materials.[26] The USA's policy on the global risk of fast population growth is conditioned, in a way that few of its Western partners' policies are, by per-ceived risks to the sanctity of human life.[27] Conversely, European countries (and many others) have been prepared to accept significant new constraints and short-term sacrifices to help control global warming, while the US authorities both dispute the scale of this risk and reject the economic costs that they associate with the currently available countermeasures. Such examples underline that it is not so much the idea of preventing, pre-empting or elimin-ating risk as such that has divided the world so sharply in recent years, but rather the question of priorities and of suitable cases, rules and instruments for its application.

Counterproductive approaches

Another important question for analysis is 'what works?' This final subsection looks at a range of ways in which active approaches to countering risk may do more harm than good, for those who embark on them and for the global system at large.

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[25] Njuguna, J. T., 'The SARS epidemic: the control of infectious diseases and biological weapon threats', *SIPRI Yearbook 2004: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2004), pp. 697–712.

[26] See Anthony, I., *Reducing Threats at the Source: A European Perspective on Cooperative Threat Reduction*, SIPRI Research Report no. 19 (Oxford University Press: Oxford, 2003). Russia's persistent cover-up of its cold war biological weapon research and production programmes and of the scale of the leftover hazards is perhaps the single most glaring and dangerous example. See e.g. Hagelin, B. et al., 'Transparency in the arms life cycle', *SIPRI Yearbook 2006* (note 7), pp. 253–54.

[27] Population growth was identified as a risk to US national security in a 1974 National Security Council report. US National Security Council, 'Implications of worldwide population growth for U.S. security and overseas interests', National Security Study Memorandum no. 200, Washington, DC, 10 Dec. 1974. Since the 1980s US administrations have adapted the 1974 policy according to their different views on birth control and abortion.

First, what could be called the traditional varieties of backlash, familiar from earlier experience of interstate conflict, are still extant and often defy prediction, even when the power taking action is apparently much stronger than the target. Thus, President Saddam Hussein's forces collapsed surprisingly fast in Iraq in 2003 but the Taliban have proved to be much tougher than expected in Afghanistan, like the North Vietnamese in the past or the Chechens. Second, a risk that has apparently been eliminated can reappear in another place or in a different form. Iraq exhibits many varieties of this, from Baathists turning to terrorism after their military defeat, to other types of terrorist moving from their (possibly threatened) home territories to Iraq, and the insurgency resuming in new places after US troops believe they have gained control of some of its strongholds. Interveners are not immune from such problems even when acting altruistically, as shown by the number of cases of would-be conflict resolution where violence has broken out in new areas or contexts after a peace settlement was agreed and seemed to have been successful.[28] There are also examples in fields not involving armed violence, such as the ability of terrorists, criminals and smugglers to find new avenues for their financing, procurement and movement after others are blocked, or the opportunistic spread of new diseases in populations that have eliminated—but also lost their resistance to—older ones.

Retaliation by a protective power or other third party against the state or states taking the action remains rather rare but may be detected in new forms involving non-traditional actors: as when terrorists step up their violence in response to actions that they disapprove of against populations elsewhere or when Iran aggravates the West's problems by supporting Hezbollah and Hamas. It has been argued more broadly that the US-led coalition's action in Iraq, far from breaking up the so-called Axis of Evil, has actually encouraged previously unrelated terrorist groups to establish new links under the brand name of al-Qaeda.[29] In the diplomatic sphere, China has been observed systematically making new friends (principally through oil contracts) with countries that have fallen under US disfavour, such as Guatemala, Iran and Venezuela.[30]

Domestic backlash is still a real risk for most countries, as the former government of Spain found to its cost when it lost the 2004 elections as a result of its response to the Madrid bombings of 11 March 2004, coming on top of its high-risk decision to send troops to Iraq. Most other European governments which joined the US-led coalition have since paid some price, electorally or in opinion ratings, despite the fact that they were often acting on

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[28] Sudan is a well-known case. For this and other examples see Dwan, R. and Holmqvist, C., 'Major armed conflicts', *SIPRI Yearbook 2005* (note 4), pp. 83–120.

[29] US Department of State, Office of the Coordinator for Counterterrorism, *Country Reports on Terrorism 2005* (US Department of State: Washington, DC, Apr. 2006), URL <http://www.state.gov/s/ct/rls/crt/c17689.htm>, pp. 11–15.

[30] See chapter 6 in this volume.

a quite sophisticated multiple risk analysis.[31] The US President himself managed to win re-election in 2004 but has seen his approval ratings wane in the second term and the opposition Democratic Party seize control of the Congress in the November 2006 mid-term elections. The USA has had to pay a higher than expected human and budgetary price for the Afghanistan and Iraq interventions and homeland security, in turn leading to various new exposures and uncertainties on the national and global economic front. Last but not least, the continued relevance of what is defined above as moral risk has been made abundantly clear in the Iraqi case. The US Administration's policies have reduced trust in and support of, and raised the level of antipathy towards, the USA in all world regions and have seriously strained—if not yet broken—communities like NATO that were designed precisely for shared risk management.[32] Some US policymakers, at their most extreme, have attempted to define this type of risk out of existence by categorizing alliances and international rules as handicaps. However, this approach has demonstrated its futility on every occasion since 11 September 2001 when the USA has needed the help of allies and international organizations or, indeed, has been driven to create new rule-based constructs in the service of its chosen policy towards 'new' threats.[33]

There are two further dimensions, however, that may be added to the risk calculus and that perhaps particularly deserve to be in present globalized conditions: one concerns the rationality of transferring or displacing risk and the other the failure to adapt analysis of the reflexive nature of risk to state policy.

In models of confrontation involving states, or the use of traditional force against new actors, successfully reducing the risks for one party almost invariably means creating more risks for others. The cold war strategies of deterrence (such as mutual assured destruction and flexible response) deliberately set out to create a sense of risk, fear and uncertainty on the other side in order to reduce the probability of an attack. US leaders since 2001 have also often used the language of 'making the world unsafe' for their opponents, of inducing 'shock and awe' among them and so on. This represents a kind of zero-sum approach to the distribution of risk, just as there is a traditional zero-sum philosophy of security.

This approach is not inherently wrong. Generally accepted policies for reducing everyday risk in societies also entail deliberately raising the level of

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[31] Their analyses attempted to address not just the direct threat from Saddam Hussein, but also the risk that abstention represented for bilateral and Europe-wide relations with the USA and the risk of how the USA might behave if it intervened alone.

[32] On antipathy towards the USA see Pew Research Center, 'America's image slips, but allies share U.S. concerns over Iran, Hamas', Pew Global Attitudes Project Report, Washington, DC, Sep. 2006, URL <http://pewglobal.org/reports/display.php?ReportID=252>.

[33] Examples include the USA's attempts in 2004–2005 to obtain assistance from NATO as an institution in Iraq; the need for a new UN resolution to legalize the occupation of Iraq after Apr. 2003; the USA's reliance on the EU for cooperation in travel security and immigration control; the multilateral frameworks that the USA has participated in for the attempted solution of nuclear proliferation problems in Iran and North Korea; and the USA's initiatives in the International Maritime Organization for new maritime security rules and in the UN itself for Security Council Resolution 1373 on terrorist financing and Resolution 1540 on WMD. On Security Council Resolution 1540 see appendix 11A in this volume.

risk for thieves, murderers, drug pedlars, speeding drivers, environmental pol-
luters and others who contravene the laws of society. Finding a way to make
life more difficult and dangerous for terrorists, while if possible avoiding the
creation of martyrs, is a core challenge of anti-terrorist action. The new focus
on post-conflict justice is largely driven by the need to make war crimes peril-
ous for their perpetrators, not just for the victims.[34] Nevertheless, modern
security risks rarely have the simplicity of a 'High Noon' scenario where only
the bad guy has to pay the price for the good guy's survival. There are two
obvious ways in which the active combating of risks of human origin can end
by spreading risk more widely—over and above the indirect variants of
rebound, where all US citizens may, for example, face more hostility abroad
because of a few leaders' actions.

The first way is the equivalent of collateral damage, where conditions
become more risky for populations close to or associated with the target with-
out themselves being to blame. This is the situation of Palestinians and Leba-
nese affected en masse by Israeli reprisals; of the constantly growing pro-
portion of civilians who are consciously targeted, not just hit by side effects, in
intra-state conflicts; or of ordinary citizens in many parts of Afghanistan and
Iraq following the US-led interventions.[35] Even leaving aside purely moral
objections, anti-risk policies that create, as it were, such a large and non-
functional surplus of risk must be open to question.

The second way is the displacement of risk, when a risk reappears in a new
location after it has supposedly been eliminated. Cases are mentioned above
where this takes the form of a new challenge for the original actor, but there
are also many ways in which third parties can be affected by such displace-
ment. If one country or province cracks down on illegal immigrants, they will
look for other more porous borders. Terrorist groups that are rooted out from
certain countries will settle in others that may be less vigilant and able to con-
tain their activities. A ballistic missile shield that covers only certain European
countries would leave others more exposed. Poland and the Baltic states see an
oil pipeline that bypasses them in the interests of an assured supply from
Russia to Germany as making their own energy security (or even their general
security) more uncertain. Wastes that are not permitted to be buried in one
country's soil or emptied into its waters will be exported to another country,
possibly one that is less competent to store them safely. If countries that are
able to produce effective anti-epidemic vaccines choose to hoard them for
themselves, mortality in other countries will be higher.

As these last few cases should hint, displacing risk is not just morally
questionable. In conditions of growing global interdependence it is always
prone to rebound on the first actor sooner or later, even if in very indirect
ways. This is particularly the case with action in spheres that are inherently
transnational, such as terrorism, WMD proliferation, malfunctioning of the

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[34] Wiharta, S., 'The International Criminal Court', *SIPRI Yearbook 2003* (note 5), pp. 153–66.
[35] On the Israeli action in Lebanon in the summer of 2006 see chapter 2 in this volume. On the target-
ing of civilians see Dwan and Holmqvist (note 28), pp. 96–102.

energy market, migration, environmental damage and disease. It is no accident that in these dimensions even unilateralist countries and countries with a risk philosophy that tends towards a zero-sum attitude regularly find themselves drawn back towards more cooperative responses that seek to reduce risk exposure and increase resilience for as many people as possible and for the global system as such. No country today is, metaphorically speaking, an island and none can succeed in becoming the equivalent of a gated community either. The countries and institutions with the most advanced and coherent security philosophies today are the ones that have projected this truth back into the handling of risk in more traditional dimensions of defence and security, and have adjusted their policies accordingly.

One final, and more general, way in which national or institutional approaches to risk may become counterproductive is by failing to adapt to state policy the latest analytical understanding (as explained in section III) of the reflexive nature of risk. Very often in the world of security, as in business and in people's daily lives, a given risk is the direct concomitant—the price or cost—of a self-chosen pattern of behaviour. The fact that the behaviour in question may not be wrong in itself—as Western populations may incur the wrath of certain terrorists by allowing free speech or giving women equal rights—does not invalidate the linkage, just as the supremely unselfish action of saving another person can often mean risking one's own life. In such cases, a policy that aims to eliminate the risk without changing the behaviour that caused it is very likely to fail or, even if it momentarily succeeds, to entail a major displacement of risk. If behaviour change is not an option—for example, because the behaviour is an expression of human rights or is required for a certain level of economic development—a policy that accepts the inevitability of some risk, and that aims rather to maximize prediction skills, minimize impact and optimize the population's resilience, may represent the most effective balancing of resources as well as being less likely to run into normative barriers. For countries acting on the international stage, the equivalent strategies for risk management are those that focus on containment, solidarity and mutual assistance in dealing with consequences, and (where possible) dialogue with and the gradual transformation of the problematic elements. Forming multi-state groupings for direct or indirect security purposes can bring the same benefits of risk suppression within the community, and of resistance and resilience across a wide spectrum of external threats, as good policy can within a single state—without compromising and while even enhancing the chosen values and way of life of the participants.[36] At global level, and as suggested in section II, universal human risks can be seen as the price of increasingly universal human interconnection and mobility and are demonstrably best met by universal cooperation.

Much the same policy prescriptions could be arrived at from an alternative starting point that sees risk as a necessary constraint on human or national

[36] Bailes, A. J. K. and Cottey, A., 'Regional security cooperation in the early 21st century', *SIPRI Yearbook 2006* (note 7), pp. 195–223.

self-assertion, and a deterrent to unbridled experimentation with the very powerful instruments that humankind possesses today. The human tendency to behave more recklessly in proportion to (or even faster than) the rate at which proximate risks are reduced is well documented in other contexts. When cars are given new safety features, the number of accidents may go down but the overall number of deaths (mainly of people outside the cars) can increase as people drive more boldly.[37] A similar correlation is mooted above between the USA's perception of new risks to its population (terrorism), the reduced proximate risk involved in the use of US military resources to tackle this challenge in post-cold war times, and the cost now accumulating from that action in terms of process risk, spillover affecting bystanders and displaced risk to third parties. From one point of view this would suggest that the mechanisms of risk, and especially its reflexive character, offer one of the few remaining constraints on a power that no longer faces a similarly strong state adversary—if the risk is correctly perceived and calculated in the first place. From another, it leads to the unpalatable conclusion that even if human policy could give certain parties the option of eliminating security risk altogether, it would not be good for humanity at large or even for themselves that they should do so.

V. Concluding remarks

Little is new in the above analysis; several of the points made were, indeed, mentioned in other recent editions of the SIPRI Yearbook. The idea that the leading powers' choice of methods in pursuit of security may have shifted too much towards action and away from restraint was presented in the Introduction to *SIPRI Yearbook 2003* and again, linked with an argument about the growth of armaments, in *SIPRI Yearbook 2006*.[38] Limitations on the successful use of military power, and the various kinds of process and moral risks it entails, were identified in the Introduction to *SIPRI Yearbook 2006* among others.[39] The argument for greater recognition of interdependence between different world constituencies, and hence the need for more sheltered societies to help in easing the risk burden of less fortunate ones, was made in the Introduction to *SIPRI Yearbook 2005* as part of a discussion of global governance.[40]

The conclusions emerging—in favour of policies based less on self-interest and short-term calculation, and more on cooperation and a comprehensive grasp of security interactions—may seem almost too banal to be worth repeating. They represent, however, a prescription that has repeatedly been found to

[37] The author is indebted to Michael Brzoska for this point in the argument.

[38] Bailes, A. J. K., 'Trends and challenges in international security', *SIPRI Yearbook 2003* (note 5), pp. 11–16; and Bailes, A. J. K., 'The world of security and peace research in a 40-year perspective', *SIPRI Yearbook 2006* (note 7), pp. 17–28.

[39] Bailes (note 38), pp. 10–17.

[40] Bailes, A. J. K., 'Global security governance: a world of change and challenge', *SIPRI Yearbook 2005* (note 4), pp. 13–21.

have evolutionary advantages at the individual human level, as well as in international politics. As noted elsewhere, there is a current trend towards the growth of regional and other (e.g. functional) multi-state groupings for security cooperation that are driven by similar reasoning, and which by their very existence subtly curtail their members' scope as well as need for risk taking.[41] It is commonly pointed out that such institutions find it hard to actively confront and check the more extreme kinds of external risk or threat, but it is less often noted that none has yet been destroyed as a result of any such threat being actualized.[42] Does this model, with its apparently risk-absorbing qualities, survive only because other powers, such as the USA, are ready to fill the gap by actively confronting the worst risks and being ready in their turn to absorb the costs involved? That is one tenable explanation of what is observed in the field of traditional and terrorist-related security action; but it needs to be offset by recognition of the USA's relative underperformance in combating other risks like climate change, population growth or the alienation of the Muslim world.

There has for at least a century been speculation about an alternative global solution that would pool states' strengths in a global security mechanism. Such a mechanism would be used to tackle the toughest threats of common concern to humanity, both of intentional human origin—where it would incidentally spread the process risks more efficiently—and of non-intentional origin. Whether or not the United Nations in its present form comes anywhere near to fulfilling this ideal function, the above analysis suggests that the prescription as such is more logical and realistic than many of today's self-proclaimed realists would admit.

[41] See e.g. Bailes and Cottey (note 36).

[42] NATO's vulnerability, should it fail in its self-assigned task in Afghanistan, might turn out to be an exception.