PART I:

SEIZING THE MOMENT

1. WHY THIS REPORT, AND WHY NOW

THE PROBLEM: A GLOBAL THREAT DEFYING COMPLACENCY

1.1 Nuclear weapons are the most inhumane weapons ever conceived, inherently indiscriminate in those they kill and maim, and with an impact deadly for decades. Their use by anyone at any time, whether by accident, miscalculation or design, would be catastrophic. They are the only weapons ever invented that have the capacity to wholly destroy life on this planet, and the arsenals we now possess – combining their blast, radiation and potential "nuclear winter" effects – are able to do so many times over. Climate change may be the global policy issue that has captured most attention in the last decade, but the problem of nuclear weapons is at least its equal in terms of gravity – and much more immediate in its potential impact.

1.2 The risks associated with the failure of existing nuclear-armed states to disarm, the failure to prevent new states acquiring nuclear weapons, and the failure to stop any terrorist actor gaining access to such weapons, are very real. They outweigh any conceivable benefit that might attach to the continued possession of these weapons by anyone. They defy the complacency with which they have by and large been regarded since the end of the Cold War. And they must be tackled with much more conviction and effectiveness than we have managed so far.

1.3 Twenty years after the end of the Cold War there are at least 23,000 nuclear warheads still in existence, nearly every one of them having many times the destructive power of the bombs that devastated Hiroshima and Nagasaki. The U.S. and Russia have over 22,000 of them, and the other nuclear-armed states around 1,000 between them. They have a blast capacity alone equivalent to 2,300 million tons of TNT, which adds up to more than 150,000 Hiroshima-scale explosions – or 760 times the combined destructive power of all the bombs used by every combatant in World War II.

1.4 Nearly half of all these weapons – some 10,000 – remain operationally deployed. And, most extraordinarily of all, over 2,000 of the U.S. and Russian weapons remain on dangerously high alert, ready to be launched on warning in the event of a perceived attack, within a decision window for each country's president of four to eight minutes. We know now that there were many occasions when the very sophisticated command and control systems of the Cold War years were strained by mistakes and false alarms.

We know how destructive cyber attacks on defence systems could be with today's sophisticated technology – and can guess how much more so such attacks might be in the future. It is hard to believe that the luck of the Cold War – the near miracle of no nuclear exchange – can continue in perpetuity.

1.5 In recent years, moreover, we have seen the beginnings of a breakdown in the non-proliferation system, which despite many forebodings, and the non-participation of France and China until 1992, had held together remarkably for the first thirty years of existence of the Nuclear Non-Proliferation Treaty (NPT). India and Pakistan, who had never signed the treaty, joined the undeclared Israel as fully-fledged nuclear-armed states in 1998, with each of them now possessing at least 60 warheads, and in the case of Israel perhaps closer to 200. North Korea has declared its withdrawal from the NPT, and is now likely to have five or six nuclear explosive devices. Iran, with its uranium enrichment program, probably now has weapon-making capability if it chooses to go down that path. With these developments all occurring in the world's most volatile regions, with less reason to be confident about weapons security and command systems than in the case of the longer-established nuclear powers, and with considerable potential for what has been described as a "cascade" of proliferation should Iran, in particular, cross the weaponization red-line, the risk of something going badly wrong here is disconcertingly high.

1.6 Add to all that now the risk of terrorist actors getting their hands on the makings of a nuclear weapon. We can no longer be under any illusions about the intent of certain messianic groups to cause destruction on a massive scale. And – although the probability is small, and probably lower than some alarmist accounts have suggested – their capacity should not be underestimated to put together and detonate a Hiroshima-sized nuclear device. Using manageable technology long in the public domain and back-channel sourcing of the kind the A.Q. Khan network taught us to be alarmed about, such a device exploded from the inside of a large delivery truck in Trafalgar Square or Times Square, or in the centre of any other major city, would cause in each case hundreds of thousands of deaths and injuries. A much easier option for terrorist groups would be to make a "dirty bomb", combining conventional explosives with radioactive materials like medical isotopes, which would generate nothing like the casualties of a fission or fusion bomb but have a psychological impact at least equal to 9/11.

1.7 There are also potentially significant risks, in this context, associated with the likely rapid expansion of civil nuclear energy in the decades ahead, in response not least to the need for non-fossil fuel contributions to base-load electricity generation. The present total of 436 nuclear power reactors is expected to grow, even with long planning and construction lead-times and taking into account closures along the way, to as many as 800 by 2030, with

many new countries taking up this option. If this is accompanied by the construction of new national facilities for enrichment at the front end of the fuel cycle and reprocessing at the back end, this civil nuclear "renaissance" could mean a great deal more fissile material becoming potentially available for destructive purposes.

THE OPPORTUNITY: RENEWING THE MOMENTUM FOR ACTION

1.8 The only complete solution to the problem of nuclear weapons is to achieve their complete elimination – to create a world in which no state possesses nuclear weapons, where there are no unsafeguarded stockpiles of the high enriched uranium or separated plutonium on which they depend, and where we can be confident that no new nuclear threats will emerge. The problem has been a long time in the making, and its solution – beginning with all the existing nuclear-armed states renewing or pledging their commitment to elimination, and meaning what they say – will be long and complex in the delivery. Moreover, as the history of disarmament and non-proliferation efforts over the last twenty years starkly reminds us, one cannot assume that new momentum for change will be readily sustained: gains hard won can be rapidly lost. But there is now a new opportunity, matching that of the immediate post-World War II years and the early 1990s, to halt and reverse the tide once and for all.

1.9 The end of the Cold War saw a brief but extremely productive period of nuclear disarmament and threat reduction activity. Scores of thousands of warheads were decommissioned – bringing the global total to close to its present levels from the extraordinary 70,000 weapons that had existed in the mid-1980s. Unilateral cuts to national arsenals were made by the U.S., Russia, UK and France; the 1991 Strategic Arms Reduction Treaty (START) produced significant cuts in the number of offensive strategic weapons actually deployed; agreement was reached by Washington and Moscow on the elimination of Intermediate Range Nuclear Forces; ground-based battlefield nuclear weapons were removed from Europe; and France and the UK have eliminated all ground-based nuclear weapons of all ranges from their inventories. The U.S. Congress endorsed in 1992 the imaginative and forward-looking cooperative threat reduction programs sponsored by Senators Sam Nunn and Richard Lugar, designed to lock down dangerous weapons and materials – and in particular to reduce the chance of their falling into the hands of terrorist groups, or nations that sanction terrorism – in the former Soviet Union (and subsequently expanded to a number of countries since, notably Pakistan).

1.10 At the same time, intense diplomatic efforts to universalize the non-proliferation regime were rewarded by remarkable gains in preventing the further spread of nuclear weapons. In the early 1990s South Africa gave up its weapons program and joined the NPT, while three states of the former Soviet Union – Belarus, Kazakhstan and Ukraine – abandoned nuclear weapons and also joined the NPT as non-nuclear-weapon states. In South America, nuclear rivalry between Argentina and Brazil was contained when Argentina finally ratified the regional nuclear weapon free zone (the Treaty of Tlatelolco) and both subsequently joined the NPT. The high-water mark in non-proliferation diplomacy was the 1995 conference of NPT parties, which agreed to the treaty's indefinite extension.

1.11 But this momentum was not sustained. India and Pakistan became overtly nuclear-armed states in 1998, declining repeated pleas for them to join the NPT – as has Israel (which has never acknowledged its nuclear-armed status). In the same year, multilateral negotiations on a fissile material production cut-off treaty – or anything else – stalled in the Geneva Conference on Disarmament, and remained that way for over a decade. In 1999 the U.S. Senate failed to ratify the Comprehensive Nuclear-Test-Ban Treaty, and it has languished since with the support still required to bring it into force of eight other key countries – some overtly sheltering behind the American position. The Moscow Treaty of 2002, giving (imperfect) legal force to earlier announced unilateral cuts, was the last interest shown in arms control by the new Bush administration, which later in the same year unilaterally withdrew from the Anti-Ballistic Missile Treaty, storing up in the process multiple problems for future disarmament negotiations.

1.12 Efforts were certainly made to introduce new non-proliferation disciplines in the aftermath of 9/11, and with the discovery of the A.Q. Khan smuggling network, the concern about Iraq's nuclear program and the emergence of the North Korea and Iran problems. But when it came to disarmament the response of the key nuclear-armed states was seen by others as amounting to neglect at best and mockery at worst. This was hardly calculated to win a positive response from the non-nuclear weapon states who were being asked to do more on the proliferation side – and it didn't. The 2005 NPT Review Conference broke down without reaching substantive agreement on anything, and the UN World Summit in the same year also failed – for want of consensus – to say anything at all about nuclear non-proliferation or disarmament. As the end of the first decade of the 21st century approached, the hyperactivity of the early 1990s had become a slow-motion sleepwalk.

1.13 The wheel, however, has now turned again. The initial breakthrough can be traced to the January 2007 *Wall Street Journal* opinion article by the four U.S. statesmen, Secretaries Henry Kissinger, George Shultz, William Perry and Senator Sam Nunn (followed up with an equally thoughtful and

compelling piece a year later). From different sides of politics, all of them are hard-headed foreign policy realists with impeccable Cold War credentials. They argued, compellingly, that nuclear weapons had, with the end of the Cold War, outlived whatever utility they might have had; that the various risks associated with their retention by existing powers, and acquisition by new ones – not to mention terrorist actors – meant that the world would be much better off without them; and that it was time to commence a serious step-by-step process toward their elimination. Their statement struck sparks around the world, and was followed by many similar and supportive statements by groups of highly experienced and influential former officials in Europe and elsewhere.

1.14 The political momentum was consolidated with the election of President Barack Obama as President of the United States in November 2008, who launched a series of diplomatic initiatives, focusing particularly on nuclear non-proliferation and disarmament, for which he was awarded the Nobel Peace Prize within a year of taking office. Strongly personally committed to a world without nuclear weapons, as he made abundantly clear in his speech in Prague in April 2009, he was determined to deliver quickly some significant forward movement on disarmament. He pledged to immediately negotiate a START follow-on treaty with Russia to achieve significant further round cuts in each side's deployed strategic weapons, and found a responsive partner in Russian President Medvedev. He pledged to "immediately and aggressively" pursue U.S. ratification of the CTBT, although knowing that delivering the Senate on this would be a tougher call. He changed the U.S. position on fissile material cut-off treaty negotiations, agreeing that it should be verifiable, paving the way for the long stalemate in Geneva to at last be overcome. He made clear that he wanted to seriously "reduce the role of nuclear weapons in our national security strategy", with this objective being pursued in the first instance in the Nuclear Posture Review due for submission to Congress early in 2010. He chaired a meeting of the UN Security Council in September 2009 which produced the wide-ranging consensus Resolution 1887. He announced that the U.S. would host a world summit on nuclear security issues early in 2010. All this in turn injected a positive atmosphere into the preparatory process for the 2010 NPT Review Conference, with an agenda for that conference being agreed earlier, and in a much better atmosphere, than anyone recalling the meltdown of 2005 had a right to expect.

1.15 Wider afield, international cooperation on some other major global issues has moved further and faster in the past year than anyone could reasonably have expected. The unprecedentedly united and effective response to the global financial crisis of 2008–2009, and the emergence of the G-20 as a crucial policy-making and coordinating institution – with a membership genuinely reflecting the world of today and not, like the Security

Council, that of 1945 – have given real hope that the world's most intractable problems will be tackled much more constructively in the future.

1.16 This, then, is the environment – very much more promising than that of the last decade or more – in which this International Commission on Nuclear Non-proliferation and Disarmament has been established, and seeks to make its own significant contribution to the global policy debate. We are conscious that this debate has already taken wing, and that there are many players now engaged actively and effectively in it – individual governments, groups of governments, intergovernmental organizations, and a distinguished group of national and international think-tanks, research institutes and well-known non-governmental organizations, among the last-mentioned the Nuclear Threat Initiative, the Middle Powers Initiative, Global Zero and International Physicians for the Prevention of Nuclear War.

1.17 We are also conscious that our work follows that of a number of previous high-level panels and commissions over the last two decades whose reports have themselves made unquestionable contributions, notably the Canberra Commission on the Elimination of Nuclear Weapons in 1996, the Tokyo Forum for Nuclear Non-Proliferation and Disarmament in 1999, the Weapons of Mass Destruction Commission led by Hans Blix in 2006, and the Commission of Eminent Persons on the Role of the IAEA to 2020 and Beyond led by Ernesto Zedillo in 2008. If this Commission is to add real value to the international debate, we will have to not only bring information, analysis and argument together in a way that policymakers find useful, but break some new ground.

THIS COMMISSION'S ROLE: A COMPREHENSIVE ACTION AGENDA

1.18 The Commission was launched in September 2008 as a joint initiative of Australian Prime Minister Kevin Rudd and then Japanese Prime Minister Yasuo Fukuda, later endorsed by Prime Minister Yukio Hatoyama, with the stated objective of reinvigorating, at a high political level, awareness of the global need for nuclear non-proliferation and disarmament, in the context of the 2010 NPT Review Conference and beyond. Although supported and resourced by the governments of the two countries – both active and engaged contributors to the nuclear disarmament cause over many years – the Commission is a completely independent body, with its members appointed in their personal capacity rather than as representatives of their respective countries.

1.19 As described more fully in Appendix C, this report is the product of discussion at four full Commission meetings over the period October

2008 to October 2009, in Sydney, Washington DC, Moscow and Hiroshima, and regional consultative meetings held over the same period in Santiago, Beijing, Cairo and New Delhi. We also benefited, at our Moscow meeting, from a day-long consultation with leaders of the nuclear energy industry world-wide. The Commission was aided by advice and analysis contributed by a wide range of experts who served on the Advisory Board and by interactions with a global network of Associated Research Centres, all well-known research institutes in their own right, in Australia, Canada, China, Costa Rica, France, Japan, the UK and U.S. While drawing on a mass of already published literature, we also commissioned over fifty studies to address specific issues where supplementary research was needed, most of which have been published on the Commission website, www.icnnd.org.

1.20 The value added by this report will, we hope, be seen to follow from a number of factors. First, its timeliness: unlike most previous endeavours of this kind, we have had the sense that we are not so much resisting a tide as catching a wave. Second, the representativeness of the Commission's membership and the extent of our consultative outreach: this has been a genuinely global enterprise, in which we have done our best to expose ourselves directly to the widest possible range of interests, opinions and ideas. Third, the comprehensiveness of the report: whereas most previous commission reports of this kind have tended to focus mainly on one or other of the issues of disarmament, non-proliferation or peaceful uses of nuclear energy, we have tried to give more or less equal weight to all three, reflecting their close interdependence. Fourth, its realism: whereas writing on this subject can easily emerge as a rather idealistic wish-list, we have tried to match our own very strong idealism with pragmatic recognition that the real world is full of constraints that have to be acknowledged and somehow overcome. Fifth, its intended accessibility: policymakers and those who influence them, including the media, tend not to be specialists, and if a report is to be read, understood and have any impact it has to be written in a way that is not impenetrable to the uninitiated.

1.21 The last, and in many respects most important, way in which we have tried to add value is to ensure that this report is very specifically action-oriented, with a clear sense of what priorities it would be most productive to pursue, and by whom, at each stage of a long, evolving policy process. We have set out specific priority objectives for the 2010 NPT Review Conference, and Short, Medium and Longer Term Action Agendas for the periods, respectively, to 2012, 2025 and beyond 2025. The hope is that our analysis and recommendations, packaged this way, will prove both a reference point and guide to practical action over the years ahead for government and intergovernmental decision-makers, and those in civil society who will be seeking to shape those actions.

1.22 The Commission envisages this report, with its action plans, not as an end in itself, but as playing a part in a continuing process in which all relevant sectors of the global community will need to be, and stay, engaged. The right government decisions will only be made and carried through if the necessary political will is generated and sustained, and that means a central role for non-governmental organizations, parliamentarians, the media and anyone else whose business it is to educate, energize and hold to account national and international policymakers and those who most influence them. Mechanisms will need to evolve to monitor progress in a broad-based and transparent process, accompanied by periodic publishing of reports to highlight successes and identify shortcomings. For their own part Commission members are committed to taking forward the ideas in this report through advocacy and engagement with strategic policymakers and civil society worldwide.