I would like to begin on a cautionary note. The world is an enormously complex place. That may seem to be a truism, but the responsibilities of understanding and managing this complexity are perhaps the most demanding of all for statesmen of the 21st Century and for the United Nations.

Complexity in international affairs means essentially that there are simply too many factors working at the same time, none of which alone dictates outcomes in world affairs. Making matters worse, each of these factors -- which include a large number of diverse participants (including not just nation states but also individuals, groups, regional and international organizations), and considerable uncertainty over their motives and ambitions -- all these factors play themselves out in an environment where there is no world army, no world police force, and no court with compulsory jurisdiction to resolve disputes. There are rules, but no absolute guarantees that they will be enforced, nor any agreed punitive action to be imposed on violators.

This condition of complexity has another important characteristic that we also must consider in attempting to assess prospects for arms control and disarmament. This concerns the existence of extremely high risks arising from events that may seem, in the smug complacency of the post Cold War world, very unlikely to occur -- events that, if they do occur, literally jeopardize the entire planet.

The risk of nuclear war is still unique in this respect, and it therefore defines the outer limit of the threats we collectively face in the years ahead. It may be unlikely, but nobody knows for sure
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exactly how unlikely. It may not be first on the minds of members of the general public, the news media, or even people with responsible positions in academia or in government -- yet imagine how fast attitudes would change if even one nuclear weapon is once again used in war, or detonates accidentally in a time of peace.

In addition to understanding the role of complexity in making predictions difficult, it is also useful to define some terms, for arms control and disarmament are not synonyms terms in the lexicons of either the theory or practice of international relations today. Both are distinct approaches intended to serve the interests of international peace and security, but they go about this task in different ways.

Arms control begins from the premise that the old problem of war simply cannot be solved entirely through any single decision or collective action. The challenges for arms control are, therefore, to reduce the risk and frequency of armed conflicts, to lessen or contain their damaging effects, to shorten their duration, and to reduce their risks to civilian populations. This approach results in the capping of arms races, not their elimination.

People who focus their efforts in the field of disarmament, by contrast, take a somewhat different approach. They may well concede that the potential for conflict is inherent in the human condition, but they also recognize that the very existence of certain types of arms clearly aggravates both the risk of conflict and its consequences should it occur. Thus they seek sharp reductions of such arms and, in the case of weapons of mass destruction, their total elimination.

Perhaps one of the most famous statements of the problem came from the great British statesman, Viscount Grey of Fallodon, who witnessed first-hand the events that led to the First World War. Reflecting several years later on that war, he stated the following in his memoirs (Twenty-Five Years):

*The enormous growth of armaments in Europe, the sense of insecurity and fear caused by them -- it was these that made war inevitable. This . . . [he continued] is the truest reading of history, and the lesson that the present should be learning from the past in the interest of future peace, the warning to be handed on to those who come after us.*

Thirty years later, former UN Secretary-General Dag Hammarskjöld echoed this conviction, stating at a press conference that --

* . . . disarmament is never the result only of the political situation; it is also partly instrumental in creating the political situation.*

Yet neither Viscount Grey nor Dag Hammarskjöld ever argued that disarmament meant the total elimination of literally all weapons from the face of the Earth. The Members of the League recognized that the maintenance of peace required the reduction of national armaments -- in the
words of the Covenant's famous Article 8 -- "to the lowest point consistent with national safety and the enforcement by common action of international obligations." Article 51 of the UN Charter addresses self defence as an "inherent right" of Member States, and, under Article 42, authorizes the Security Council to use such armed forces as may be necessary to maintain or to restore international peace and security.

In this sense, "disarmament" emerges as far from an idealistic dream -- that familiar caricature conjured up by its critics for debating purposes. It is best seen instead as an important means of enhancing security in a world filled with all-too real threats, a measure that still has very strong support indeed throughout the world community. At the United Nations last September, for example, the participants at the Millennium Summit -- the largest-ever gathering of world leaders -- agreed on a Millennium Declaration that included their joint commitment

\begin{quote}
To strive for the elimination of weapons of mass destruction, particularly nuclear weapons, and to keep all options open for achieving this aim, including the possibility of convening an international conference to identify ways of eliminating nuclear dangers.
\end{quote}

While the incisive words of Viscount Grey, Dag Hammarskjöld, and the Millennium Declaration leave little ambiguity over the potential value of disarmament, they unfortunately tell us very little about how to achieve it. The challenge of precisely how to realize the fruits of arms control is also somewhat obscure. Leadership is clearly an important common denominator, though this only leads to an infinite series of additional terms, each of which must be defined, and each of which brings new ambiguities -- and following this course today would soon become an exercise in futility.

The solutions to these problems are found less in words than in deeds. Both arms and control and disarmament are subjects of national policies. Both have resulted in binding legal obligations that arise from bilateral or multilateral treaties. Both have been the subject of research by scholars in academia and experts in private research organizations. Both have also been advanced by the dedicated efforts of non-governmental groups and, at times, even transnational advocacy movements, as best illustrated by the global campaign to abolish anti-personnel landmines and laser weapons. Religious institutions have also taken an interest in these subjects, for the obvious connection they have with preserving the dignity of our common humanity.

Though arms control and disarmament are truly cross-cutting issues throughout society, their level of public support is, unfortunately, not as deep as it is wide. Many of the successes in this field -- which must be seen as including the non-occurrence of arms races, wars, pre-emptive strikes, aggression, and other such tragedies -- occur very quietly, with the general public largely unaware of the advancements that have occurred. Complacency and apathy are widespread in society -- almost all societies -- as there always appear to be more important problems to worry about than catastrophes that could lead to the end of the world. Leaders who focus expediently
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on election cycles -- except in the most extraordinary of cases -- seldom engage in long-term planning for achievements that may not be realized until long after they have left office. The news media, reinforced all-too often by studies undertaken in academia and private research establishments, finds it easier to report stories involving the use of weapons, rather than their non-use or progressive reduction or destruction.

In such a climate, fearsome stories about dangerous so-called "rogue nations" wielding their suspected weapons at the world attracts far more attention than the incremental gains that take place in the fields of arms control and disarmament. Weapons manufacturers and their partners in government in turn exploit the spectre of such foreign threats to rationalize new military responses. This is a very old game indeed.

In such a climate, it is not perhaps surprising to witness -- even over a decade after the Cold War ended -- a new surge in defence spending, reaching now about 90 % of the Cold War level, accompanied by a booming new business in arms exports, persisting allegations about the actual or imminent proliferation of weapons of mass destruction, and mounting scepticism and cynicism about the future of both arms control and disarmament.

How one assesses the prospects for both approaches to international security depends significantly upon one's interpretation of the role of political will in shaping outcomes in history. At one extreme, we find simple fatalism, the notion that inexorable forces shape history in ways that humans can never fully understand, let alone control. This is a particularly tempting conclusion to reach in the current age of "globalization," a time characterized by the enormous cultural, political, and economic effects from revolutionary developments in technology, especially in the fields of transportation, communication, and computation. No country on Earth is capable of fully isolating itself from these unrelenting forces. To this extent, true fatalists deny the existence or ability of political will to make any difference whatsoever in shaping historical outcomes.

At the other extreme, we find those who argue that the world is -- or could be -- shaped or designed by a single country. This unilateralist view has its own problems. There is no state in the world today that has either the capacity or will to run the world -- to "pay any price" in defending all commitments in international law, to guarantee against the conduct of genocide or other gross human rights violations, to control all the world's economies, to clean the global environment, to put an end to terrorism, to halt all illicit trade in narcotics, to eliminate world poverty, or to guarantee every human being a decent education. Nor can global arms control and disarmament for our common security be the exclusive activity of one country.

Clearly, reality lies somewhere between these two extremes. It lies in a zone within which citizens and national leaders recognize that while some factors in international relations may not be susceptible to direction or control by individual states, there is nonetheless some considerable space for human intervention to achieve constructive change in many areas of public policy.
By and large, this is the realm in which arms control and disarmament measures are deliberated, a realm that acknowledges opportunities for unilateral actions by nation states. Just in the last few decades, for example, we have seen extraordinary steps taken by governments in these fields. South Africa, Belarus, Kazakhstan, and Ukraine all willingly gave up the nuclear weapons that were on their soil. Extraordinary leadership in South America led in 1967 to the establishment of the first continental nuclear-weapons-free zone in an inhabited area and, later, to the decisions by former rivals, Brazil and Argentina, to join the Treaty on the Non-Proliferation of Nuclear Weapons. These two countries -- along with South Africa -- later also chose to give up their long-range missile programs.

With respect to the United States, President Richard Nixon announced in 1969 that the US would unilaterally terminate its biological weapons program. During the administration of former President George Bush, the United States dramatically and unilaterally reduced its stockpile of tactical nuclear weapons, curtailed their deployment abroad, and signed the Chemical Weapons Convention. For his part, President Clinton signed the Comprehensive Nuclear-Test-Ban Treaty, though he was unable to get it ratified by the Senate.

All of these were decisions that leaders chose to make -- they were not decisions that leaders had to make.

One important responsibility leaders face is to weigh how much to work with other countries in solving common problems. This has led to many multilateral approaches to problems in the field of arms control and disarmament. Perhaps the greatest achievement in conventional arms control in the entire post-war period was the conclusion of the treaty on Conventional Armed Forces in Europe -- a treaty that led directly to the destruction or conversion of thousands of battle tanks, artillery pieces, combat aircraft, and attack helicopters. Though the world has unfortunately not advanced to the point where it has a global conventional arms control treaty, many countries are working slowly but persistently to improve controls in specific areas.

Next July, the UN will host a major international conference on the illicit trade in small arms and light weapons in all its aspects. This conference does not seek to put all small arms on the disarmament agenda, nor does it aim at preventing all future exports of such weapons. It does, however, seek to pave the way for new international controls over specific black market activities that have contributed directly to the deaths of tens of thousands of combatants and, most tragically of all, untold numbers of innocent civilians, including an alarming proportion of women and children.

The United Nations has for many years had its own efforts underway to address the serious problem of the lack of transparency both in the arms market and in global military expenditures. The Department of Disarmament Affairs maintains a database of arms transfers known as the Conventional Arms Register, supplied by data voluntarily provided by Member States. We also maintain the standardized reporting instrument for military expenditures, carrying on a tradition begun back in the days of the League of Nations, of seeking to improve the public reporting of
information on what governments are spending on arms. Both of these tools are based on the sensible premise that it is important to know more precisely what one is seeking to control, before one attempts to control it.

There have also been some important multilateral steps forward in the field of weapons of mass destruction, as best exemplified by the negotiation and entry into force of the Chemical Weapons Convention and the Biological Weapons Convention, which outlawed both such weapons universally. The Treaty on the Non-Proliferation of Nuclear Weapons (NPT), which was extended indefinitely in 1995, now has 187 States Parties -- this treaty is not only the most universal arms control and disarmament treaty, but its universality even comes quite close to rivalling that of the UN Charter itself. At the 2000 NPT Review Conference, the five nuclear-weapon States Parties made an "unequivocal undertaking . . . to accomplish the total elimination of their nuclear arsenals leading to nuclear disarmament." Significantly, the Conference also reaffirmed that "the total elimination of nuclear weapons is the only absolute guarantee against the use or threat of use of nuclear weapons." These are substantial steps forward indeed in consolidating the global norm of general nuclear disarmament.

Yet when it comes to the difficult task of translating these words about global norms into deeds with respect to the remaining stockpiles of strategic nuclear weapons, we find new difficulties. The world's only forum for negotiating multilateral disarmament treaties -- the Geneva-based Conference on Disarmament -- has been locked in stalemate due to the lack of a consensus among its members over future work in the field of nuclear disarmament and the prevention of an arms race in outer space. This deadlock has also prevented the negotiation of a treaty to ban the production of fissile materials for use in nuclear weapons.

It is important to stress that this deadlock is continuing, notwithstanding the best efforts of some of the world's most competent professional diplomats -- the institution of the CD is not the source of the problem; instead, the deadlock is symptomatic of the lack of political will among its membership to reach a consensus.

Another difficult area pertains to missiles -- both offensive, long-range missiles and the various forms of defence now under consideration to counter such weapons. As noted by Secretary-General Kofi Annan in April 1999, the world community lacks global norms governing missiles and missile defence. Yet strategic missiles are very important indeed to control and eventually to eliminate.

In regional settings like South Asia, for example, the flight times between launch and impact are well under 10 minutes, which leaves national leaders in that region very little time indeed to make decisions in the event they are led to believe a launch is either underway or imminent. A full-fledged missile race in South Asia -- even more so than the slow-motion race now underway -- would, in such circumstances, prove to be extraordinarily destabilizing in the region, as would a resumption of nuclear testing. Yet both India and Pakistan -- each not a party to the NPT and despite Security Council Resolution 1172 -- continue to develop such weapons, continue to
Prospects for Arms Control and Disarmament remain outside the Comprehensive Nuclear-Test-Ban Treaty, and continue to state their intentions to add new missiles to their arsenals. Israel, another non-NPT state, also retains significant missile forces as well as a robust nuclear weapons capability, along with a significant stockpile of unsafeguarded nuclear materials. Meanwhile, the United States and Russia continue to maintain their nuclear missiles on a high level of alert.

A new arms race has been predicted if the United States ultimately decides to proceed with its unilateral deployment of its National Missile Defense programme and consequent violation or abrogation of the Anti-Ballistic Missile Treaty. Equally serious is the dire forecast of the "death of arms control" and disarmament, in terms of bilaterally-negotiated nuclear weapons reductions.

Another multilateral challenge ahead concerns the disposition of fissionable nuclear materials -- all such materials. This includes material produced for use in weapons, material now inside weapons, and material in military and civilian programmes that could be used for nuclear explosive purposes. These are materials that, if inadequately protected, could pose proliferation and terrorist risks.

Multilateral action also requires some funding. Yet just weeks ago, the Director General of the Organization for the Prohibition of Chemical Weapons held a press conference and warned that his organization was "going through a very difficult financial crisis," one that threatens its ability to operate. In September last year, we read additional reports citing a budget crisis in the International Atomic Energy Agency. With growing nuclear safeguards responsibilities, such a crisis is particularly alarming. More disturbing still is the fact that the sums of money needed by these agencies are measured in the tens of millions of dollars, compared to the hundreds of billions of dollars that are spent each year worldwide on defence.

Yet despite all the challenges ahead -- in particular, the challenges facing the need to revitalize the process of global nuclear disarmament and the development of new global norms for missiles and missile defence -- it is clear that these challenges are created by humans and that they can be solved by humans.

So what is the road ahead, in particular for academia? With respect to nuclear weapons, Secretary-General Kofi Annan addressed this question directly in a speech he made last year at the City College of New York. He noted that the general public had been experiencing a form of "psychic numbing" to the dangers of nuclear weapons and saw a clear need to focus more attention on rousing public attention to these dangers. He called upon academia to make three specific contributions.

First, he focused on the theme of "discovery" -- by which he challenged academia to undertake more scholarly research on nuclear weapons and the infrastructure that produces them. The goal here is to promote public understanding of the problem through acquiring facts -- facts about how many nuclear weapons currently exist, how much weapons-usable nuclear material has been produced, how much is being spent on such weapons worldwide, and other measures
to enhance transparency. Discovery might be thought of as a means to promote the goal of "results-based disarmament" -- that is, disarmament where tangible progress can be measured, and policies can be assessed against specific disarmament objectives.

Second, he stressed the importance of education -- this includes a strong emphasis on good teachers, dedicated research, and a wider and deeper exposure of students to the analytic problems of disarmament. The UN is now undertaking a two-year study on how disarmament education can be improved -- a goal that bears directly, perhaps more than we can even imagine today, upon future prospects for arms control and disarmament.

The third theme he emphasized was advocacy, an activity that is essential in encouraging national leaders to move in the right direction, by following through with such activities as ratifying treaties, improving compliance mechanisms for existing treaties, and promoting the exploration of new international norms.

What is most important for all of us is to combat complacency -- that deadliest of viruses that has plagued all disarmament and arms control efforts over many decades. Long ago, Edmund Burke reportedly stated that "The only thing necessary for the triumph of evil is for good men [and presumably women] to do nothing." Armament policies can change. They do change. They will continue to change, and they must change, if a global cataclysm is to be avoided. As we work toward de-alerting of nuclear weapons -- another step toward a saner world -- let us not neglect the solemn responsibility of re-alerting of the public to the dangers of balancing the fate of the world on nuclear-tipped missiles.

All hopes for future progress in arms control and disarmament rest ultimately on the public and enlightened leadership that is responsive to it. Positive policies will result from sustained action that is both understood and supported by average citizens. Neither disarmament nor arms control are strictly military problems. Their success represents a collective public good -- the benefits flow to all parts of society. The reduction and elimination of the deadliest of arms will by no means guarantee an end to political or even armed conflict, but it will surely offer positive dividends in reducing the scope and effects of that conflict, while reducing the risk of its recurrence, and freeing enormous public resources for more productive economic and social uses, as Article 26 of the UN Charter envisages.

In conclusion, the prospects for disarmament and arms control are brightest when these issues are made the target of sustained political activity by networks and coalitions of diverse groups throughout societies at large. The prospects are most grim when the most fundamental decisions about what weapons to develop, how much to spend, and which treaties to honor, are left to an elite group that has immunized itself from public accountability, even in democratic countries. Each nation must choose for itself which path it wishes to pursue in increasing their security with fewer arms, while increasing global security without the need for any weapons of mass destruction whatsoever.
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Whatever the specific formula, I believe that three elements will be critical to the success of such efforts: education, leadership, and coalition-building. This combination will stand the greatest chance of making disarmament and arms control sustainable as a permanent foundation for international peace and security. I have little doubt that the University of St. Andrews -- which in the next decade will celebrate its 600th anniversary -- is capable of making great contributions in each of these areas. You have my very best wishes and my deep appreciation for the opportunity to speak with you today.