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EDITOR'S NOTE

Here it is—the new quarterly journal of UNIDIR: *Disarmament Forum*. Quality information, innovative style, readable format. The new journal, which follows ten years of the *UNIDIR Newsletter*, is the first product of the Institute's makeover.

Each issue of *Disarmament Forum* will have a theme related to security and disarmament. After the Special Comment offered by an expert by way of introduction to the issue, five to eight articles focus on the chosen theme. Shorter articles that are not necessarily related to the issue's theme are included in Open Forum. UNIDIR Picks offers an easy jump-off point for information by providing useful on-line references. UNIDIR Activities gives a quarterly update on new and ongoing projects, along with the contact person within the Institute. And our recent publications are highlighted each quarter.

Our first issue, "The New Security Debate", focuses on forward-looking appraisals of the direction of disarmament and security in the next decade. Some of our authors examine different aspects of security in a rapidly changing world characterized by globalization. Others attempt to redefine what security means through non-traditional security issues such as the environment. Still others argue that the post-Cold War era is already over and that we have entered into a new period that requires not only new thinking but also a redefinition of security itself. We hope that the variety of opinions expressed in this issue challenge you to think about the "New Security Debate" in a new light. This issue complements the ultimate issue of the *UNIDIR Newsletter* "Disarmament and Security: The Past Decade", which examined the past ten years in disarmament. Topics to be addressed in upcoming issues of *Disarmament Forum* include the fissile material negotiations currently underway in Geneva, on-site inspections, small arms and ammunition, and various peace processes.

UNIDIR welcomes the recent news that the sixteen ECOWAS Member States signed a moratorium on the importation, exportation and manufacture of light weapons on 31 October 1998—and that the moratorium regime went into effect on 1 November. The declaration of the moratorium specifically mentioned the conference on conflict prevention, disarmament and development held in Bamako in 1996, which was jointly organized by UNIDIR and UNDP. We are excited to see the successful attainment of this regional initiative and UNIDIR remains committed to the promotion of West African peace, disarmament and security.

We also have the pleasure to announce that Péricles Gasparini Alves, a long-time colleague at UNIDIR, has been appointed by the Secretary-General to be director of the United Nations Regional Centre for Peace, Disarmament and Development in Latin America and the Caribbean, located in Lima, Peru. As Head of Political Affairs at UNIDIR, Péricles has most recently been working on issues related to the spread of small arms, as well as a more long-term project on dual-use outer space technologies. Additionally, he served as Editor in Chief of the *UNIDIR Newsletter* from 1995–1997. All of us at UNIDIR wish him well as he undertakes this challenging move and we wish him the best success in his endeavours at the Lima Centre.

We invite you to sign on to our electronic conference on our homepage (www.unog.ch/unidir). This conference attempts to stimulate international debate by pooling together current innovative thinking regarding the future direction of disarmament and security. We look forward to receiving and disseminating your views and ideas.

Many thanks go to those who have offered helpful comments, suggestions and assistance regarding the design and content of the new journal. The *Disarmament Forum* team welcomes your feedback. Your comments, as well as article queries for Open Forum, can be sent to dforum@unog.ch. Be on the lookout for other changes to our publication and electronic dissemination programmes as we move towards UNIDIR's twentieth anniversary in the year 2000.

Kerstin Hoffman

SPECIAL COMMENT

On 11 June 1998 the Doomsday Clock — that symbolic barometer of the world's proximity to Armageddon in the shape of nuclear war maintained by the Chicago-based journal *Bulletin of Atomic Scientists* — was moved five minutes forward to stand at nine minutes to midnight. It was an act reflecting the anxiety engulfing the world after India, followed by Pakistan, crossed the nuclear threshold asserting that national security and the failure of the nuclear-weapons states “to take decisive and irreversible steps in moving towards a nuclear-weapon-free world” justified the acquisition of the very weapons they want eliminated. The global system is still coming to terms with the forced entry of two more states into the so-called “nuclear club”, thereby aggravating an already complex security environment where traditional security challenges are juxtaposed with new non-military threats to stability like the financial meltdown in Asia and cyberterrorism.

Approximately 36,000 nuclear warheads held by the five nuclear-weapon states of the Nuclear Non-Proliferation Treaty (NPT) continue to imperil the world with no credible move to reach the goal of the elimination of nuclear weapons to which they are all pledged. And despite the conclusion and entry into force of the Biological Weapons and Chemical Weapons Conventions (the BWC and CWC respectively), both treaties fall short of universal membership and suspicions abound that several countries are continuing to develop clandestinely such weapons. Meanwhile, many countries continue to develop long-range missiles, which may well rekindle a new global arms race in ballistic missile defence systems, not to mention additional missile proliferation. If we factor in the element of new technologies, the dynamics of these various arms races could well evolve into extraterrestrial dimensions, resulting in the weaponization of outer space.

In the conventional arms area, twenty-five major armed conflicts — most of them intrastate — raged in 1997. Deep-rooted conflicts continue to cause tensions between states, while poorly managed ethnic differences have escalated into deadly intrastate conflicts. Small arms have emerged as a serious threat to international peace and security. Fuelled by a profitable trade and flourishing in the grey zones that exist outside legitimate national security interests, small arms and light weapons have been responsible for countless victims in interstate and intrastate conflicts — 90% of whom are civilians.

In the transition from one millennium to another, what can be our agenda for action based on these realities of today? Firstly, the faith and trust the international community has placed in multilateral disarmament and arms limitation treaties must continue to be buttressed by stringent and intrusive verification mechanisms that are non-discriminatory and effective. Clear procedures must also be devised for proven acts of non-compliance to be acted upon so that compliance is restored. Economic sanctions — especially those that are targeted at peoples rather than governments — have proven not only to be harmful to innocent civil society, but often unreliable as an instrument to change governmental behaviour. Some other means of depriving nations of their privileges in the international community are needed. Unless treaties and the mandatory resolutions of the Security Council are

enforced within a prescribed time span, the legal norms of disarmament and arms limitation will have no impact.

The norms are also not self-sustaining — their effectiveness depends heavily upon the extent to which they are reflected in the national policies and practices of all countries. Only when nation-states work in partnership with international organizations like the United Nations will the world community stand its best chance to create and to implement the norms that are needed to achieve the solemn goals of international peace and security envisaged in the United Nations Charter.

Secondly, civil society must play a greater role in advancing the twin causes of disarmament and security for it is civilians who are finally hurt or killed in pursuit of the military plans of their leaders whether national or sub-national. The Ottawa Convention on landmines was the product of remarkable synergy that developed between a dedicated coalition of non-governmental organizations on the one hand and a group of Member States on the other. This cannot always be replicated. What can be replicated is the high degree of societal awareness and responsibility to initiate action against the use of weapons and violence as a solution to problems. Non-violent societal resistance to arms and conflict is certainly facilitated by the degree to which democracy, good governance and human rights are practised. However, even democratically elected governments can be out-paced by popular groundswells of opinion. International civil society together can achieve a transformation of the security landscape of the new millennium by drawing its energies and inspiration from the many examples of people's power in national situations.

Only then will governments focus on human security and human development instead of on military expenditure and the acquisition of arms. And only then will the peoples on whose behalf the United Nations Charter was drafted fully benefit from the promise of that historic covenant.

Thirdly, new security doctrines — reflecting a new vision — are needed for the new millennium. In the economic and environmental areas, we have had seminal reports such as the Brandt and Brundtland Reports chartering a course of global action. In the disarmament and security area, reports such as the Canberra Commission Report or the studies undertaken by panels of experts on the basis of United Nations General Assembly resolutions have dealt specifically with certain categories of weapons or certain issues. Now we must have an international panel of the best and the brightest in the disarmament and security field addressing the broad range of security challenges of the twenty-first century. The final negotiated document of a forthcoming fourth Special Session of the General Assembly devoted to disarmament (SSOD IV) will be unlikely to have the same visionary scale and depth of analysis as the product issued by a panel engaged in this broader conceptual exercise. It is an exercise that can be linked to the Millennium Assembly and could be undertaken either within the framework of the United Nations or by an international group.

Our common vision for the new millennium, or at least for its first decade, must be an end to the use of force as an arbiter of disputes, the abolition of nuclear weapons to complete the delegitimization and elimination of all weapons of mass destruction, and sharp reductions in conventional arms, the arms trade and military expenditures. The political framework for this is inextricably linked to the disarmament steps that are necessary in order to ensure a world order in which the rule of law and common and cooperative security prevail.

Jayantha Dhanapala

Under-Secretary-General for Disarmament Affairs

Post-Cold War Security: The Lost Opportunities

Rebecca JOHNSON

The Cold War between the United States and the Soviet Union dominated security considerations from the end of the Second World War in 1945 until 1989. As countries of the Eastern Bloc emerged to claim independence and democracy, a new post-Cold War era was heralded. It was a heady time, full of optimism and possibility. George Bush spoke of a “new world order”. Some analysts wrote of the “end of history”; others claimed the triumph of democracy over totalitarianism. It was hoped that with removal of the paranoia and waste of the bipolar stand-off, it might be possible to implement collective security initiatives, such as those identified in the Brandt and Brundtland Commissions of the 1980s. Although the Soviet Union and Warsaw Treaty Organization (or Warsaw Pact) dissolved, the feared division into several new nuclear-weapon states was averted.¹ Whole classes of nuclear weapons were removed and others taken off alert. The decades of East-West nuclear confrontation appeared to give way to East-West cooperation, exemplified by arms control treaties and the Russian Federation’s participation in new security arrangements such as the Organisation for Security and Co-operation in Europe (OSCE) and the economic consultations exemplified by the G-8.

In less than a decade, however, much of the optimism has been lost. The Russian Federation and some of its former Soviet neighbours are in economic and political turmoil. Asian tiger economies are collapsing, causing political upheavals across the region and threatening the assumptions and even stability of western financial institutions. The ‘grand coalition’ of forces against Iraq’s invasion of Kuwait, of which George Bush was so proud, has given way to the long, drawn out war of nerves and attrition between UNSCOM and Saddam Hussein, fragmenting the early post-Cold War Security Council partnership and casting a long shadow over western security thinking throughout the 1990s. The implementation of some arms control agreements has been paralysed by ratification delays and disputes over resources, while further opportunities to reduce and control arms have been squandered. The achievement after so many years of the Comprehensive Nuclear-Test-Ban Treaty (CTBT) was widely viewed as a success, thereby strengthening the international norm against nuclear proliferation; but barely eighteen months after it was signed, India and then Pakistan conducted several nuclear explosions, giving rise to serious concerns about the overall health and credibility of the non-proliferation regime.

Descriptively we are still in the first decade of the post-Cold War era, but conceptually the security preoccupations are already very different from the possibilities envisaged in the first few years after the Berlin Wall was brought down. In analysing what went wrong, I give priority to the implications for arms control policy debates and the choices for the United States, which, as the post-Cold War hegemonic power, had the greatest resources and opportunities to influence the future.

¹ Rebecca Johnson is Executive Director of the Acronym Institute and has published widely on the NPT, the CTBT and British nuclear policy.

The Cold War

The Cold War was characterized by East-West ideological and military rivalry, epitomised by the United States on one side and a Russian-dominated Soviet Union on the other. The United States spoke of liberty and democracy; the Soviet Union proclaimed peace and freedom. Both built up vast quantities of weapons, conventional and nuclear, in an extended arms race that caused economic hardship and environmental harm to sections of their own citizenry and allies. Through arms “aid”, covert intelligence activities and the bolstering of local (and often corrupt) elites, they fostered proxy wars in Africa, Latin America and Asia. Between them they sought to divide the world and portion out influence in international institutions, including the United Nations and the Conference on Disarmament. They invariably behaved as suspicious, almost paranoid, opponents: what one supported, the other would reject, with positions sometimes reversed at the next encounter. If the United States was prepared to offer a test ban or fissile material cut-off, the Soviet Union was suspicious that it would freeze a situation of Soviet inferiority; if the Soviets were ready to offer such measures, the United States was convinced that they had clandestine plans up their sleeves. Whenever the United States talked about verification, the Soviets feared that detailed and intrusive American proposals were a cover for spying; Soviet resistance to such intrusion was inevitably interpreted as protecting an intention to cheat. Within the United Nations Security Council, the United States had its close ally, Britain. France also was a member of NATO, although not militarily integrated and with its own strategic interests in Africa and Asia, which sometimes ran counter to Anglo-American positions. The Soviet Union and China had a complicated relationship, at times communist allies against the capitalist West, but also with their own territorial, political and ideological rivalries. The bipolar rivalry rendered the Security Council impotent and made arms control extremely difficult. Each of the superpowers had its own sphere of influence, which tended to distort political relations throughout the world.

Squandering the Post-Cold War Opportunities

At first, the post-Cold War era was perceived by many as a chance to dissolve or transform the military alliances representing the East-West Blocs, namely the Warsaw Pact and NATO. Certainly the Warsaw Pact disintegrated. But instead of NATO also giving way to an alternative structure for European or North Atlantic security, the Alliance sought to reconfigure its role and function. Retention of NATO as a nuclear or military alliance was not inevitable and may prove to be a costly mistake. The former Eastern Bloc states wanted acceptance into Europe and identification with the West primarily for the economic benefits, to help stabilize their fledgling democracies and to distance themselves from Russia. For many, joining the European Union was more attractive than NATO, which they hoped would be replaced by a new pan-European security architecture. Poland and the Czech Republic led the push to expand NATO only after the dithering of the European Union and the under-resourcing and marginalization of the OSCE’s forerunner, the Conference on Security and Co-operation in Europe, made clear that alternatives were not on offer.

The drive to tie NATO expansion to building up its military capabilities was spearheaded by a consortium of American arms manufacturers.² With its declared operational shift towards fulfilling the Petersberg humanitarian, conflict management and peace-making tasks identified by the Western European Union Council in 1992, NATO is increasingly presented in the garb of a humanitarian service. This helps with public relations and the maintenance of larger budgets than would otherwise be considered acceptable.³ The continued peacetime siting of nuclear weapons in seven European countries as part of nuclear sharing arrangements, as well as the reliance on potential first use (albeit as

a last resort), may be coming under pressure. Nevertheless, despite having no comparable adversary, NATO is still being built up and modernized as a pre-eminently military and nuclear alliance. With its nose rubbed daily in the inadequacies of its own conventional forces, Moscow's response to NATO expansion and its perception of increased instability and threat on its southern flank has been to reassert the importance of its nuclear forces (as a force equalizer rather than power projection) and drag its feet on arms control.

The period from 1987 to 1995 was immensely important for arms control. Following the 1987 Treaty on Intermediate Nuclear Forces in Europe (INF), came START I and II and the Conventional Forces in Europe (CFE) Treaty. The Chemical Weapons Convention was concluded and signed, the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) was indefinitely extended, and negotiations on the CTBT were put underway. In these negotiations, the American-Russian bilateral relationship was key. Many problems were discussed in high-level summits and ongoing bilateral negotiations in order to clear the way for presenting a common front. With regard to the NPT, there was a joint four-power position in 1995, as exemplified by collectively stated policies on security assurances to non-nuclear-weapon states and a united front in favour of indefinite extension of the NPT. China was a little off to one side. Having joined the NPT in 1992, and after participating in P-5 talks in the margins of the CTBT, China was more integrated into the discussions than ever before, but still with important differences on issues such as no first use, unconditional security assurances and "peaceful" nuclear explosions.

By 1995, many positive aspects of American-Russian post-Cold War cooperation were unravelling. There appear to be several reasons for this. Focusing for the purposes of this paper on those related to security and arms control, the most important were: NATO expansion, American ambitions to deploy theatre and strategic missile defence systems, and the Russian Federation's apparent lack of cash and resources for dismantling weapons and facilities and for rendering its crumbling nuclear infrastructure less vulnerable to accident, theft or terrorism. The Clinton Administration's early enthusiasm for arms control and bipartisan assistance programmes such as Nunn-Lugar came to be stymied after 1994, when the Republicans won a majority in Congress. With the Senate Foreign Relations Committee now chaired by a long-time opponent of arms control, Jesse Helms, the Republicans began to hold up ratifications and funding and to bargain for *quid pro quo* financing of military programmes. Their projects included ambitious plans for missile defence and stockpile stewardship, holding open the option of the continued (and destabilizing) modernization of nuclear weapons systems.

Russian negotiators in Geneva and New York at times complained of being taken for granted by the United States, a consequence of their "policy partnership" that they had not expected. They were angry not to have been properly consulted over key decisions during the CTBT that disrupted or pre-empted the P-5 talks, most particularly the August 1995 decision on zero yield.⁴ The Russians were very sensitive about losing their position as a main player and considered that the United States was overlooking their interests because of their declining economic and military clout. At the same time, the United States appeared to be looking more towards China, perceiving it both as a principal player and (at least in some quarters) as a growing potential threat.

Soon after the euphoria of "winning the Cold War", military planners were under pressure to produce a peace dividend by cutting back on forces, arms and expenditure. There were calls for the money so released to be directed into providing better resources for health, education, inner-city poverty and environmental clean-up. The 1992 Rio Conference and growing international concerns about climate change and environmental degradation gave greater prominence to analyses that considered security in a wider context, where cooperation rather than confrontation would provide more appropriate responses.⁵ It might have been hoped that such thinking would percolate into security planning, prompting a reassessment of priorities and resource allocation. But no: in place of the Soviet threat, the Pentagon planners discovered the pernicious threats of "uncertainty", including "asymmetric warfare and smaller scale contingencies".⁶

Old Answers to New Security Challenges

The commonly identified “new security challenges” include the “proliferation of weapons of mass destruction, the growth of ethnic nationalism and extremism, international terrorism, and crime and drug trafficking.”⁷ On the one hand, such reassessments provided arguments for a more flexible force structure, as expressed in the 1997 United States Quadrennial Defence Review (QDR), and in the United Kingdom Strategic Defence Review, Chinese Defence White Paper and French restructuring decisions, all of which were issued in mid-1998. Under the rubric of “uncertainty” calculations, however, Pentagon planners seem to have elevated worst-case scenarios and hypothetical risk assessments to the basis for planning without adequately distinguishing between assumptions of technical access or feasibility and any actual likelihood of operational acquisition, including motivation, intention, funding, infrastructure and so on. Having emerged pre-eminent from the long Cold War, American planners seem fixated by their military vulnerability against much weaker foes. The QDR requires that American forces should alone be able to fight and win two major theatre wars “nearly simultaneously”, never mind the implausibility of such a scenario in the post-Cold War geo-strategic context. As a result, military expenditure and force structures are to be maintained at levels equivalent to 77% of the average at the height of the Cold War (1976–1990). The resulting dynamic is a “continuous, solitary arms race in which the United States labours to outdistance its own shadow.”⁸

It may well be that access to weapons of mass destruction is greater now than during the Cold War. Some analysts make a strong case for an increased post-Cold War terrorist threat, classifying groups with ethnic, religious or millennium (apocalyptic) motivations for seeking to acquire and use chemical, biological, radiological or possibly nuclear weapons to inflict mass casualties and disruption. It would no doubt be prudent for the United States, as a potential prime target of such attacks (though as likely to originate domestically as internationally), to devote research, policy planning and resources for limiting or mitigating the risks and consequences. What the uncertainty hawks have failed to demonstrate, however, is a plausible scenario in which modernized nuclear forces, theatre and ballistic missile defence, or a heavily armed and enlarged NATO contribute towards deterring or dealing with international terrorism, drug trafficking, crime and extremism. Yet it is in such Cold War military programmes that most of the money and planning are going. And this build-up of American forces is contributing to Russian and Chinese threat perceptions, which are, in turn, influencing their defence planning.⁹ A plausible danger on which the hawks appear to be silent is that of fulfilling their own expectations. Programmes to insure the United States against implausible but possible worst-case scenarios, combined often with hostile rhetoric as part of America’s highly public and partisan competition for votes and funding, may be viewed as very real security threats to defence planners in the Russian Federation or China, acutely aware of their relative military vulnerability.

Recent statements or reviews from all the nuclear powers testify to the operational assumption that nuclear weapons will continue to underpin defence and deterrence for the foreseeable future. In keeping with uncertainty planning, American targeting policies are apparently being redefined and made adaptive, incorporating threats from biological and chemical weapons (or at very least, a “policy of ambiguity” about such non-nuclear threats). From dealing with the weapon-rich environment of Cold War threats, American nuclear forces are apparently being reconfigured to respond to the multipolar, post-Cold War’s target-rich environment.¹⁰ The Russian Federation, now faced with

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demoralized and ill-equipped military forces and inadequate conventional weapons, has turned completely away from Gorbachev's vision of a nuclear-weapon-free world by the year 2000, to assert the necessity of nuclear weapons. China's White Paper is more ambiguous. China continues to set forth its reliance on nuclear weapons for defensive purposes, while calling for negotiations on a nuclear weapon convention and promoting unconditional prohibition of the first use of nuclear weapons. As the nuclear tests by India and Pakistan in May 1998 showed, nuclear weapons are still perceived as the pre-eminent currency of power and prestige.

Arming Uncertainty

Where the Cold War rested on East-West military and ideological rivalry, the initial post-Cold War optimism posited more collective and cooperative security arrangements and an opportunity for new security thinking. This positive concept turned out to be very short lived, and by 1995 the dominant policy imperative had already shifted towards new threat assessments, targeting strategies and justifications for high levels of military readiness. The multipolar world is now portrayed not as an opportunity for collective security, but as a dangerously unstable mix of disintegrating economies and over-armed ethnic and regional warlords with ambitions, grudges or religious delusions of divine dominance. Neither hot nor cold, the post-Cold War era seems to have left the pre-eminent military power, the United States, hedging its bets against any and all wild card and worst-case scenarios involving sub-national or state actors.

Pentagon planners have manoeuvred the United States into "tepid war" readiness for a resurgent Russian threat if the Russian Federation disintegrates into anarchy or lurches into Zyuganov-type communist reversion or Zhirinovskiy-type nationalism. At the same time, China's growing confidence and Islamic fundamentalism are being assessed as future military threats. The experience with Saddam Hussein has fuelled a security approach in which rogue states are very high on the agenda, with North Korea, Iraq, Iran and Libya all viewed as potential proliferators or supporters of terrorism. It is, of course, important to be prepared for the worst, but the proposed defences and responses should be appropriate in approach and magnitude to the risks and threats. Instead, domestic, partisan and financial interests have abetted the modernization of nuclear and military forces and missile defences demanded by a faction within the Pentagon and the Republican Party, allied to the powerful arms lobby.

Nuclear and conventional doctrines and forces in the West (with the inclusion of a first wave of former Eastern Bloc states) are being reconfigured, ostensibly to meet threat assessments that prioritize terrorism and fundamentalism or respond to humanitarian crises, but still with heavy emphasis on throwing resources into traditional attempts to achieve military supremacy. Over-reliance on military perceptions has already resulted in the triumph of short-term interests over long-term understandings. Military expenditure has been reduced, but not by very much. As the end of the Cold War resulted in pressure to cut domestic defence requirements, the requirement for applicant states to NATO to build compatible military forces has been one area for expansion by western (especially American) defence industries. Even as key Islamic states are demonized in defence analyses, western arms manufacturers have continued to target countries in the Middle East for lucrative arms sales, often using taxpayers' money as sweeteners for further deals. Concerns about the destabilizing effects of military sales, especially in vulnerable regions, have yet to be translated into effective policies to curb the powerful arms manufacturers in the dominant countries. In 1996, for example, the United States dominated the global arms market with a 55.2% share, followed by France and Britain, each with over 12%, and with the Russian Federation and China further behind, yet not insignificant.¹¹ In the wake of the successful campaign to put landmines on the arms control agenda, international concerns about small arms and

small wars are growing, but not enough yet to translate into policy that would make a dent in the profits of the main weapons producers.

Conclusion

The United States and some of its G-7 allies, including Britain, France and Germany, must bear a large share of responsibility for policies that have squandered the post-Cold War opportunities and reinvigorated narrowly military and nationalistic dominated concepts of security. Domestic problems in the United States (not least the Republican majority in the Senate) caused a failure to offer constructive leadership and adequate financial partnership to assist in dismantling and disposing of the legacy of the Cold War nuclear and chemical arms races. Though the Clinton Administration's instincts on arms control were laudable, the President has proved too weak or distracted to push his declared foreign policy objectives through a Congress that has veered schizophrenically between isolationism and domestic self-obsession. Nor has the Administration coordinated its own plethora of security experts to offer an alternative to the paranoid vision promoted by the uncertainty hawks.

Although the American Right clearly viewed the collapse of the Soviet Union as a product of the "negotiating from strength" posture of the United States, future security thinking should have muted the response of "triumphalism" and promoted policies of partnership and mutual security. The reification of a Fortress Europe mentality, with enlargement of the European Union and NATO, has reinforced barriers not only against the Russian Federation but also against poorer regions to the south and east of Europe, which will prove to be counterproductive in the long term.

To pull back from the insecurities of tepid but debilitating and destabilizing conflicts, it will be necessary to reorient defence and foreign policies to address the causes more effectively. The overriding priorities of the new security debate should be dealing with the causes and consequences of war, including international poverty and inequity, environmental degradation and climate change, over-population, resource allocation and the global challenges of famine, food shortages, and scarce resources of water and energy. These are all security threats in their own right. They also contribute to some of the most intractable political and regional conflicts. It is likely that if environmental conditions and global poverty worsen in the next two to five decades, they may precipitate acute shortages, civil unrest and various small "regional" wars, with a risk of international escalation. New threat assessments that highlight the rise of nationalism and religious and ethnic intolerance and conflict may be correct, but it also has to be recognized that territorial claims, unemployment and the fight for scarce resources are generally linked with such "identity" conflicts. Regional problems, if left unmanaged and unresolved, could pose serious security risks, with political chaos, migration, refugees, economic disruption and the risk of the conflict spreading. Globalization and the fragmentation of cultural and group identities are interlinked aspects of the same security threat, in which economic inequity is both a cause and effect.

The overriding priorities of the new security debate should be dealing with the causes and consequences of war, including international poverty and inequity, environmental degradation and climate change, over-population, resource allocation and the global challenges of famine, food shortages, and scarce resources of water and energy. These are all security threats in their own right.

In terms of arms control, the non-proliferation regime needs to be reinforced, which will require: the reinvigoration of the START process; immediate steps, such as taking nuclear forces off alert; and more emphasis on disarmament by all the nuclear weapon possessors, including the safe and permanent dismantlement and destruction of weapons of mass destruction and the manufacturing

capabilities associated with them. The 1997 Ottawa Convention banning landmines offers a positive example of how alliances of citizens, NGOs and smaller nations acting collectively could accomplish a great deal against the wishes of the larger states, but there is still a long way to go before the big producers get the message. Global arms production and sales are still dominated by a handful of countries. Unless these are drastically reduced by international agreement and by heavy financial penalties on the manufacturers, it is likely that domestic defence industries will be fuelling the conflicts and war-fighting capacities that national defence policies present as future threats and dangers.

The opportunities of the post-Cold War era have been squandered and already there is little room left for new security thinking to take root in policy and planning. The persistence of the Cold War mentality and the unenlightened self-interests of arms manufacturers that had grown fat on the Cold War arms race have ensured that the security focus has remained dominated by the military mindset, with new and diverse threats wheeled in. By failing to design and build a more cooperative post-Cold War architecture to benefit global security, the United States and its allies may not only be squandering the post-Cold War opportunities but also may end up creating the future adversaries and risks they seek to defend against.

Notes

- ¹ Belarus, Kazakhstan and Ukraine were persuaded to transfer the considerable nuclear arsenals on their territory to the Russian Federation and to join the NPT as non-nuclear-weapon states.
- ² Joanna Spear, *Bigger NATO, Bigger Sales*, *The World Today*, November 1997. The author would like to thank Lorna Richardson for her help in researching arms sales and the development of the arms trade during the post-Cold War period.
- ³ See, for example, the sections devoted to NATO in United Kingdom, *Strategic Defence Review*, London: HMSO, 1998.
- ⁴ During 1994 and 1995, the nuclear-weapon states conducted high level talks on the CTBT's scope, in which the Russian Federation hoped for agreement on a low yield threshold. With the French resumption of nuclear testing, the political climate changed and the United States decided to bypass the threshold negotiations and support a "true zero yield" test ban. Clinton's announcement of the zero yield decision on 11 August 1995 looked as if it had been coordinated with France, but came as an unpleasant surprise to Moscow, which complained that it had not been consulted.
- ⁵ Another example of the United States unwillingness to understand the new threats and change its economic mindset and security thinking was painfully illustrated at the Kyoto Climate Conference in 1997, in which its approach contrasted badly with their approach in Rio in 1992.
- ⁶ National Defence Panel (United States), *Assessment of the May 1997 Quadrennial Defense Review*, 15 May 1997.
- ⁷ *New Labour: Because Britain Deserves Better*, The Labour Party Manifesto, London, 1997.
- ⁸ Carl Conetta and Charles Knight, *Inventing Threats*, *The Bulletin of the Atomic Scientists*, March/April 1998.
- ⁹ In identifying the factors of global and regional instability, China's 1998 White Paper refers to "local conflicts caused by ethnic, religious, territorial, natural resources and other factors" but considers the "main source of threats" to be "hegemonism and power politics", including the enlargement of military blocs and a residual "Cold War mentality". *China's National Defence*, published by the Information Office of the State Council of the People's Republic of China, Beijing, July 1998, extracts reprinted in *Disarmament Diplomacy* 29, August/September 1998.
- ¹⁰ Hans Kristensen, *Targets of Opportunity*, *The Bulletin of the Atomic Scientists*, September/October 1997.
- ¹¹ SIPRI, *SIPRI Yearbook*, Oxford: Oxford University Press, 1998, p. 200.

Disarmament: The Next Ten Years

Christophe CARLE

“... all these studies had strengthened his faith in the future, that promised land for those who cannot see clearly into the present.”¹

In late 1998, the next ten years of disarmament (roughly the first decade of the next century) appear highly uncertain. Trite as the expression may be, prospects for arms control and disarmament in all their forms are genuinely at a crossroads.

On the one hand, things could go drastically wrong. The mutation of bilateral Cold War arms control (or limitation) into increasingly multilateral arms reduction and disarmament worthy of the name, which began to take place in the last ten years, could quite conceivably turn out to be a flash in the pan. That scenario involves a prolonged stalling and possible breakdown of key negotiations, unresolved and worsening difficulties in implementing existing agreements, withdrawals from major treaties and generally an erosion of the credibility of arms control arrangements as effective instruments of security. Add the deterioration and possible eruption of unresolved power-political rivalries and conflicts especially in the Middle East and various sub-regions of Asia. Mix in the international ramifications of such events, notably the destabilizing impact they could have on the relations between major powers both within and outside these regions. Spice with remote-controlled or uncontrolled terroristic exactions by non-state actors, with the paralyzing sting of information warfare. The result would be not just “uncertainty” or “disorder”, but a nightmare as immeasurable today as the First World War was in July 1914. To envision how real such risks could become, it takes only moderate imagination and some knowledge of issues related to the START process, anti-missile defences, the NPT review process, the Middle East, South Asia, the Korean Peninsula and the South China Sea to name only a haphazard few.

On the other hand, things could still improve — albeit unevenly, slowly, sometimes haltingly, and always painstakingly.

Without hindsight, the crossroads looks nothing like a neat intersection, and more like an unsignposted spaghetti junction. All the more reason not to lose one’s bearings and to hang on to arms control and disarmament as indispensable components of national and global security.

Pessimists abound. Some of them are dejected that disarmament has gone neither far nor fast enough. Others are more or less openly reluctant to let any major disarmament initiatives proceed further. Pro-disarmament and anti-disarmament pessimists share the view that the world is becoming an increasingly confusing and dangerous place. They lament or shed crocodile tears that disarmament diplomacy (whether bilateral or multilateral) seems to lack direction and momentum. But they draw radically opposite conclusions and policy prescriptions. Consider, for example, the successive nuclear tests and self-declarations as nuclear powers by India and Pakistan: those who put their faith in disarmament take them to underline the increasing urgency to accelerate the pace of nuclear

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disarmament. Sceptics, on the other hand, take these same events as proof that non-proliferation is failing, and therefore the only rational course of action is for states to ensure their own security (and optionally, that of their allies) through improved armaments.

Stubborn pro-disarmament optimists reason that the realization that nuclear threats are far from over should bring governments to acknowledge that radical reductions and the rapid elimination of nuclear weapons are the only answer. But maximalist disarmers are also the ones who are often most dismissive of the disarmament record to date, including the string of treaties and agreements that followed the Intermediate-Range Nuclear Forces Treaty: START I (and prospects for START II and III), the extension of the Nuclear Non-Proliferation Treaty (NPT), the International Atomic Energy Agency's (IAEA) new safeguards protocol, the Comprehensive Nuclear-Test-Ban Treaty (CTBT), progress in the definition and entry into force of nuclear-weapon-free zones, the Chemical Weapons Convention (CWC) and the birth of the Organisation for the Prohibition of Chemical Weapons (OPCW), the Treaty on Conventional Armed Forces in Europe (CFE), the United Nations Arms Trade Register, the Ottawa Convention on anti-personnel landmines, the Organization of American States' convention on illicit small arms, not to mention various unilateral disarmament measures both nuclear and conventional. Clearly, if these are considered to amount to failure, then the prospects for the next ten years can only be glum.

As Arnold Wolfers put it in the early 1960s, "disarmament proposals are not necessarily utopian, although of course they may be. On many occasions nations have cut back their armaments unilaterally, often because they could no longer afford to continue their previous military efforts. But only in rare cases have limitations and reductions of armaments been agreed upon, either tacitly or formally, by two or more nations. This phenomenon calls for explanation ... because of its discouraging implications for a peace strategy of agreed disarmament."² The implications may be sobering, but not necessarily as "discouraging" as inflated expectations of quick results can be. Uncompromising maximalist posturing on disarmament, by generating a sense of failure, can contribute to undermining the credibility of the entire endeavour.

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It is a common misconception that the passing of an era (the Cold War) necessarily entails the disappearance of its worst effects (nuclear weapons). Thus, in the 1780s, Jeremy Bentham "explicitly regarded disarmament as something that would follow automatically upon the abandonment of colonies." But, as noted by Harry Hinsley, "when arguing that alliances and armaments had ceased to be necessary and that states might give them up ... (Bentham) was writing in the limited context of Anglo-French relations".³ Likewise, E.H. Carr recalled how in the 1930s, various "British and American writers continued to assume that the uselessness of war had been irrefutably demonstrated by the experience of 1914–18, and that an intellectual grasp of this fact was all that was necessary to induce nations to keep the peace in the future; and they were sincerely puzzled as well as disappointed at the failure of other countries to share this view."⁴ The end-of-the-Cold-War syndrome is nothing drastically new.

The course of disarmament over the next ten years will depend above all (and as ever before) on the evolution of international politics and international security. The ending of the Cold War has given a boost to some areas of disarmament diplomacy. Had the Cold War endured, the disarmament record of the past decade would probably have been close to nil. It is perhaps interesting to muse whether the nuclear tests by India and Pakistan would have been carried out in an antagonistic bipolar world, but the challenge is the reverse: it is to discard the remnants of bipolar thinking. The old order holds little or no explanatory value when trying to resolve present and future disarmament dilemmas. Better to consider not just the Cold War itself, but the post-Cold War period as well and truly over, and to rise to the challenge of new realities that are not amenable to old categories and

methods. This cannot be evaded because the reaping of post-Cold War disarmament dividends has gone as far as it can. The time has come to invest in the future, and the problem is that investment in disarmament, as elsewhere, requires confidence — which does not square well with a context of international uncertainty.

As has often been said, “in the long run, we’re all dead”; hence the undoubted appeal of the short term. But in a longer historical perspective of centuries and millennia and tens of millennia, mankind’s growing technical dominance over its environment has always translated into increasingly effective and destructive means of warfare from sticks, stones and clubs, swords, guns, artillery and air power to nuclear weapons, and perhaps, to an emerging “revolution in military affairs” led by information and space technology. Over the nineteenth and especially the twentieth century, the gap between the speed of technical progress and the stagnation of human sagacity and benevolence — whether individual or collective — has now become immense.

The aim of reversing this ancient trend of the improvement, acquisition, accumulation and use of means of warfare, and replacing it with the durable and reliable obligation, duty and practice of laying down existing arms and forswearing new ones, is one of the most ambitious that can be imagined. The very idea of disarmament is a noble but daunting challenge of truly revolutionary proportions.

In that perspective, the expectations that the end of the Cold War would suffice to set off rapid and inexorable disarmament were, quite frankly, rather silly. Since when was disarmament supposed to be easy? More reasonably, it needs to be acknowledged that despite day-to-day obstacles and disappointments, the task of attempting negotiations on tracking, regulating, reducing and banning certain categories of armaments has never been pursued as systematically and comprehensively as in the late twentieth century.

The decade (or actually the dozen years) just elapsed has been one of major and unprecedented achievement. This does not amount to a plea for complacency, soft-peddalling, let alone back-peddalling. Measured against optimal objectives, these achievements are indeed minute; but it is no contradiction to acknowledge that they are precious.

The decade (or actually the dozen years) just elapsed has been one of major and unprecedented achievement. This does not amount to a plea for complacency, soft-peddalling, let alone back-peddalling. Measured against optimal objectives, these achievements are indeed minute; but it is no contradiction to acknowledge that they are precious. Disarmament may not have come of age, but at least it has been born. It is an important but unsteady achievement, and the next ten years could well be crucial in deciding whether it stands or falls.

The consequences of the Cold War are of course still with us. One of them is the numbing effect of the binary simplicity of the old East-West order. Those most affected by this incapacity to analyze complexity are prone to assuaging their confusion with artificial constructs (which combine odd measures of intellectual solace with political alarmism) such as a North-South divide, clashes of civilizations, or by “siding for” or “against” globalization in its multiple forms. In all likelihood, contrasting trends will continue to operate in different regions and across different issues, and alignments and coalitions will be complex and fluctuating rather than of a rigidly binary kind (as in North versus South, East versus West, developed versus less-developed, nuclear versus non-nuclear, “rogue” versus goodie states and so forth).

In a world characterized by intensely contradictory trends of globalization and fragmentation, universalist aspirations and regional diversities, disarmament can scarcely be expected to follow a smoothly ascending course over the next ten years. Just as positivist epistemology portrays science as producing an increasing quantity of proven and cumulative knowledge, so arms control and disarmament are sometimes seen as an essentially technical processes of piling up legal building blocks, accumulating in a neat linear progression. This is most unlikely to occur.

One characteristic of disarmament policy — and research — that can be expected to remain for the foreseeable future is the proliferation of the subject matter. Arms control and disarmament will be an increasingly diverse policy field. Differentiation is already extreme. A handful of countries (in fact, perhaps only one) may be moving towards the military applications of information and space technologies that are sometimes argued to have the potential to push today's weapons of mass destruction (including nuclear ones) into obsolescence. Elsewhere, at the very same time, the most rudimentary of small arms and light weapons are used to terrorize, exterminate and cause destruction nothing short of "massive". Whereas Cold War superpower arms control focused almost entirely on strategic nuclear weapons except for unsuccessful forays into major conventional weaponry (with the ephemeral American-Soviet talks on arms transfers in the late 1970s, or the prolonged but ill-fated Mutual and Balanced Force Reduction talks on conventional forces in Central Europe), the field of disarmament has expanded tremendously over the last ten years, and can be expected to continue to do so over the next decade. One illustration of this trend is the continued attention devoted to nuclear issues, while at the other end of the spectrum, small arms and light weapons are fast emerging as an area of growing concern and activity. If arms control has any future, some of the issues that can safely be expected to make their way up the agenda include anti-missile defences, the non-weaponization of space, a comprehensive reassessment of sensitive export controls, and in a related manner, the regulation of the hostile (not just military) applications of emerging and future technologies.

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Similarly, the number and diversity of players in disarmament diplomacy have also expanded considerably. Arms control used to be an essentially bilateral affair until the end of the Cold War. Significant as they were, multilateral treaties with a universal vocation such as the NPT were exceptions. Disarmament negotiations and implementation now operate at various levels, from bilateral to multilateral, regional to sub-regional. Disarmament measures can also continue to be undertaken by specific states on a unilateral basis or in a negotiated manner between two or among several sub-state actors within a given country. NGOs have also played an unprecedented role in bringing about the Ottawa Convention on anti-personnel landmines. All of these patterns have been resorted to in the 1990s and can be taken as a constructive trend whereby negotiating and disarmament mechanisms are becoming increasingly flexible and adaptable to widely different situations. The challenge of disarmament certainly does need as well furnished a toolbox as possible.

One of the practical consequences for disarmament diplomacy is that the multilateral agenda largely inherited from the first United Nations Special Session on Disarmament (SSOD) in 1978 needs rethinking and restructuring. A fourth Special Session has been under discussion for some time. It has been argued that a hastily prepared fourth SSOD or an inconclusive one would be worse than none at all. But the argument holds less and less merit with the passing of time. If adequate preparation is taken to mean the prior resolution of the issues that a fourth SSOD is meant to address, then there is indeed no point in holding a special session. But the time has certainly come to try to look ahead, and to identify (or reassert) priorities in the knowledge that the challenges of disarmament are more diverse than ever before, from nuclear weapons all the way to small arms and light weapons, and that the intrinsically multilateral nature of most disarmament issues requires that new approaches be endowed with the utmost international acceptance and legitimacy. As for the Conference on Disarmament itself, some of the dismissive criticism to which it has been subjected over the last two years has been as excessive as the inflated expectations of post-Cold War global disarmament dividends were naive. Simply put, if the Conference on Disarmament did not exist, it — or something very much like it — would sorely need to be invented. A permanent forum for multilateral discussions and

negotiations on disarmament is probably more necessary in the present and foreseeable conditions of global confusion than ever before.

It is true to argue that disarmament can come to fruition only if the international environment is perceived as increasingly benign. But it is also true that disarmament itself is part of the international strategic scenery. Its onset and progress can contribute to creating and reinforcing the very conditions that engender perceptions of security instead of insecurity.

The challenges of disarmament in the next century will be particularly great as complexity and enduring difficulties assert themselves against the hopes and expectations of quick progress. It is true to argue that disarmament can come to fruition only if the international environment is perceived as increasingly benign. But it is also true that disarmament itself is part of the international strategic scenery. Its onset and progress can contribute to creating and reinforcing the very conditions that engender perceptions of security instead of insecurity. Unfortunately, that virtuous cycle is as difficult to initiate as the opposite vicious circle is easy to fall into.

Some of the most impressive disarmament achievements of the last decade belong to states that either had nuclear weapons or had viable and advanced military nuclear options and decided to abandon them. Argentina, Brazil, South Africa, Ukraine, Belarus and Kazakhstan had their own very specific combinations of domestic, regional and international political and economic reasons for doing so. Taken together, these decisions were perhaps the most eloquent indication that the significance and attractiveness of nuclear weapons was indeed on the decline. The demonstrated and self-declared emergence of two new nuclear-weapon-possessor states in May 1998 has sent the opposite message. The outcome is the reverse, but the logic is the same: states' own assessments (and changing assessments) of their security environment will continue to determine the future of disarmament. As far as nuclear and other weapons of mass destruction are concerned, as well as ballistic and cruise missiles, further challenges, setbacks and surprises can all too easily be imagined for the future, including the testing, dissemination and even the actual use of such weapons.

In the worst of such hypotheses, the actual use of nuclear weapons in warfare would spell the doom of the non-proliferation regime and of prospects for any nuclear disarmament.⁵ But short of such extremes, arms control and disarmament policy will require creative adaptability as well as firmness to deal with existing and future challenges. One example is provided by the consequences of nuclear testing by India and Pakistan. The urging that both should simply adhere to the NPT (*ipso facto* as non-nuclear-weapon states) amounts more to an incantation, whether pious or blind, than to a policy. Neither will do so unless and until each becomes convinced that its security is better assured by means other than nuclear ones. Better to proceed pragmatically than dogmatically, and to seek to promote Indian and Pakistani adherence to other related obligations stemming from the CTBT and a future Fissile Material Treaty, while seeking through all possible means to defuse the underlying insecurity and threat perceptions. Such a path would not be a substitute for the NPT regime, but certainly a useful second best.

Disarmament will stand or fall over the next ten years and beyond not as a function of technical and legal criteria, but as a result of security conditions and perceptions.

There is no reason, however, to assume that India and Pakistan have necessarily set a contagious precedent for other non-nuclear, nuclear-capable or threshold states to follow. There is no inevitability in proliferation. Nor was there any reason to believe that the national decisions of South Africa, Argentina, Brazil and the former Soviet states to forgo nuclear weapons and options would hold any significance let alone compulsions for other countries undergoing different geopolitical realities. There is no inevitability in disarmament. Neither was there any reason to believe that the end of bipolarity would necessarily mean the end of nukes.

Disarmament will stand or fall over the next ten years and beyond not as a function of technical and legal criteria, but as a result of security conditions and perceptions. Just as the reestablishment of the state's legitimacy and credibility as

the provider of domestic security (and thus of development prospects) is central to any significant way of addressing the issue of small arms, so the evolution of collective security systems, whether regional or global, will be the crucial determinant of lasting future progress in arms control and disarmament. Both may appear as distant objectives; neither one will proceed very far without the other.

Over the next ten years, progress is bound to be uneven, and setbacks are possible. One general principle whose application has the potential to ease the way forward if it is applied as systematically as possible, is that of transparency. Transparency may not be a solution in itself, but it often constitutes the best starting point. By the simple virtue of clarifying the terms of any complex issue, whether it pertains to nuclear, biological or chemical weapons, to delivery vehicles, to major conventional weapons, new technologies or small arms, to global or regional issues, the application of transparency provides, at least, opportunities to deal with genuine realities, however difficult they may be, rather than with misconceptions.

Finally, the best possible results of successful arms control and disarmament negotiations will usually be of a multilateral and preferably universal character. But multilateralism should not be allowed to become an alibi for avoiding tough choices. Intelligent initiatives and exemplary unilateral actions, sometimes lonely, sometimes bold, by states as by individuals, in disarmament as in any other walk of life, will remain one of the best ways of inspiring constructive change.

Notes

- ¹ Emile Souvestre, *Le monde tel qu'il sera*, Paris: Coquebert, 1846, p. 5.
- ² Arnold Wolfers, *Discord and Collaboration; Essays on International Politics*, Baltimore: Johns Hopkins University Press, 1965, p. 142.
- ³ F.H. Hinsley, *Power and the Pursuit of Peace*, Cambridge: Cambridge University Press, 1963, pp. 83, 85.
- ⁴ E.H. Carr, *The Twenty Years' Crisis 1919–1939*, London: Macmillan, 1939 (1981 printing), p. 52.
- ⁵ Others might argue that widespread horror at such an event would instead reinforce the nuclear "taboo".

The Economics of Security in the Developing World

Susan WILLETT

This paper examines the way in which economics and development are likely to relate to arms control and disarmament in the next decade. It attempts to provide a holistic view of the direction in which the world is heading with respect to the complex interplay between these issues and highlights a number of policy areas that need to be addressed if greater success is to be achieved in disarmament and development over the coming decade.

Challenges for the Future

The deep polarization of wealth at the global level has been identified as one of the major threats to peace and security in the coming millennium.¹ Although there are pockets of poverty in the industrialized societies of the North, the majority of the world's most impoverished peoples live in the South. Clear evidence exists that the gap between the rich and poor countries is ever-widening.² This polarization is a growing source of global instability witnessed in the extensive nature of conflict and humanitarian disasters in developing societies and the increasing incidence of mass migration from the South to the North. Unless the systemic cause of wealth polarization is tackled at its root, there is likely to be a growing incidence of armed conflict throughout the globe as the frustrated expectations of the world's poor and marginalized translate into various forms of violent protest and social unrest.

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The relationship between poverty and conflict is evident in recent figures supplied by the Organisation for Economic Co-operation and Development. In 1998, of the thirty-four poorest counties in the world, five were engaged in conflict (Afghanistan, Cambodia, Congo Democratic Republic, Sierra Leone and Somalia), while sixteen (Angola, Burundi, Central African Republic, Chad, Djibouti, Eritrea, Ethiopia, Haiti, Liberia, Mali, Mozambique, Niger, Nigeria, Rwanda, Uganda and Yemen) are undergoing the fragile process of transition from conflict to peace.³

In the developing world, the root causes of insecurity and conflict are often due to the failure of development to take hold.⁴ Not only does the deficiency of development lead to conflict, but conflict itself results in missed developmental opportunities.⁵ Conflict also erodes a country's development potential, as people are killed or maimed, populations are dislocated, production is abandoned, infrastructure is destroyed and scarce resources are used up for the war effort. The United Nations Development Programme (UNDP) has observed that future conflicts may often be within nations rather than between them — with their origins buried deep in growing socio-economic deprivation and disparities. The search for security in such a milieu lies in development, not in arms.

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More generally, it is not possible for the community of nations to achieve any of its major goals—not peace, not environmental protection, not human rights or democratization, not fertility reduction, not social integration — except in the context of sustainable development that leads to human security.⁶

The majority of conflicts that have occurred since the end of the Cold War are intrastate in character, involving a variety of militarized actors that now challenge the state's claim to the monopoly of force.⁷ In sub-Saharan Africa, a salient feature of conflict centres on the control of diminishing resources, fought by criminals, warlords, bandits and mercenaries. The proliferation of these “post-modern” forms of conflict has been intensified by the widespread availability of small arms. Although there is no universally accepted definition of light weapons, analysts generally describe them in terms of conventional weapons that can be carried by a soldier or affixed to a light vehicle. They include assault rifles, machine guns, light anti-tank weapons, small mortars, grenades, landmines and shoulder-fired missiles, as well as ammunition and explosives. The widespread use of light weapons has had disastrous consequences for civilian populations in the developing world. Over the last twenty-five years, the African continent has witnessed ten major conflicts in which an estimated 3.8 to 6.8 million people have been killed, mainly in conflicts using light weapons. Indeed, it is now thought that such weapons cause 90% of all casualties in intrastate conflict.

The existence and diffusion of weaponry are not the causes of conflict, but their widespread availability produces a permissive environment in which conflict becomes more acceptable. The mobility and ruggedness of small arms ensures their constant circulation and supply into conflict situations, which in turn contributes to the duration and intensity of hostilities. New arms transfers can affect the balance of power between warring factions and are therefore identified as one of the triggers to internal conflict by spreading fear and insecurity.

The militarization of conflict precipitated by the permissive flow of light arms makes any attempt to find a peaceful resolution to conflict all the more difficult. There are many recent examples of failed peace accords that have foundered in these circumstances: in Angola (Bicesse Accords 1991), Rwanda (Arusha Accords 1993), Liberia in 1989 and Sierra Leone since 1991. As a result, attempts to improve the controls on light weapons flows have become a pressing challenge for the international arms control community. The fact that small arms flows involve for the most part non-state actors means that the challenge to the international arms control community is qualitatively different from that of the control of the conventional arms trade or weapons of mass destruction in which the state is the main actor. Moreover, there is a need to go beyond traditional supply-side approaches to the control of light weapons because unless the structural origins of intrastate conflicts are addressed, attempts to control light weapons flows are likely to fail. The triggers to conflict arms flows and the use of arms represent symptoms rather than the cause. The challenge for the international community is therefore to address the failure to meet basic human needs, population pressure, unequal distribution of wealth, depletion of natural resources, environmental degradation and ethnic tensions. The attempt to deal with the structural causes of conflict implies the adoption of new approaches to security in the developing world.

Security

The end of the Cold War allowed the international community to undertake humanitarian interventions in ongoing civil wars more easily than before. But the experience has proven traumatic for the international community. The turning point for international military intervention in the Third World was Somalia. Since then, the commitment of Western governments to humanitarian values

appears to be waning and there is currently an increased use of policies of containment of refugees, acquiescence in *refoulement* (the enforced repatriation of refugees) and reluctance to intervene to halt massive human rights abuses or even genocide. The increased use of the term “conflict management” appears to be corresponding with an increasingly selective and conditional approach by some donors in their funding of humanitarian activity. As one observer has noted, current trends may be signalling a return to Cold War-style conditionality.

With the retreat from humanitarian intervention, Northern military planners and mainstream security analysts have become concerned with protecting Northern interests against the growing threats from a disintegrating South. Two forms of threat from the developing world have been identified: instability generated by new social movements that threaten established elites who serve the strategic interests of powerful Northern countries; and pariah states (such as North Korea, Iraq, Libya, Syria, etc.) that are openly hostile to the major global powers.

The response to these threats has been to develop high-tech military solutions that seek to enhance long-range power projection and reduce the need to deploy troops on the ground. Hence the current preoccupation with the revolution in military affairs and counter-proliferation strategies. Such strategies are designed to exact a high degree of destruction while minimizing attrition rates in order to avoid the sort of debacle that occurred in Somalia. As a consequence, defence planners are preoccupied with long-range bombing capabilities, intercontinental ballistic missiles and missile defences, amphibious operations and the use of carrier-based air power. At best, such strategies may help to geographically contain the crises in the South, but they do not represent a strategy for conflict prevention or resolution.

The militarization of security problems in the South is part of the problem, not the solution. Reversing this process is an intellectually and politically challenging task that requires a major transformation in the institutional and ideological assumptions behind dominant modes of thought within the international security community. While global security problems and their solutions are seen in terms of vested national interests and narrow military reactions, the rich countries of the North will continue to view the South as a potential source of confrontation, ignoring alternative approaches to security.

Despite the current retreat into militarism by the powers of the North, a healthy search for new meanings and mechanisms for security policies in the developing world is emerging in response to the widespread problems of nationalism, collapsing states, ethnic conflicts, migration, political instability and economic under-development. From this exploration a more “holistic” vision of security has emerged, which places emphasis on the citizen rather than the state as the primary referent for security. This view is gaining ground as an alternative approach to establishing a new world order built upon peace and security. It finds cogent expression within the United Nations via the UNDP, which has argued for a shift from the current preoccupation with militarism and the role of the state to one that prioritizes the basic needs of citizens, human rights and sustainable human development.

This more inclusive approach does not negate the importance of military security, but rather accords it a place in a hierarchy of security needs that require urgent attention. The order of precedence is determined by needs rather than by tradition, ideology or vested interests and will change according to concrete circumstances rather than by design. Such an approach allows for linkages between differing security needs, recognizing that one cannot have one form of security at the expense of others. Above all, this approach places emphasis on resolving the current security challenges at a regional rather than bilateral level through common security provisions. National security is sought with — rather than against — other states through an approach to security that seeks to promote a culture of peace, conflict management and resolution.

Development as a Security Concept

At the heart of this new approach to security is the concept of sustainable human development. Sustainable development is a wide-ranging concept referring to a simultaneous improvement in the environmentally supportable economic output of a country, the advancement of employment opportunities, the promotion of social well-being and the eradication of poverty. Sustainable human development as advocated by the UNDP is intrinsically related to the creation of social stability by virtue of the fact that it seeks to remove discriminatory factors within an economy (sources of conflict) by providing opportunities for all members of society to enrich their socio-economic potential.

In this sense, sustainable human development provides an ethical and normative framework that conforms with certain fundamental, universal moral values about the right to life and freedom of choice and can be viewed as a tool for conflict prevention and local, regional and global security. This view is supported by the UNDP's observation that states that spend very little on defence and much more on human development have been more successful at defending their national sovereignty than those that spend heavily on arms.⁸ By way of illustration, the relatively peaceful experiences of low defence spenders such as Botswana, Costa Rica and Mauritius can be compared with the conflicts afflicting high military spenders such as Iraq, Myanmar and Somalia.

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The goal of sustainable human development should not be confused with neo-liberal strategies that prioritize neo-classical growth strategies. Although there is a clear correlation between material wealth and human well-being, this relationship is noticeably absent in many developing societies that have adopted classical growth strategies. The ruthless pursuit of growth for growth's sake has led in certain developing countries to increasing levels of income inequality with its attendant low levels of life expectancy, poor levels of literacy and high levels of infant mortality. A virtuous cycle of economic growth and human development arises only when growth uses labour and generates employment and when human skills and health improve.

The current neo-liberal preoccupation with the benefits of globalization, which have been hailed as the great panacea for the world's economic problems, has done little for the 1.3 billion people whose economic circumstances have deteriorated in the last ten years.⁹ The idea that somehow the benefits of economic growth will "trickle down" to the world's poor has clearly failed in the poorest of the world's economies.¹⁰ Widespread economic collapse has undermined the social cohesion of many developing societies, exposing the fragility of Third World states and their inability to extend basic security to their citizens.¹¹ The plight of the poor, the marginalized and the displaced are only taken seriously when they become a *threat* to the perceived global order.

The resources required to eradicate poverty are a mere fraction of the resources available in the global economy.¹² Yet the rich countries of the North appear increasingly reluctant to respond constructively to the plight of many in the Third World. The succession of failures of international humanitarian operations have resulted in "donor fatigue". But as the Special Advisor to the UNDP has warned "The cost of accelerated action must be measured against the cost of allowing poverty to grow — that is against continuing political conflict and instability, poverty and disease and affronts to human sensibilities."

Long-term sustainable development is required not just to alleviate the grinding poverty of the poor, but as a key strategy for conflict prevention and political stabilization. But current and future development potential is hindered by trade disadvantages, the debt crisis, environmental exploitation

and political instability. If these issues are to be addressed head-on, the international community needs to build a more integrated approach towards the issues of economics, security and development and one that is grounded in a new culture of peace and security.

Disarmament and Arms Control

Disarmament and arms control need to be viewed as part of a broader approach to conflict prevention and resolution rather than ends in themselves. There are a number of ways in which the present approaches to disarmament could be improved in the future.

A disarmament process usually implies a modification of a nation's military strategies. For instance, the reduction or abandonment of certain types of weapons or defence capabilities, such as nuclear weapons or intercontinental ballistic missiles, may constitute a conscious effort to reduce a nation's offensive capabilities, thereby reducing the tensions created by an arms race. It may also include the implementation of defence and foreign policy decisions aimed at reducing the levels of military force.

A disarmament process usually implies a modification of a nation's military strategies. For instance, the reduction or abandonment of certain types of weapons or defence capabilities, such as nuclear weapons or intercontinental ballistic missiles, may constitute a conscious effort to reduce a nation's offensive capabilities, thereby reducing the tensions created by an arms race. It may also include the implementation of defence and foreign policy decisions aimed at reducing the levels of military force. Therefore, disarmament takes many forms, such as a reduction in military expenditure, reduction or destruction of the stocks of certain weapon systems, a ban or limitation on the production of some types of military equipment, or reduction in the numbers of military personnel and cuts in defence research and development (R&D).¹³

In the developing world, disarmament has been predominantly equated with the collection and destruction of light weapons, sometimes referred to as micro-disarmament, following the termination of conflict between warring factions. In many peace settlement situations, international peace-keeping forces have overseen disarmament. Such international efforts have an abysmal record. In El Salvador, 20,000 weapons were collected and destroyed out of an estimated 200,000 in circulation. In Mozambique about 300,000 were seized, representing only 2% of the total number of weapons in the country. Similarly in Cambodia, Somalia and Angola, planned disarmament programmes have failed. These failure have been blamed on insufficient time and resources for the execution of these functions by peace-keeping operations. In recent years, short-term thinking has become endemic within a cash-strapped United Nations, which has been forced to compromise its operations due to the absence of political will by the dominant powers within the Security Council to adequately deal with these problems. This short-term focus must be reversed if weapons flows are to be curtailed and lasting peace is to be established in highly destabilized regions of the world.

Where the international community has failed to disarm combatants, conflict has often reignited or has even spilled over borders and exacerbated other areas of tension. For instance, the failure of the international community to disarm the militias in the Rwandese refugee camps in Zaire encouraged the Government of Rwanda to support groups in opposition to the Mobutu regime and enabled the militias to play a role the Zairian civil war of 1995–96.

Given the nature of weapons flows, international and regional cooperation on arms control and micro-disarmament are essential. The embryonic initiatives in Western and Southern Africa provide some optimism for the future. In 1997, eight countries in the Sahel/Sahara region spoke out in favour of a moratorium on the import, export and manufacture of light weapons. The initiative was instigated by Mali — which by 1996, with United Nations assistance, succeeded in demobilizing some of the

combatants involved in the Tuareg rebellion. In the process it disarmed and destroyed 2,700 light weapons.¹⁴ The aim of the moratorium is to obtain a commitment from neighbouring African states to trace and destroy illegal stockpiles of weapons, improve border controls, professionalize forces and train them in the task of weapon retrieval and improve transparency and surveillance of weapons flows. In Southern Africa, efforts are concentrating on improved monitoring of stockpiles and illicit weapons trafficking at a regional level. This initiative is being accomplished through the auspices of the Southern African Development Community with the support of the European Union and other donor nations.¹⁵

International donor support for current and future efforts in arms control and disarmament in developing countries is essential, as there is a paucity of skills in arms control negotiations, monitoring and verification. In addition, regional organizations need strengthening in areas such as confidence- and security-building, transparency, accountability and information exchanges. At a more detailed level, donors need to support programmes designed to:

- Strengthen controls and regulations on the legal possession and trade of arms;
- Strengthen the capacity of the police and customs services by supporting training programmes for police, customs and border guards, judiciary and other agencies involved in preventing or combating illicit arms trafficking;
- Establish and improve national databases, communication systems and equipment for monitoring and controlling the movement of weapons across borders;
- Establish inter-agency joint working groups; and
- Integrate regional initiatives to tackle arms proliferation and illicit trafficking into the wider programmes that promote human and community security.

At the same time that arms control initiatives in the developing world require support, the major arms exporters need to face up to their responsibilities for the proliferation of weapon systems. The main sources of supply for conventional arms are from a handful of industrialized states who comprise the permanent members of the Security Council — the United States, France, the United Kingdom, the Russian Federation and China. In addition, there are a number of newly industrializing countries such as Israel, Brazil and South Africa that have recently entered the international arms market. Since the end of the Cold War, a huge second-hand market for weapon systems has also emerged with large supplies coming from former Warsaw Treaty countries. Developing nations continue to be the primary focus of foreign arms sales activity by the major weapons suppliers. According to Grimmett, during the years 1989–96, the value of arms transfer agreements with developing nations comprised on average 67.5% of all such agreements worldwide.¹⁶ The value of all arms transfer agreements with developing nations in 1996 was some \$19.4 billion, which represented the first increase in arms sales since 1992. In 1996, the United States was the primary source of supply with agreements worth \$11.3 billion, the United Kingdom with agreements worth \$4.8 billion was in second place, and the Russian Federation with sales agreements worth \$4.6 billion ranked third.

The influence wielded by military industrial elites of the supplier states and their drive to export (created by the need to maintain employment in domestic defence industries and generate returns from large outlays incurred on domestic weapons procurement projects) ensure that certain violent and repressive regimes such as in Indonesia, Nigeria and Pakistan have been able to acquire weapons with relative ease. In part, these patterns of transfers derive from patronage relations established during the Cold War that have endured, despite the widespread adherence to the principles of universal peace, democracy and human rights that has emerged since the end of that period.

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Patronage notwithstanding, a contradictory trend is discernible amongst those Northern states who support the principles of conflict prevention, development and good governance, yet place little if any unilateral restraint of the export of arms to developing countries. There are some signs that measures are being taken to rectify this anomaly in the international community's dealings with post-conflict and conflict-prone societies. The recent adoption of a "security first" approach, for instance, is based on the notion that security should no longer be considered discrete and unrelated to other spheres of foreign policy but should instead form part of an integrated approach by donors.

One cannot conceive of an effective conflict-prevention policy that does not tackle the problem of arms supplies. At present no multilateral system for controlling sources of supply exists, as there are for nuclear chemical, biological and intercontinental ballistic missiles. Even less control exists for light weapons, which have caused most of the casualties in war since the end of the Cold War. Nevertheless, there are a number of initiatives that are likely to come to fruition in the next few years that may rectify this hiatus.

Spurred on by the success of the global campaign to outlaw anti-personnel mines, which resulted in the signing of the Ottawa Convention in December 1997 by more than 120 states, a number of interesting initiatives have been advanced with a view to controlling the flow of light weapons. Since 1995, a group of Nobel Peace Prize laureates have been proposing an international code of conduct on the transfer of weapons, under United Nations auspices. Support has also been gaining momentum for a convention on the prevention of the illegal use of light weapons, aimed principally at establishing strict criteria to govern the export, collection and destruction of surplus armaments and at promoting more transparent international cooperation.¹⁷ In this spirit the United Nations Panel of Governmental Experts on Small Arms has recommended a number of practical measures to reduce the quantity of weapons in circulation and to curb future acquisitions of small arms, including the establishment of a regional information-sharing network, assistance for democratic internal security forces and assistance for post-conflict initiatives related to disarming and demobilizing regular and irregular forces.¹⁸

In May 1998, a conference sponsored by the British Government entitled Developing Controls on Arms and Illicit Trafficking in Southern Africa examined ways of developing a regional action plan for Southern Africa aimed at controlling light weapons proliferation and diffusion. The programme is to be supported by the European Union (EU). Other initiatives by the EU include the establishment in 1997 of its *Programme for Preventing and Combating Illicit Trafficking in Conventional Arms* and the adoption of a EU Code of Conduct in June 1998. But it is important to recognize that current initiatives remain inadequately developed and in need of sufficient resources and greater coordination at the regional and international levels. In the coming decade, the challenge will be to enhance and empower these initiatives so that they become the foundations of a new multilateral arms control regime.

Military Expenditures and Development

One of the most commonly used indicators of disarmament are cuts in military expenditures. This provides an aggregate measure of defence resource inputs and its growth or decline indicates the predilection and perceptions of policy makers. Global military expenditure has declined from its Cold War peak in 1987 by more than 25%. This significant reduction has been mainly concentrated in the industrialized countries, masking the fact that in many developing societies defence expenditure

remains high and has even increased in certain regions since the end of the Cold War. According to SIPRI data, between 1987–96 military expenditure increased in South Asia by 13%, in the Middle East by 11% and by 35% in South-East Asia.¹⁹ Conflict continues to exact high military expenditures in many parts of the developing world. For example, in Algeria military expenditure increased by 144% in real terms during 1994 as a result of Islamic insurgency. Likewise, the ongoing conflict in Sri Lanka has resulted in persistently high levels of military spending. Elsewhere in the developing world, however, levels of military spending remain in excess of legitimate security needs.²⁰

Existing statistics on military expenditures in developing societies have to be approached with caution, due to a lack of reliable information on military expenditure trends in the developing world. The dearth of reliable statistical reporting by Third World governments is vexing as the mutual disclosure of military spending trends is acknowledged to be one of the major means by which trust and confidence is built between states. The lack of adequate data on military expenditures also makes it difficult to quantify the potential “savings” that could be released from military expenditure and reallocated to development goals.

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It is almost universally accepted that high military expenditures incur substantial opportunity costs for developing countries.²¹ It is therefore assumed that cuts in military expenditures, sometimes referred to as a peace dividend, will create development gains. There is, however, no automatic link between reductions in military expenditure and development — such links are *contingent upon the willingness of governments* to reallocate defence savings to development goals.

The process of realizing a peace dividend involves at least two steps: military expenditures are cut to generate non-trivial savings (a resource dividend), which are in turn applied to promote greater production efficiency (a product dividend). Some see a third step in which a welfare dividend results either directly from the transfer of defence savings to increase public funding for social programmes, or indirectly from the trickle-down effects of a healthier economy.²² The Bonn International Centre for Conversion (BICC), where pioneering work is being conducted on the peace dividend, has observed that realizing a peace dividend is multi-causal, complex and involves time lags. In addition, realizing the benefits of a peace dividend is more complex than simply shifting resources from one budget heading to another. In highly militarized societies, releasing military resources for development is a process encompassing political, social, ideological, as well as economic adjustments and institutional change. It demands the existence of a relatively high level of political and institutional will within the state and civil society to ensure that development gains are secured rather than the further socio-economic empowerment of already privileged sections of society.

The magnitude of the cuts and resource re-allocation will determine the qualitative and quantitative contribution that the peace dividend can make to development. This is largely dependent on the percentage of the gross domestic product and of state expenditure that defence spending constituted. The way in which saved resources are used will determine the economic impact of the cuts, for example, how savings are allocated between constant government spending (rises in investment and/or increased social spending) or through reduced government spending in the form of a reduction in the tax burden or deficit funding. The limited evidence that exists on Third World countries suggests that the peace dividend has gone into deficit funding mainly in the form of international debt-servicing. The demands of debt-servicing mean that there are few if any development opportunities to be made from cuts in defence expenditures in the short- to medium-term.

Where high debt burdens are associated with arms imports and high military spending, the economic problems facing developing economies are seen as self-inflicted. In the 1990s, however, in many highly indebted poor countries there has been a change of government as a result of multi-

party democratic elections, resulting in the expulsion of militaristic regimes. Despite fundamental political changes, the newly elected governments have been obliged to pay the debt burdens incurred by the profligate policies of past authoritarian governments.

While donors have been placing pressure on Third World governments to reduce defence spending in order to release resources for sustainable development,²³ they have been less amenable to debt forgiveness that would allow new governments to address their development problems. If democracy implies political participation that allows for greater social and economic equality, then under existing economic conditions these democratic regimes are likely to fail, because their ability to deliver improved economic conditions is undermined by the debt burden. While such anomalies persist, the foundations of a stable democracy in highly impoverished developing countries will remain fragile.

In addition to the problem of debt forgiveness, which urgently needs to be addressed by the major donor nations, overseas development aid has yet to be adjusted to reflect donors' concern with disarmament and development. Despite the end of the Cold War, aid is often allocated to strategic allies rather than to poor countries. For instance, Israel received \$176 per person in 1990–91 as compared to \$1.7 per person in Bangladesh.

Overseas development aid has yet to be adjusted to reflect donors' concern with disarmament and development.

The threat to withdraw aid can have a powerful disciplining effect, inducing parties to comply with their stated commitments to good governance, demilitarization and democracy. Conversely the promise of aid, particularly for rehabilitation and reconstruction, can be a powerful inducement to parties to honour their obligations. The use of sticks and carrots in overseas development assistance is a powerful tool for compliance, but in fragile and war-torn democracies it needs to be administered sensitively, lest the most vulnerable in society suffer. There can be no simple equation for this practice as each country's situation is unique.²⁴

Structural Constraints on Realizing Human Development from Disarmament

The humanitarian tragedies of the 1990s, many of which have occurred on the African continent, have taken place at a time when resources for international aid are increasingly scarce. Donor fatigue and past failures in humanitarian relief operations have combined to create an environment of cynicism about the attainment of sustainable development in many post-war economies. In this vacuum, macro-economic stabilization programmes have replaced the goals of development. Structural adjustment via market reforms and privatization — while important — are not sufficient mechanisms to provide the necessary incentives to prevent conflict, to ensure the success of demilitarization and to rebuild war-torn economies.

Currently the international financial institutions (IFIs) — the International Monetary Fund (IMF), the World Bank and regional development banks — play a proactive role in many economies that are vulnerable to conflict and in others that have recently emerged from long and destructive wars. Yet the IFIs do not generally view conflict prevention as part of their economic mandate.²⁵ Rather they concentrate their efforts on macro-economic stabilization, sectoral policy reforms, together with project lending and the promotion of growth strategies.

The reluctance of IFIs to integrate conflict prevention into their economic mandates can partly be explained by their traditional apolitical stance. However, the end of the Cold War has made it possible for IFIs to address more directly the political dimensions of their lending policies. The emergence of new states in Eastern Europe and their adoption of free market principles has encouraged

the IFIs to broaden their remits. As a result, the mandates of the IFIs have evolved to include the promotion of good governance and the reduction of military expenditures. So far, IMF pressure on developing countries to reduce military spending has produced few if any development gains. This is because the primary concern of the IMF is to ensure that countries service their debt and reduce their balance of payments deficits. Currently the costs of IMF-induced macro-economic adjustment programmes are born disproportionately by the poor, and in a growing number of cases this has led to social unrest, rising violence and challenges to the authority and legitimacy of many adjusting governments.²⁶

An increasing number of analysts have begun to question the wisdom of imposing IMF structural adjustment programmes (SAPs) in conflict-prone societies.²⁷ As one commentator has noted “Paradoxically, the very process of political and economic liberalization has generated destabilizing side-effects in war-shattered states hindering the consolidation of peace and in some cases even sparking renewed fighting.”²⁸

Despite the IMF's steadfast belief that structural adjustment is the cure-all for developing countries' economic ills, it has so far failed to resolve prior macro-economic and developmental failures in the countries listed above. Yet SAPs have increased acute socio-economic inequalities that have resulted in social unrest and, in extreme cases, protracted conflict. In Mexico, for instance, localized social unrest in the form of strikes, hunger riots and demonstrations, and the emergence of the Zapatista movement in Chiapas have been attributed to a backlash against the IMF-imposed SAP.²⁹ In Algeria after several years of an IMF-imposed SAP, the failure to lift the stagnant economy has resulted in growing problems of food security, rising unemployment and disillusioned youth. This has translated into strengthened support for the Islamists who are attempting to overthrow the military government.³⁰ The bloody civil war that has ensued since 1992 has claimed the lives of over 60,000 people.³¹

Such outcomes appear to be counter-productive to the IMF's desire for economic stability, as violence seriously dampens economic development and growth, and undermines attempts at economic reform. Thus it would seem appropriate that conflict prevention should be a central part of the IFIs working brief, particularly when they are involved in countries where violence seems likely to erupt as a result of the inequitable distribution of wealth in society.³² Clearly the policies of the IFIs require fundamental reform if they are to conform to the international community's search for greater peace and security in the world.

Conclusion

We stand on the threshold of change as we approach the millennium. Creative thinking and policy proposals hold promise for improved peace, security and development in the world. Despite all of the positive initiatives for change, there is a countervailing force that seeks to respond to the challenge of poverty and crises in the developing world through the use of arms. The militarization of the security and the economic crises of the developing world, whether through the new “medievalist” responses of warlordism, banditry and mercenaries or the high-tech revolution in military affairs of the developed world, will only exacerbate conflict and humanitarian disasters. Only a concerted global effort to achieve disarmament and development will end the scourge of poverty and humanitarian crises that has plagued human society throughout the twentieth century.

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Remote Sensing From Space: National and International Security

Bhupendra JASANI

It is well recognized that both the United States and the former Soviet Union have used their space assets in support of their strategic forces, thereby enhancing their national securities. The 1990/91 Gulf crisis demonstrated that space systems could play a major role in strengthening conventional capabilities. For example, American photographic and radar reconnaissance satellites monitored Iraqi troop deployments and obtained early warning of any launch of Iraqi missiles by the use of early-warning satellites.¹ It was reported that the armed forces in the Gulf relied on data from such satellites for their military operations.² With their usefulness already established, could spaced-based assets be used to enhance international security in an ongoing way?

Space could have an important role to play in confidence-building measures. For example, now that the crisis in the Gulf is over, some kind of security arrangement will have to be worked out in this region. In Europe, for example, this sort of arrangement was developed through the Conference on Security and Co-operation in Europe (CSCE), under which the Treaty on Conventional Armed Forces in Europe (CFE) was signed on 19 November 1990. Ground- and air-based observations are an important aspect of the CFE as well as in confidence- and security-building measures (CSBMs) in general. However, CSBMs often include observations of military manoeuvres. Due to the expansive areas covered by the exercises to be observed and the limitations and difficulties experienced with aerial inspections, observations from space can and will become more important, practical and efficient.

Another area where space capabilities significantly influence international security is in the field of arms control. Observations from space form a vital element of American and Russian national technical means (NTM) of verification of compliance with bilateral agreements. However, not all nations have access to such capabilities even though they are parties to several important multilateral arms control treaties. Moreover, neither the United States nor the Russian Federation is willing to share widely the technology or the information obtained by their NTMs. This will clearly give an impetus for the development of multilateral technical means (MTM) of verification. In this process, commercial remote sensing satellites could play an important role.

In the following sections, some of these aspects are discussed briefly.

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Nature of the Relevant Space Capabilities

Over the last four decades or so, space capabilities have been developed essentially in four areas: space transportation, sensors, spacecraft and ground segments. Progress in all of these areas resulted in the development and deployment of spacecraft to perform a wide variety of functions to facilitate many civil and military operations on land, at sea and in air. These functions range from meteorology, communications, navigation and geodesy to remote sensing, reconnaissance and surveillance. Such satellites are often attractive since they enable many missions to be conducted with greater efficiency and precision. In the military field, sophisticated satellites are already used and progress is expected on more advanced and survivable spacecraft in order to enhance not only strategic but also conventional forces.

In the following sections, launchers and remote sensing satellites and related issues are discussed briefly.

SPACE LAUNCHERS

For independent remote sensing capabilities, it is important to have an ability to launch satellites. Most space-faring nations developed satellite launchers based on their intercontinental ballistic missiles (ICBMs). Starting in 1972, American policy began to shift from the use of expendable launch vehicles (ELVs) to the development of a partially reusable transportation system, the space shuttle. However, the loss of the Challenger in June 1986 revived the American ELV programmes. Like the United States, the former Soviet Union also developed several ELVs based on its ICBMs. It also began studying the reusable vehicle concept in the late 1960s. For this purpose, a very powerful launcher, called the Energiya, was tested on 15 May 1987 for the first time.³ However, the trend now is to use the ICBMs released from the disarmament process as satellite launchers.

The launcher monopoly held by the United States and the Soviet Union for nearly fifteen years was broken by the People's Republic of China in April 1970 when it launched a satellite using its own launcher. Subsequently, France and Japan began to launch unmanned spacecraft regularly. Built largely on the French experience, the newly established European Space Agency (ESA) began a coherent, independent European space programme in 1975. The first successful launch of the ESA's Ariane 1 was on 24 December 1979. India has launched a number of satellites using indigenously developed launchers. Their first remote sensing satellite was in March 1988. Israel joined the space club when it launched its first satellite on 19 September 1988. It plans to launch a remote sensing satellite in 1998 with a panchromatic resolution of 1.5m.

Whether this trend continues will depend on how the present concerns over the proliferation of missiles and missile technology develop. An attempt has been made to control the proliferation of missiles and relevant technologies. In April 1987, Canada, the Federal Republic of Germany, France, Italy, Japan, the United Kingdom and the United States, after some four years of negotiations, signed an agreement to restrict severely their export of missiles potentially capable of delivering nuclear weapons and certain missile-related technologies. This was codified in an agreement called the Missile Technology Control Regime (MTCR) and its Equipment and Technology Annex. Category 1 items under the agreement include space launch vehicles and sounding rockets. The objective of the MTCR is to prevent the proliferation of missiles by controlling the export of hardware and missile technology. At the same time, members hope that this will not discourage cooperation in the field of space.

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As of 1998, twenty-nine states⁵ were members of the MTCR. For the regime to be effective, additional supplier countries and launcher nations would need to be attracted. The fact that China has not joined such an arrangement does not help the non-proliferation cause. In any case, such control regimes at best only slow down the process of acquiring military capabilities but cannot prevent it forever. On the whole, the MTCR may eliminate the possibility of exerting influence over emerging space powers to

prevent them from developing missiles. Such efforts merely strengthen their resolve to develop on their own not only space launcher capabilities but also missiles. Clearly, a new approach to these problems will have to be developed.

REMOTE SENSING SATELLITES

A number of types of satellites have been developed and deployed that have profoundly affected activities on earth. For example, communications satellites have established rapid links with virtually any part of the world. Navigation by satellites, yielding position accuracy down to several tens of metres, is now beginning to be used by civil land and air transportation industries. Other uses include meteorology and geodesy.

Table 1. Some current and future optical commercial satellites

Country	Satellite	Resolution (m)	Date of launch
France	SPOT 1-3	10 (Pan), 20 (XS)	1986, 1990, 1993
	SPOT-4		1998
	SPOT-5	2,5 (Pan)	2000
	SPOT-6	5 (Pan)	2003
India	ISR-1C	5,8 (Pan), 24 (XS)	1995
	IRS-1D	5,8 (Pan, XS)	1997
	IRS-P6	2,5 (Pan)	1998
Israel	Eros-1, Eros-2	1,5 (Pan), 5 (XS, 304 bands)	1998
	David	5 (Pan)	1998
United States	Landsat-5	30 (XS, 7 bands)	1982
	Landsat-7	15 (Pan), 30 (XS), 60 (thermal)	1998
	EOSAM-1	15 (XS)	1998
	IKONOS-1	1 (Pan), (XS)	1997
	IKONOS-2	4 (Pan), (XS)	1998
	ORBVUEW-3	1 (Pan), (XS)	1999
	QUICKBIRD-1	0,82 (Pan)	1998
	QUICKBIRD-2		
	EARLYBIRD-1	3 (Pan), 15 (XS)	2000

Pan = Panchromatic

XS = Multiband

From an altitude of about 700km, sensors on-board civil satellites observe the earth's surface for resources and civil activities in order to help, for example, better and more efficiently exploit and use natural resources. Various types of sensors are deployed on-board observation satellites, essentially optical and radar systems. Through the former devices, it is possible to distinguish objects as small as 2m. These devices operate in the visible range of the electromagnetic spectrum and are usually panchromatic. The spatial resolution of infrared (IR) thermal devices, usually multispectral devices, is poor (120m) but they can detect temperature differences as small as 0.25°C. IR devices can detect objects at night and they can determine whether camouflage has been used. Considerable improvement continues in optical devices, some of which are about seventy times more sensitive in the visible region of the electromagnetic spectrum than photographic film.⁶ Some currently available as well as planned optical satellites are summarized in Table 1.

Examples of images acquired from such devices are shown in Figures 1 and 2. In Figure 1 (top section), an image of a Russian anti-ballistic missile phased array radar under construction was acquired by the French SPOT 1 satellite in 1987. Here, the pyramid-shaped radar structure can be easily identified, while other sites, such as the administrative buildings and the interceptor missile complex, are under construction. Compare this with the lower image acquired by the SPOT 2 satellite in 1991. It can be seen that considerable development took place in the intervening period. The administrative buildings and the interceptor missile site are clearer. On the right in both the scenes, the Russian surface-air-missile (SAM) site can also be identified. This figure illustrates that even with a relatively poor resolution of 10m, it is possible to interpret the image.

Figure 2 shows another example, that of the Russian ICBM deployment area in Ukraine (Pervomaysk). A SPOT satellite acquired the image on 8 February 1991. There are forty SS-19 and forty-six SS-24 ICBMs deployed at Pervomaysk. This image shows forty-two of these missile sites. Under the START I and II treaties, the parties have declared the numbers and the locations of their missiles. In the treaty, missiles are declared in groups of tens. From the image it is possible to identify such a grouping. In the configuration of ten missiles, nine are placed around the central silo, which also has the command and control system. Such a configuration may be to minimize damage due to bombing.

These two images relate to the strategic nuclear-weapons treaties between the United States and the Russian Federation. The image in Figure 3 illustrates the use of satellite data to monitor the 1970 Treaty on the Non-Proliferation of Nuclear Weapons (NPT). A Russian satellite acquired the image over a civil nuclear power station in Dungeness in the United Kingdom. The original image

Figure 1. The Russian ABM radar site acquired on two occasions by the French SPOT satellite

Source: CNES/SPOT.

Figure 2. A full SPOT scene over Pervomaysk acquired in February 1991. Forty-two missile sites have been identified and marked on the image

Source : CNES/SPOT.

Figure 3. Acquired by a Russian satellite at 2m resolution, four units of the Dungeness nuclear power station and the main switch yard in the United Kingdom can be identified

Source: Russian KVR-1000.

was on photographic film (better than 1m resolution) that was later scanned and digitized at 2m resolution, thereby losing considerable detail. At Dungeness, on the south-east coast of the United Kingdom, there are two Magnox (Dungeness A1 and A2) and two advanced gas-cooled reactor (Dungeness B1 and B2) power stations. With a thermal IR image, one could examine the thermal signature of the reactor to know whether or not it was in use. In an extensive study,⁷ in which other elements of the nuclear fuel cycle were examined, a number of characteristic signatures were identified that could help to distinguish a civil facility from a military one. Therefore commercial satellite imagery could make a considerable contribution to monitoring the International Atomic Energy Agency (IAEA) safeguards agreement.

Additionally, it has been suggested that commercial satellite imagery could contribute to the verification of the Chemical Weapons Convention.⁸ Another recent treaty that could benefit from commercial imagery is the Comprehensive Nuclear-Test-Ban Treaty (CTBT). A number of studies have shown that the CTBT would be more “effectively” verifiable if observation from space were used to monitor the treaty, since, for example, preparations for a test could be observed rather than only verifying if a test had taken place.⁹

The inability of optical devices to penetrate clouds and darkness can be overcome by the use of radar, which can not only see through cloud cover and darkness but can also penetrate camouflage. Vessels as small as 20m long have been observed on the sea surface by radar. For higher resolution, about 40kw of power would be required for a system capable of 10m resolution with 15m diameter antenna operating at 2.5GHz.¹⁰ Theoretically, by increasing the frequency of the American Seasat synthetic aperture radar from 1.27 to 10GHz, the resolution would improve from 25m to just less than 1m. The Soviet radar satellite, Almaz, is reported to have a resolution about 15m.¹¹ The data is transmitted to earth in digital form and via a relay satellite when necessary. The most recent country to launch a radar satellite is Canada. Some of these satellites are summarized in Table 2. Wavelengths in terms of frequencies and equivalent bands are also given. These are used to generate multispectral radar images for easier interpretation. Data from all of these radar satellites are available commercially.

Arms Control and International Security

Arms control, disarmament and confidence-building measures are important elements of security. If a multilateral arms control agreement is to be credible, it needs to be “effectively” verified. A number of such treaties have provisions for on-site inspections for their verification. However, these usually are carried out in a very limited way because the inspected state is generally reluctant to make itself too transparent. Therefore, a non-intrusive way needs to be developed. Most of the early bilateral treaties between the United States and the former Soviet Union depended on earth-orbiting satellites for their verification. It was suggested that this could be extended to monitor multilateral agreements such as the NPT.¹² While only a few states have the capability to build and launch observation satellites, the advent of high-performance commercial remote sensing satellites now make it possible for all states to use the technology for verifying multilateral treaties as the images can be purchased by anyone. If the use of satellite imagery becomes acceptable, then the availability of information from satellites will have to be assured. For example, bilateral treaties protect satellites used under Russian and American NTM of verification. These treaties have a non-interference clause under which the parties commit themselves not to interfere in any way with each other’s NTM systems. The situation regarding interference with commercial remote sensing satellites is somewhat more ambiguous and is briefly examined below.

Table 2. Selected characteristics of some radar satellites in orbit

Country	Sensor	Frequency (GHz)/band	Range resolution (m)	Azimuth resolution (m)	Repeat cycle (days)
ESA	ESR-1 & 2	5.3/C	26	28	35
Japan	JERS-1	1.3/L	18	18	44
Canada	Radarsat	5.3/C	9–100	9–100	3–24
Russia	Almaz	3.125/S	15–30	15	5–7
United States	SIR-C	1.28/L 5.3/C	8–30	30	-

None of the space-related multilateral agreements¹³ protects satellites of any other nation except perhaps the International Telecommunication Convention of the International Telecommunications Union (ITU). Despite the fact that the convention is not an arms control measure, “All stations, whatever their purpose, must be established and operated in such a manner as not to cause harmful interference to the radio services or communications of other Members or of recognized private operating agencies, or of other duly authorized operating agencies which carry on a radio service, and which operate in accordance with the provisions of the Radio Regulations” (Art. 45, para. 197 on Harmful Interference).

It is worth noting here that in spite of this provision, members of the ITU Convention “... retain their entire freedom with regard to military radio installations” (Art. 48, para. 202 on Installations for National Defence Services). However, in paragraph 203 of the same article, it is stated that “... these installations must, so far as possible, observe statutory provisions relative to ... the measures to be taken to prevent harmful interference, and the provisions of the Administrative Regulations concerning the types of emission and the frequencies to be used, ...”. It could be argued that while parties to the convention are not required to treat their military systems in the same way as civil ones, the non-interference provision might still apply. Thus, the ITU treaty protects communications satellites.

Many more countries are beginning to use outer space for such non-military purposes as remote sensing, communications and meteorology. The difference between the capabilities of remote sensing and military reconnaissance satellites is becoming so small that, to some extent, even the former could be used for military surveillance purposes.

Many more countries are beginning to use outer space for such non-military purposes as remote sensing, communications and meteorology. The difference between the capabilities of remote sensing and military reconnaissance satellites is becoming so small that, to some extent, even the former could be used for military surveillance purposes.¹⁴ The extensive use of space may increase the proliferation of long- and short-range missiles as the components of such missiles and civil space launchers have much in common.

As the capabilities of civil and military satellites converge, it is possible that civil spacecraft could become targets for anti-satellite (ASAT) weapons. Satellites are not protected by general international law or by any specific multilateral treaty. Unlike military reconnaissance spacecraft, damage to civil remote sensing satellites may not be regarded as an attack on a country's national security assets. However, during a crisis, such satellites could become very important. Even accidental damage during a time of high tensions could aggravate an already tense situation.

A number of nations now have ICBM capabilities and some are even developing anti-tactical ballistic missiles and air defence systems. These systems have some common elements to space weapons and therefore could be converted into, for example, ASAT weapons.

A more profound question that needs to be addressed is tests of ASAT weapons. These are clearly aggressive in nature and yet the two leading space powers have conducted a number of tests of their ASAT weapons and others may follow them. Such tests have created space debris that could become harmful to other nations' space activities. No mention of space debris is made in the 1967 Outer Space Treaty. However, “If a State Party to the Treaty has reason to believe that an activity or experiment planned by it or its nationals in outer space, ... would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, ... it shall undertake appropriate international consultations before proceeding with any such activity or experiment. A State Party to the Treaty which has reason to believe that an activity or experiment planned by another State Party in outer space, ... would cause potentially harmful interference with activities in the peaceful exploration and use of outer space, ... may request consultation concerning the activity or experiment” (Art. 9, 1967 Outer Space Treaty).

Potentially harmful debris has been generated in outer space by the ASAT tests of the former Soviet Union and the United States. Yet, as far as it is known, no “international consultations before proceeding with such activity” were undertaken by either power. Nor have other states parties to the treaty realized that the debris generated by ASAT experiments of the two powers might cause damage to their spacecraft. This is in spite of the fact that there is now some evidence that malfunction of a number of satellites may have occurred because they were hit by debris.¹⁵

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Conclusions

It is highly unlikely that every country will develop its own satellite launch capabilities. Those with an advanced industrial and technological base and having security concerns are most likely to acquire their own launchers. This is to maintain their own independence if there is a need to launch, for example, defence satellites such as military reconnaissance or communications spacecraft, since a foreign launcher may not be available.

As noted above, the extensive use of space may increase the proliferation of long- and short-range missile capabilities. The 1987 MTCR agreement is not likely to stop such a development and furthermore it may be misinterpreted as an attempt to monopolize the launcher market. Such control regimes at best slow down the process of acquiring military capabilities but cannot prevent it forever. As the international community considers new approaches other than the MTCR or similar measures, an important aspect has to be participation from both the suppliers and the recipients of sensitive technologies.

Remote sensing by satellites is the second space capability that is developing rapidly. If improvement in resolution is taken as a measure of progress, then over the last twenty-five years this has changed by a factor of about 100. The first American remote sensing satellite, Landsat 1 launched in 1972, had a resolution of about 80m. Now the United States is expected to launch a commercial satellite with a resolution of nearly 0.8m. With these improvements, such spacecraft may be used to monitor multilateral arms control treaties as well as to build confidence among nations. Treaties such as the NPT and the Chemical Weapons Convention are examples of multilateral measures that require verification on a multilateral basis (multilateral technical means of verification). The effectiveness of numerous other already existing treaties could be enhanced by such verification procedures. Observations from outer space could play a vital role. Unfortunately, the technique is not used to monitor crises areas with the view of preventing a crisis from developing into a conflict. Additionally, there is opposition by some in allowing the use of such capabilities for verification of arms control agreements for fear of losing the monopoly on information.

Some of the existing treaties and arms control measures currently under discussion require NTMs of verification. While most nations still do not possess NTMs of their own, the concept of an international verification agency is gaining some recognition, with observations from space as a critical element. It should be recognized that, although on-site inspections are now acceptable, some method is needed to determine where and when to carry out on-site inspections. Moreover, in some of the current arms control agreements, the number of on-site and aerial inspections are limited. Therefore, observations from space could form the first layer of a multi-layer verification system. The next layer could be aerial inspection and then, the final one, on-site inspection.

An International Satellite Monitoring Agency (ISMA) to verify arms control treaties as well as to monitor crisis areas was proposed by France in 1978.¹⁶ A United Nations expert group study on ISMA was published in 1981.¹⁷ As a result of the resolution 43/81B passed by the General Assembly of the United Nations in 1988, the role of the United Nations in the field of verification was examined by a Group of Governmental Experts.¹⁸ The study concluded that the United Nations should seriously consider the multilateral aspects of verification.

The complexity of political problems associated with the creation and operation of an international system led some to propose a regional satellite monitoring agency (RSMA).¹⁹ The first RSMA was established by the Western European Union in 1990 and declared operational in 1991 in Madrid, Spain. It is suggested that other RSMAs should be established in Latin America, Africa, the Middle East, South Asia and the Far East. In all these regions, there is a need for such an agency and space capabilities also exist.

Notes

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Environmental Security: Issues and Agenda

Sara PARKIN

I would like to examine the interest in the environment as a security issue. I shall try to come up with a new definition of security; one that better fits the challenges that face us as states, in particular as states that are members of a number of international organizations concerned with security and defence. I shall argue that if the environment is not to be an increasing source of conflict, then it will have to be given a central and positive role in international relations. To illustrate how this might work, I will end with some suggestions.

Security on the Policy Agenda

As far as foreign policy is concerned, the end of the millennium is a busy time:

- NATO is seeking its post-Cold War role. It has chosen expansion, under the banner of Partnership for Peace, and in July 1997 offered membership to Poland, the Czech Republic and Hungary.
- The President of the General Assembly is doing the same for the United Nations. The end of the Cold War revealed how little either NATO or the United Nations was prepared for peace. There are calls for an increase in membership of both the permanent and non-permanent members of the Security Council.
- In June 1997, the United Nations hosted the five-year follow-up to the Earth Summit. Held in 1992 in Rio de Janeiro, the Earth Summit was one of the world's biggest ever diplomatic events, when over 170 governments agreed that sustainable development would be the key policy framework for resolving the mounting environmental crisis. Yet there has been very little progress since they did so. The rate of environmental degradation has not even slowed since then.
- Last December, the Third Conference of the Parties to the Climate Convention signed in Rio, met in Kyoto. Challenging targets in greenhouse gas emissions were agreed, with the European Union (EU) committed to a reduction of 8% below 1990 levels by 2008–12. This is the highest commitment amongst developed nations, which share an overall target of 5%. The Protocol includes a number of flexible mechanisms (creation of 'carbon sinks', emissions trading and two mechanisms designed to encourage a transfer of clean technologies between industrialised and developing nations).

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- The EU's Intergovernmental Conference continues to consider, amongst other things, a Common Foreign Security Policy (CFSP), supposed to include all questions related to the security of the Union.
- Many nations are undertaking strategic reviews to reassess essential security interests and defence needs in the coming decades.

The Environment as a Matter for Security Concern

For three years, spanning the breaching of the Berlin Wall, I lectured senior NATO officers on the likely impact of environmental degradation on security policy. When I started in 1989, it was the first time the environment had been on their training agenda.

I explained that, strictly speaking, degradation of the environment posed a very direct threat to national security — an estimated 20 million people have died each year because their locality no longer provided a life-supporting environment. This compares to an estimated 20 million who have died in armed conflict in total since 1945.

An estimated 20 million people have died each year because their locality no longer provided a life-supporting environment. This compares to an estimated 20 million who have died in armed conflict in total since 1945.

Moreover, it is possible to identify a number of civil wars that have been prompted or exacerbated by environmental degradation. Today, environmental refugees outnumber those corresponding to the official United Nations definition for refugees.

Evidence that changes in climate patterns are being triggered by greenhouse gases from anthropogenic sources is becoming increasingly incontrovertible. Scientific evidence is being joined by feedback effects on the economy. For example, since 1989 there have been more than a dozen insurance claims of over \$3 billion for extreme climatic conditions. The World Bank points out that eighty countries, with 40% of the world's population, already suffer severe shortages of fresh water.

In 1989, I also pointed out that the threats posed by environmental degradation were not distant problems, but doorstep ones for us here in Europe. The EU is, for example, one of the most densely populated world regions and, as a White Paper pointed out in 1993, "enormously dependent on the rest of the world for its imports of energy and raw material." Given that around 40% of the imports of the EU come from poor countries where the largest population growth is anticipated, the White Paper's suggestion that the EU could, by reducing its own consumption, "soften considerably future distribution problems for scarce environmental and natural resources at the global level" is somewhat understated.

The potential to reduce that consumption is, in fact, immense — as is the potential for economic benefit. A director of one of the United Kingdom's waste companies points out that each of us 'consumes' about one tonne of material a year — half in food and half in other consumer goods. Yet for each tonne of food and goods we buy, a further ten tonnes of material has had to be mobilized to produce them — excess material that is then dispersed to air, water and landfill. A key component to any security policy will be a convergence between economic and environmental goals — material and energy efficiency seem to be pretty good starting points.

Here in the United Kingdom, the health impacts of environmental degradation, such as childhood asthma and an increase in male reproductive system abnormalities, together with predicted water shortages due to persistent unseasonable weather, may not traditionally be seen as matters for foreign policy, but they amount to a matter of considerable national interest. Like the fact that £30 was added to my personal household insurance premium explicitly to cover 'natural events', these

close-to-home manifestations of a degrading environment alert the public to the links between them and global environmental problems, and also to their government's handling of them both.

Recently, the relatively small numbers of voices who have been piping on about this for some time have been joined by some policy baritones. Amongst them Malcolm Rifkind, the United Kingdom's former Secretary of State for Foreign Affairs, who said in January 1997 that "British foreign policy is traditionally about promoting the security and prosperity of the British people. The quality of the local and global environment is now crucial to both of these concerns." Warren Christopher, when he was United States Defense Secretary, gave a similar speech in April 1996.

Redefining Security

Security is often described as "the protection of the integrity of the state and its national interests from the use of force by an adversary." The third article of NATO's Charter translated this into a duty of Member States "to maintain and develop individual and collective capacity to resist armed attack." It is on military attack and defence capability that the massive bulk of security policy spending goes.

As shooting the ozone layer or bombing empty water aquifers is not an option, there would seem to be an urgent need to redraft the policy and operational definitions of security and defence at all levels to take account of the new global realities.

In a speech at the London School of Economics in November 1995, Robert McNamara, another former United States Secretary of State for Defense said "The international system that relies on the national use of military force as the ultimate guarantor of security, and the threat of its use as the basis of order, is not the only possible one. To seek a different system (based on collective security) is no longer the pursuit of an illusion, but a necessary effort towards a necessary goal."

In 1996, Shridath Ramphal (co-chair of The Commission on Global Governance and former Secretary General of the Commonwealth) pointed out that "cooperation is no longer merely an option, it is a pre-condition of life in the global neighbourhood. It is not just a strategic choice, it is a compulsion of civilized human existence."

So what would a definition of collective security look like? There is, as others have pointed out, both a local and a global component. I believe any future definition of security should recognize this. At the sub-national, national and world region levels, security might be defined as the number of people who feel safe and happy to stay at home, because their needs and aspirations can be met there (a comprehensive ecological, economic and political approach to security). Global security might be defined as the extent to which the global and regional eco-systems were back in charge of their self-regulating mechanisms (a global, strategic approach to security).

Satisfying these two components of security policy would between them achieve the overarching goal of 'protecting of the integrity of the state and its national interests'.

Danger of Maintaining a Military Approach to Security

The next question is can this or a similar definition of security be best handled through predominantly military means, through the use or threat of use of military force?

I do not believe it can. Further, I believe that maintaining a predominantly military approach to security and defence policy in itself increases the likelihood that the environment will become a

source of escalating military conflict. There will be increasing pressure on resources of all sorts — most significantly from changes in the climate — but we are not even attempting to slow this rate, never mind husbanding and sharing more fairly the resources that we do have, so tensions are bound to multiply.

Fifty-five percent of the world's people live in the coastal and estuary zones that will be most affected by rising sea levels. Fish stocks in most of the ocean fishing areas, which between them provide 16% of the world's protein, are seriously depleted — by over-fishing, but also through destruction of their coastal breeding zones, by pollution and development. An EU study group described "the demographic and ecological catastrophe brewing across North Africa" and called it a major threat to EU security.

None of these pressures can be resolved by military means. Skirmishes over resources or land may be won or lost as they have been since the beginning of recorded human history, but as long as the root causes of environmental degradation go unchecked, and because of the global nature of the consequences, there can be no overall winner of the war.

The Environment as Diplomat

I would like now to turn to the idea of deploying the environment as a positive force for peace. If the environment remains positioned in the whole context of security, defence and foreign policy as a *potential* source of conflict, it will inevitably become one. In my view, the only way to prevent this is to consciously and actively deploy the environment — or more accurately the need of each and every one of us for a life-supporting environment — as a central but positive focus for our international relations.

In my view, the only way to prevent this is to consciously and actively deploy the environment — or more accurately the need of each and every one of us for a life-supporting environment — as a central but positive focus for our international relations.

After all, the art of diplomacy is to identify the common ground between two conflicting or potentially conflicting parties, to bring the parties together on that ground, and to extend agreement from there until a mutually satisfactory conclusion is reached. The environment would make an ideal diplomat. Whatever the colour of your skin, whatever god you worship, whatever hideous wrong you or your ancestors may have done to me or my ancestors, each single person on this earth has more or less identical requirements when it comes to air to breathe, water to drink and food to eat. What could be more fundamental ground to meet on than that?

This point alone makes the maintenance of a healthy environment the ideal candidate for becoming the starting point for both domestic and global diplomatic moves towards the sort of peace and prosperity that is widely aspired to by governments and international institutions.

There is another reason why the environment should be actively deployed as an agent for peace. Since they were stripped of the certainties of the Cold War, there has been an unedifying strategic and intellectual disarray in our various international security organizations. There is a critical vacancy for an overarching logic to make sense of what we do next. The human species has a long track record of depending on such a logic (usually enshrined in a set of spiritual beliefs or shared values) to act as a sort of glue for its society, and to provide an operational framework for its institutions. What we have discovered over the past few years is that the Cold War and the idea of a 'common enemy' has been masking the fact that this glue is no longer as strong as it was.

I can think of no other glue powerful enough to create a strong sense of positive common purpose amongst people and peoples, than the need for a life-supporting environment. It is precisely

because the environment itself is completely non-discriminatory in the way it disburses its benefits that its role in providing a logic to govern our thinking about security policy, and international relations in general, could be so important.

The third point I would like to make about the role of the environment as a diplomat is that it is already working successfully as one. While the United Nations flounders, the Intergovernmental Panel on Climate Change demonstrates how agencies concerned with science, health, economics, law, trade and so on can work together. While the EU's preparations for the CFSP discussions seemed more concerned with the job description for a possible minister, its Fifth Action Programme for the environment, approved by Member States in 1992, is — if not up and running — at least up and creeping. Conferences on the environment are usually jointly prepared by, and attended by, governments, business and citizens' groups.

The consultation, collaboration and consensus that usually surround international environmental agreements has created a new model — a new culture even — for international negotiations.

Proposals

I would like to end by illustrating what I think it would mean if the environment was to be put at the heart of foreign policy in a very positive sense.

NATO

There are more arguments against expansion than for it. NATO is predominantly a military organization so expansion puts pointless pressure on the Russian Federation, Ukraine and the Baltic states. After the last few years, it is difficult to imagine what collective threat could mobilize all of the Member States, while the potential new members' prime interest in joining is almost certainly more to do with accession to the EU than a desire for collective security in the military sense.

Other initiatives show a better way forward. The Organisation for Security and Co-operation in Europe (OSCE) has the right membership and enough respect to play a much greater overarching role in increasing confidence of all sorts in the region. European environment ministers met in Aarhus in June 1998 to carry forward an initiative started by the late and sorely missed Czech Environment Minister, Josef Vavrosek. From the early 1980s, he openly promoted the importance of the common environmental agenda of East and West European countries as a route to confidence-building and peace.

NATO should be reorganized to separate its military capacity for last-resort use under the umbrella of either the OSCE or the United Nations, and its remaining considerable technical resources redeployed for non-military monitoring and verification of environmental agreements under the auspices of the United Nations — a point I shall come back to in a moment.

THE UNITED NATIONS

Of utmost importance is the rehabilitation of the United Nations: globalizing environmental problems, and globalizing markets and communications systems, demand some form of global governance that is respected and trusted by everyone.

There are three key reforms. Environmental problems offer an impeccable motive for refreshing the United Nations Charter. The need to include some minimum environmental standards to be met

by all members should also be used to append similar, up-to-date (but still minimum) standards of human rights and democracy. These standards should be the criteria for membership — with no exceptions to the rule.

The agencies of the United Nations should be required (as agents of the United Nations) to actively promote and enforce these standards in their areas of operation. This should include the World Trade Organization, the World Bank and the International Monetary Fund. These are, were or ought to be formal agencies of the United Nations, but instead are allowed to operate virtually autonomously. In relation to the power they wield, this semi-independent status is not appropriate.

The Security Council must be de-militarized if it is to command respect. As long as its permanent members manufacture the bulk of the world's arms, the United Nations will never be as respected as it must be for peace to become a reality. The new thinking about membership of the Security Council must therefore shake loose from old Cold War thinking. For example, the Worldwatch Institute has proposed a new constellation of powers that it calls the 'Eight Environmental Heavyweights': the United States, the Russian Federation, Japan, Germany, the People's Republic of China, India, Indonesia and Brazil. Between them these countries share:

- 56% of the world's population;
- 59% of the gross world product;
- 58% of the world's carbon emissions;
- 53% of the world's forest cover; and
- a huge, but incalculable because of overlap, percentage of the world's 250,000 known flowering plant species.

From an international negotiating perspective, the relative disparity of 'share' within and between each area is important. Each country has something the other needs — for example slower population growth, reduced CO₂ emissions, a fairer share of gross world product, and access to environmental services provided by forest cover or diversity of plant species.

Figure 1. Eight Environmental Heavyweights (the E-8)
(all figures are expressed as a percentage of the world's total)

Country	Share of world population, 1996	Share of gross world product, 1994	Share of world carbon emissions, 1993	Share of world forest area, 1990	Share of world flowering plant species, 1990
United States	5	26	23	6	8
Russian Federation	3	2	7	21	9
Japan	2	17	5	0,7	2
Germany	1	8	4	0,3	1
China	21	2	13	4	12
India	17	1	4	2	6
Indonesia	4	0,7	1	3	8
Brazil	3	2	1	16	22
Total E-8	56	59	58	53	*

* no. of total due to overlap.

Source : Worldwatch Institute, 1997.

The United Nations Special Assembly met in June 1997 to review national progress on achieving sustainable development since 1992. A leading member of the British delegation summed up the outcome of the meeting with the acronym SLUDGE (slightly less unsustainable development genuflecting to the environment). Much of the difficulty in making progress is due to lack of coordination amongst the United Nations lead agencies on sustainable development: United Nations Environmental Programme, United Nations Development Programme and the Commission on Sustainable Development, the body set up and charged with monitoring implementation of the national strategies. In the light of the recommendation of the Intergovernmental Panel on Climate Change that CO₂ emissions need to be reduced by at least 60%, the modest Kyoto targets will not only have to be reached, but they will also have to pave the way for deeper cuts. If this is to be achieved in a way that is both effective and just, we need clear thinking and leadership — not muddle.

THE EUROPEAN UNION

The CFSP ‘pillar’ of the EU is not technically subject to the EU’s treaty obligations to integrate environmental policy into the design and implementation of all policies (Article 130r2). Nevertheless, the Maastricht Treaty — which sets out the CFSP’s primary objective to “safeguard the common values, fundamental interests and independence of the Union” — ends by saying that environmental sustainability is one of the EU’s common values and that environmental security is one of its “fundamental interests”.

It is not many steps further to make the starting point of a CFSP sustainable development, and the agreement already secured around the Fifth Action Programme is the starting point for more detailed policy development and public discussion about an expanded concept of common security. If the EU’s recent handling of doorstep security issues is anything to go by, I see this as the only possible route to a robust common position.

Monitoring and Verification

I would like to add a final word about monitoring progress towards any targets or verifying compliance with agreements relating to the environment. I have long felt that this should be done at the local level, with national, European or global aggregations done from time to time through a random sampling of localities.

This way, the national incentive to do well is not reduced. The localities to be sampled would not be the same each time and need not be known in advance. The localities themselves would feel that their activities were connected to a global effort, with people motivated by seeing global results from individual contributions. Best practice from like localities would be more easily identified and shared. This would stimulate vital engagement in the huge local action plan agreed to at the 1992 Rio Earth Summit (Local Agenda 21).

And, importantly, as it would be far less threatening for verification to be carried out in localities, this is a much better way to build confidence and partnership between Eastern and Western Europe and between rich and poor countries.

Conclusion

I have tried to outline a new definition of — and a new vision for — security policy, and to suggest that the arrival of the environment as an issue of concern in a policy area still dominated by a military approach to security and defence is, in itself, dangerous. The best, and in my view the *only*, way to avoid deepening conflict caused by a rapidly degrading environment, and the inevitable human misery that accompanies it, is the purposeful use of the environment as a positive mediator in human affairs.

OPEN FORUM

An Indian and Pakistani CBM: The Sir Creek Trans-Border Area

Gaurav RAJEN

In early 1971, with the storm clouds of war ready to break later in the year in a horrendous killing deluge, India and Pakistan were still able to find common ground at Ramsar in Iran and become Contracting Parties of the International Convention on Wetlands. Today, faced with a critical need to engage in confidence-building measures that can reduce nuclear tensions, the protection of wetlands could form the basis for initiating improvements in Indian and Pakistani relations.

The resumption of talks between India and Pakistan “for the peaceful settlement of outstanding issues, including Jammu and Kashmir” was announced on 23 September 1998 in a joint statement by the Prime Ministers of India and Pakistan. The talks will begin with the issues of Jammu and Kashmir and peace and security, and also address six other areas identified more than a decade ago. One of these issues is defining the international boundary along Sir Creek, a sixty-mile long estuary in the salty marshlands of the Rann of Kutch between the states of Gujarat in India and Sind in Pakistan.

In 1965, armed clashes resulted from Pakistan’s claim that half of the Rann of Kutch along the 24th parallel was Pakistan’s territory and India’s claim that the boundary ran roughly along the northern edge of the Rann. The matter was referred to arbitration and the Indo-Pakistan Western Boundary Case Tribunal’s Award on 19 February 1968 upheld most of India’s claim to the entire Rann, conceding very small sections to Pakistan. Unfortunately, the Tribunal left the Sir Creek part of the boundary out of consideration as it was deemed to be already agreed on. At issue now is whether the boundary lies in the middle of Sir Creek as India believes, or on its east bank, as Pakistan insists. Despite the differences regarding the Sir Creek issue, it is one that could be resolved relatively easily between India and Pakistan, initiating a process of an incremental reduction in tensions.

One approach to reaching agreement on the Sir Creek boundary involves the Ramsar Convention on Wetlands that India and Pakistan have already signed and ratified. Pakistan has declared Chashma Barrage, Drigh Lake, Haleji Lake, Kinjhar Lake, Tanda Dam, Taunsa Barrage, Thanedar Wala and the Uchhali Complex of lakes as Wetlands of International Importance under the Ramsar Convention. These total over 60,000 hectares. India has declared Chilka Lake, Harike Lake, Keoladeo National Park, Loktak Lake, Sambhar Lake and Wular Lake as Ramsar sites, totaling over 190,000 hectares. One of the criteria for declaring an area as a Ramsar Wetland of International Importance is “a particularly good representative example of a wetland which plays a substantial hydrological, biological or ecological role in the natural functioning of a major river basin or coastal system, especially where it is located in a trans-border position”. Portions of the Rann of Kutch including the Sir Creek area are clearly worthy of designation as a Ramsar site. If both India and Pakistan declare their contiguous coastal portions of the Rann of Kutch to be Wetlands of International Importance, worthy of joint and cooperative efforts for protection, many of the contentious issues around the Sir Creek boundary

dispute could be resolved. An integrated plan for the development of the marine and coastal zone in this area could be developed jointly — and this could ultimately lead to further cooperation for mutual benefit in the development of ocean resources. The exact location of the boundary along the Sir Creek would become moot.

Coastal and intertidal wetlands are complex ecosystems that link land surface processes with the oceans. Coastal wetlands serve as natural filters that trap sediments and pollution present in surface run-off and intertidal movement of water, thereby regulating phytoplankton growth and fish populations in adjoining ocean regions. The roots and falling organic material of plants that grow in coastal wetlands provide nurseries and food for marine life. Protection of the Rann and a deeper understanding of its hydrological and ecological processes are crucial to the protection of the coral reefs in the Gulf of Kutch. The plume of sewage and industrial pollution travelling more than 150 km south from Karachi into the coastal areas of the Rann also needs to be studied and mitigated. Mangrove forests within the Indus delta have been largely destroyed, and there is ample scope for India and Pakistan to cooperate on regional mangrove restoration efforts.

The Red Sea Marine Peace Park jointly managed by Israel and Jordan in the Gulf of Aqaba as a part of their peace treaty makes an excellent model for the joint protection and development of the coastal areas of the Rann of Kutch. India is one of the few countries in the world with an Ocean Policy. In its closing paragraph, this Ocean Policy requires “close cooperation with both developing and developed countries in a spirit of understanding of the concept that oceans are a common heritage of humankind”. In 1998, the International Year of the Oceans, recognizing the linkages among land, coastal and ocean processes, India and Pakistan could solve the Sir Creek issue by protecting areas of the Rann of Kutch and adjacent seas.

UNIDIR ACTIVITIES

Peace-keeping in Africa: Meeting the Growing Demand

Two UNIDIR Research Fellows, Eric Berman and Katie Sams, have undertaken a project to examine current efforts to develop African capacities to undertake peace-keeping and peace enforcement operations. The project will analyze the reasons for the United Nations Security Council's growing tendency to sub-contract the promotion of peace and security to others and will pay particular attention to regional and sub-regional organizations. It will also review Western and African attempts to make "burden-sharing" work and propose policies to strengthen peace-keeping in Africa. Berman and Sams will pay particular attention to capacity-building efforts of the United Nations and regional and sub-regional organizations.

Berman and Sams argue that current attempts to manage and resolve conflicts in Africa are both reason for optimism and cause for concern. The Organization of African Unity (OAU) and numerous sub-regional organizations in Africa have recognized the need to take primary responsibility for responding to crises on their continent is an important and necessary step. Similarly, that there has been a willingness by regional and sub-regional players to become engaged in politically sensitive and seemingly intransigent conflicts is a significant development. However, the very limited capacity of these actors to undertake peace-keeping and peace enforcement is problematic and, at times, counterproductive.

The flexibility inherent in Chapter VIII of the United Nations Charter has permitted an ad hoc and crisis-driven division of labour between the United Nations and regional arrangements. The manner and extent to which the Security Council has embraced Chapter VIII is often ill-advised and inappropriate. Regardless of the wisdom behind the Council's (in)action, the United Nations as a whole has a responsibility to ensure that regional organizations undertaking peace-keeping operations possess the requisite capabilities and resources. In this respect, the United Nations has fallen short.

Although the OAU has made significant strides since its first foray into peace-keeping in Chad in 1981, it still lacks the capacity to conduct effective peace-keeping operations. As a general rule, OAU Member States remain crippled by scant economic resources and inadequate military infrastructures to mount operations beyond their borders. Unlike the OAU, the Economic Community of West African States has been able to field a sizeable multinational force, but as its involvement in Liberia illustrates, numbers alone do not make a force effective.

A number of ad hoc arrangements also demonstrate the present limitations of African peace-keeping and peace enforcement undertakings. The regional sanctions against Burundi, for example, show how a non-military effort to enforce peace can create problems for the international community. The African peace-keeping operation in the Central African Republic also merits mention.

The international community must build upon its existing efforts to develop indigenous peace-keeping capabilities on the African continent. The United States, the United Kingdom and France, among others, have recently begun to pursue similar capacity-building policies. To be most effective, these states must better coordinate their efforts, not only among themselves, but also with the United Nations, the OAU and appropriate sub-regional organizations. Current coordinated initiatives exist on paper only. In the absence of effective "African solutions to African problems," however, Western efforts must be made viable.

Berman and Sams have already undertaken research in Africa, with recent interviews in South Africa and Zimbabwe, and observed Exercise Guidimakha (a practical peace-keeping training exercise that brought together eleven countries) in Senegal.

UNIDIR will publish Berman and Sams's conclusions as a monograph. The Institute for Security Studies (Pretoria) and the Lester B. Pearson Canadian International Peace-Keeping Training Centre have issued condensed versions as occasional papers. Berman and Sams presented their findings at the 11th Annual Meeting of the Academic Council on the United Nations System in Nova Scotia.

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The Transfer of Dual-Use Outer-Space Technologies: Confrontation or Cooperation?

The right of every state to develop outer-space technologies, such as launching capabilities, orbiting satellites, planetary probes or ground-based equipment, is in principle unquestionable. In practice, however, problems arise when technology development approaches the very fine line between civil and military applications, largely because most of the technologies can be used for dual purposes. This dichotomy has raised a series of political, military and other concerns that affect the transfer of outer-space technologies in different ways, particularly between established and emerging space-competent states. Accordingly, for many years several states have sought ways to curb the transfer of specific dual-use outer-space technologies, specifically launcher technology, while still allowing some transfer of these technologies for civil use.

Controlling outer-space technologies has never been an easy task and it has become increasingly complex, not least because of the recent fundamental changes in international relations. Indeed, the nature and potential use of outer-space and related technologies are such that, collectively or individually, states are often faced with having to determine what could be an illegal transfer and what could be permitted, between what could be a genuine civil use application at a certain point in time but could be used for military purposes in another, and applications that are overtly or implicitly militaristic in character.

Currently, the relationship between the suppliers and the recipients of these technologies is based on selective control regimes that, in many instances, give rise to conflicting political situations. In the main, control regimes have been established to curb the development of ballistic missiles, military reconnaissance satellites and other weapons and weapon systems. The argument could also be made, however, that economic considerations have stimulated these control regimes. Polemics aside, the problems inherent in these regimes are such that there is an urgent need to rethink their mode of implementation, added to which is the fact that control regimes have also hindered, both directly and indirectly, the development of certain civil-oriented space programmes.

Scrutinizing ways of creating new relationships between suppliers and recipients in technology transfer can easily be a zero-sum endeavour. The challenge is to instigate impartial and innovative thinking. Moves favouring cooperation simply for the sake of ensuring the transfer of dual-use technologies are not the answer. Moreover, while international organizations have their role, they are not a panacea.

The quest for improved relationships in respect of technology transfer and dual use must start with an assessment of the political, military, technical and economic implications of outer-space technologies, as well as their relevance to different geopolitical situations. Only through cooperation can the supplier/recipient relationship be established in a sound, durable manner, but any such cooperation must be reinforced by agreements to ensure transparency and predictability on issues that directly affect the security and development of individual states or groups of states.

The results of this research will be published by UNIDIR. The publication aims to:

- prove that the interests of both suppliers and recipients can best be served not through selective control regimes but through joint cooperative measures;
- appraise specific, progressive steps required to achieve cooperation between suppliers and recipients of space technologies;
- assess the measures that would offer more transparency in technology transfer and thus lead to greater predictability of the end use; and
- examine measures that could build confidence and security among states in so far as outer-space technologies are concerned.

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Study Group on Ammunition and Explosives

The Panel of Governmental Experts on Small Arms, which was established on 12 December 1995 by General Assembly resolution 50/70 B, delivered its report to the Secretary-General in July 1997. One of the recommendations of this report stated that "The United Nations should initiate a study on the problems of ammunition and explosives in all their aspects." Following this recommendation, a Study Group on Ammunition and Explosives was established by the Secretary-General pursuant to operative paragraph 3 of resolution 52/38J on "Small Arms". This group, chaired by Ms. Silvia Cucovaz (Argentina) held its first meeting at the invitation of the Department of Disarmament Affairs in New York on 27 April–1 May 1998. Two of the eight members of the Study Group are from UNIDIR: Dr. Christophe Carle and Lt.Col. Ilkka Tiihonen.

The Group's task is to assist in the preparation of the Secretary-General's report, to be submitted to the 54th session of the General Assembly. To that end, without prejudice to the legitimate possession, trade and use of ammunition and explosives, the Group will seek to assess whether and how enhanced controls of ammunition and explosives can contribute to preventing and reducing the excessive and destabilizing accumulation and proliferation, as well as the abuse of small arms. It is anticipated that the Group will hold two more working meetings in 1999. All members will prepare input papers in their area of expertise, on the basis of which Christophe Carle will produce the Study Group's final report.

At the first meeting, a work plan covering the purpose and scope of the study as well as the ways of sharing responsibilities in the research process was devised. The Group also drafted a questionnaire, which — after a number of later revisions — was sent to all Member States inquiring about their national resources, capabilities and policies pertaining to the production, trade and control of small arms ammunition and explosives.

At UNIDIR, Ilkka Tiihonen is concentrating on aspects related to the identification of the providers and consumers of ammunition and explosives. The study seeks to identify the key players in both production and consumption — be it legal or illegal — as well as those elements involved in the refurbishing of ammunition. Together with the rest of the Study Group members he will also look into the transfer of technology related to ammunition and explosives, and try to identify ways and means to improve control measures applicable to their manufacture and trade. Lt.Col. Tiihonen's work at UNIDIR has been made possible by the generous support of the Finnish Government.

The second meeting of the Group, which is scheduled to take place mid-January 1999 in New York, will focus on discussions on the work accomplished to date, and on the identification of possible

policy recommendations. The final report is expected to be ready in summer 1999 prior to the opening of the General Assembly.

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UNIDIR Conference on South Asian Nuclear Testing

The Implications of South Asia's Nuclear Tests for Non-proliferation and Disarmament Regimes 7 and 8 September 1998

On 7 and 8 September 1998, UNIDIR held a private, off-the-record meeting on *The Implications of South Asia's Nuclear Tests for the Non-proliferation and Disarmament Regimes*. This "track one and a half" meeting was designed to address the needs of policy makers — governmental and non-governmental agents — in their assessment of the impact of the nuclear-weapons tests carried out by India and Pakistan in May 1998. The governments of Australia, Denmark, Italy, Norway, New Zealand and the United States generously sponsored the meeting.

More than fifty people from over twenty-five countries attended the conference. Each participant attended in his or her personal capacity as an expert and not as a representative of a country or a NGO. At the end of this two-day meeting, there was general agreement among participants that neither India nor Pakistan had enhanced its own security or international status by conducting the tests, but that the risk of nuclear war in the region is now greater. Also, it was recognized that the NPT and the CTBT had been in difficulty prior to the tests, although they remained the best solutions available to reduce potential for further conflict and therefore remained crucial. Finally, many participants expressed their concern that if India and Pakistan were rewarded in any way for demonstrating their nuclear capabilities, this may cause some NPT members to reassess their membership in the regime.

International response to the nuclear tests in South Asia was inadequate: there is a need for more coherent and collective action. Participants focused on practical suggestions to policy makers to reduce the risk of war; to save the non-proliferation and nuclear arms control regimes; and to anticipate the effects of the tests on areas of regional tensions, particularly the Middle East. A full summary of the proceedings will be produced by UNIDIR by early 1999.

Trust and Confidence-Building Measures in South Asia 23 and 24 November 1998

Since India and Pakistan carried out nuclear-weapons tests in May 1998, there has been an increased focus on the security problems in South Asia, as well as a growing concern over the possibility of escalating conflict between the two countries.

As a result of such worries, India and Pakistan have been holding meetings on the issue of Kashmir and confidence-building measures (CBMs). The most recent high-level meeting took place in Islamabad in October 1998 and the next is scheduled to take place in February 1999.

There are a number of CBMs already in place in South Asia, between India and Pakistan, and India and China. These CBMs have met with varying degrees of success.

In order to facilitate dialogue about the ways that trust can be built within the relationships in South Asia, UNIDIR held a private, off-the-record discussion meeting on 23 and 24 November 1998. Experts and practitioners from Asia, Asia-Pacific, Africa, Europe, Latin America, the Middle East and North America participated in this meeting, which considered the current situation of trust and confidence-building measures (TCBMs) in South Asia, experiences from other regions, and looked at ways that TCBMs in South Asia could be further strengthened and developed.

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Biological Warfare and Disarmament: Problems, Perspectives and Possible Solutions

A critical problem facing the parties to the Biological Weapons Convention (BWC) is that of providing access to the biological sciences and biotechnology for peaceful purposes while ensuring that states comply with the treaty's prohibition of the development, production and stockpiling of biological and toxin weapons. Since the third Review Conference of the BWC, held in 1991, efforts of the states parties to strengthen the convention have concentrated on developing a legally binding protocol to the BWC that is seen by some as increasing confidence in compliance and by others as verifying compliance. But progress towards completing this protocol has been slow. Technical and political disagreements on what can be achieved through verification measures such as declarations and inspections persist.

Some point to the difficulties in achieving closure on the extent of Iraq's biological weapons (BW) programme as an indication of the technical problems posed by efforts to verify non-possession of BW. Some believe that these problems can be addressed by a regime of detailed declarations and intrusive inspections. At the same time, some members of the biotechnology industry urge limits on declarations and inspections on the grounds that transparency endangers intellectual property. Given these apparently contradictory positions, can verification of compliance with the BWC be achieved? What further approaches to strengthening the BW regime can be taken at this time? Should approaches outside as well as inside the scope of the treaty be considered?

A further dimension of efforts to strengthen the BWC concerns Article X, which calls on parties to the treaty to "undertake to facilitate ... the fullest possible exchange of equipment, materials and scientific and technological information for the use of bacteriological (biological) agents and toxins for peaceful purposes." Since the early 1970s when the BWC was negotiated, the development of intellectual property rights in the field of biotechnology has restricted informal sharing of knowledge, techniques and samples that characterized the biological sciences in the 1960s. This is the case not only within the industrialized North but also between the industrialized North and the developing South. This important change in the flow of biological resources raises new questions about the implementation of Article X, which some see as providing incentives for supporting a strengthened BW regime. Some developing countries are concerned about endorsing a new protocol without assurance that they will have the resources needed to implement its goals.

These questions signal an important need for a reappraisal of the present approaches to strengthening the BWC. This project aims to bring together scholars in relevant fields (international law, international relations, the biological sciences, medicine, public health, history, economics, area studies, journalism), members of non-governmental organizations, and specialists on the BWC to address both the immediate problems facing the convention and also its larger political, military and economic contexts and how positions on biological disarmament are affected by them. In summary, the project aims to understand the present problems slowing progress towards a verification or

compliance protocol and to move beyond them. This may well involve a broad reconceptualization of the present problems and projected solutions.

A conference of participants in the project was held in Geneva, 5–8 July. Selected papers from this meeting will be published as an edited collection. The results and proposals of the project will also be presented at a seminar in Geneva in 1999.

This project is supported by grants from the John D. and Catherine T. MacArthur Foundation, the Ford Foundation, the New England Biolabs Foundation and the University of Michigan.

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Peace-building and Practical Disarmament in West Africa: Stimulating National Research

Proposed Project for 1998–2000

Under the heading of disarmament, development and conflict prevention, UNIDIR is proposing a number of initiatives to promote peace and security in West Africa. UNIDIR's work in this region began with a conference co-hosted with the United Nations Development Programme (UNDP) in Bamako, Mali, in November 1996.

Building on the success of the Malian experience, UNIDIR proposes to extend its collaboration with UNDP to other West African countries in order to promote peace-building, practical disarmament and national reconciliation through local institutions. The research strategy will be similar in each case. Briefly, the pattern is as follows:

In stage one, the Malian experience will be discussed in a series of UNDP-UNIDIR seminars in the capital city involving the military, the police, United Nations agencies, the press, civil society, women's associations, the foreign ministry and other administration officials. Major points of discussion would include the United Nations sub-regional initiatives such as a code of conduct for civil-military relations, the collection and destruction of illegal arms, a sub-regional moratorium on small arms and a database on available small arms.

In the second stage, UNIDIR will establish a research contract with one local institute (university or NGO) to coordinate peacemaking research with three or four individual researchers (such as an academic, a journalist, a representative of a women's association and a military officer). Each researcher will write a paper on the security situation in their country and what policies should be implemented to strengthen the process of peace-building and practical disarmament. The partner institute will send these research papers to UNIDIR, with a view to publishing a booklet that might constitute a local inspiration for peace-building.

In the third stage, UNIDIR and the local UNDP office will sponsor a national peace-building seminar at which the researchers will present their findings and stimulate national debate. This will move the research from a report on the applicability of Mali's experience to a public analysis of local and regional peace-building opportunities, in which the United Nations will encourage media and academic participation and open debate between civilian and military components of society. The national seminar should evolve plans for specific actions in favour of peace-building and practical disarmament.

The goal of sponsoring this research through local institutions would be two-fold. UNIDIR would be helping to strengthen civil society in these war-torn countries by engaging local researchers and stimulating national debate. The resulting research would help affirm the idea that peace is

possible and sustainable, while promoting practical disarmament as an essential element of peace-building. This in turn would increase awareness that the proliferation of light weapons is a regional problem and must ultimately be dealt with at the regional level.

Financial and logistical support is currently being sought for this project.

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Uses of Commercial Satellite Technology in the Middle East

UNIDIR and the Cooperative Monitoring Center at Sandia National Laboratories recently co-hosted a workshop on the potential uses of commercial satellite imagery for promoting peace and development in the Middle East. The participants explored three main areas where remote sensing technology might be employed: arms control, economic development, and environmental and natural resources.

The meeting brought together around thirty experts in remote sensing technology and Middle Eastern security and development. Discussions focused on technologies that are commercially available today as well as those expected to become available in the near future. As arms control, economic development, and environmental and natural resources are all issues with regional importance and impact, this was also an opportunity for individuals from various Middle Eastern countries to discuss common approaches to these problems.

UNIDIR provided some expertise on the security situation in the region while the CMC brought expertise in the area of remote sensing technologies. Individuals from the United States Arms Control and Disarmament Agency were present. A few experts in remote sensing technology from outside the region also participated.

The conference was held at the Palais des Nations in Geneva 31 August to 3 September. A monograph summarizing the trends of the discussions and giving an analysis of the potentials of remote sensing technology for building peace and economic development in the Middle East is underway.

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UNIDIR Handbook on Arms Control

There exists a need for introductory and educational materials on arms control issues. UNIDIR is producing a handbook that will explain the major concepts and terms relating to arms control. The handbook will be used as both a primer for an audience with limited familiarity with arms control and as a reference for students, scholars, diplomats and journalists who are more experienced in arms control matters.

The handbook will be organized as a thematically structured glossary of approximately 200 terms relating to arms control. Each term is situated within its wider context so that, on the one hand, a specific term can be looked up quickly, and on the other hand, an entire issue can be covered. Cross-references to other terms and concepts will point the reader to relevant related issues. The researcher designing and drafting the handbook will be assisted by an editorial committee consisting of regional and arms control experts.

The handbook is expected to be published in 1999, in English and Arabic. It might be translated into other languages at a later stage.

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Geneva Forum

Together with the Programme for Strategic and International Security Studies of the Graduate Institute of International Studies and the Quaker United Nations Office, UNIDIR is organizing an ongoing discussion series called Geneva Forum. Geneva Forum is an occasional seminar held at the Palais des Nations that addresses contemporary issues in arms control and disarmament. The series targets the local missions and organizations in an effort to disseminate information on a range of security and disarmament topics.

The series seeks to act as a bridge between the international research community and Geneva-based diplomats and journalists. Thanks to the generous support of the Government of Switzerland, Geneva Forum will focus on issues related to small arms and light weapons. Invited speakers will deal with specific thematic and/or regional dimensions of the issue.

Meetings are scheduled on an ad hoc basis, since they often take advantage of international experts passing through Geneva on related business.

The text of Geneva Forum presentations, when available, is distributed at the meeting or subsequently on request. The discussion period, however, is entirely off-the-record, in the interest of free and informal exchanges of views.

Topics previously addressed at the Geneva Forum have included strengthening the Biological Weapons Convention, light weapons proliferation, the United Nations Register of Conventional Arms, landmines, and cruel and indiscriminate weapons.

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PUBLICATIONS

Sensors for Peace

United Nations peace operations have a tradition of several decades, and their scope and importance has increased markedly since the end of the Cold War. Peacekeeping operations, both of the traditional and the extended type, comprise monitoring tasks as a central part of their mandates. Agreements or resolutions, whether they demand withdrawal behind a cease-fire line, keeping a buffer zone demilitarized, or banning heavy weapons in control zones or safe havens, require that compliance is checked reliably and impartially. The more comprehensive the monitoring, the more likely the compliance. In practice, however, monitoring duties often require the surveillance of such large areas that United Nations peacekeeping units cannot provide continuous coverage. Thus, peacekeeping personnel are permanently deployed only at control points on the roads or areas deemed most sensitive. Minor roads and open terrain are covered by spot-check patrols. This creates many opportunities for infractions and violations.

Unattended ground sensor systems allow all this to change. Unattended ground sensors are suited to permanent, continuous monitoring. They can be deployed at important points or along sections of a control line, sense movement or the presence of vehicles, persons, weapons, etc. in their vicinity and signal an alarm. This alerts peacekeepers in a monitoring centre or command post, who can send a rapid-reaction patrol immediately to the site to confront the intruders, try to stop them, or at least document the infraction unequivocally.

Unattended ground sensor systems generally have not been used in peace operations. Thus, the wider introduction of unattended ground sensor systems in future United Nations peace operations requires fresh study from operational, practitioner, system design and legal perspectives. *Sensors for Peace* is an excellent first look at this timely issue.

Introduction — *Jürgen Altmann, Horst Fisher and Henny J. van der Graaf*

The Use of Unattended Ground Sensors in Peace Operations — *Henny J. van der Graaf*

Questionnaire Answers Analysis — *Willem A. Huijssoon*

Technical Potentials, Status and Costs of Ground Sensor Systems — *Reinhard Blumrich*

Maintaining Consent: The Legality of Ground Sensors in Peace Operations — *Ralph Czarnecki*

Conclusions and Recommendations — *Jürgen Altmann, Horst Fisher & Henny J. van der Graaf*

Jürgen Altmann, Horst Fischer and Henny J. van der Graaf

Editors

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Non-Offensive Defence in the Middle East?

Non-offensive defence (NOD) emerged as a proposed remedy to the military security problems of East and West during the latter part of the Cold War. Grounded in the notion of “cooperative security”, NOD is premised on the postulate that states in the international system are better off pursuing military policies which take account of each other’s legitimate security interests than they are in trying to gain security at each others’ expense. Competitive military policies which seek to achieve national security through a build-up of national military means, may well be counter-productive and leave states more insecure. Seeking to procure national military security through a build-up of national armaments raises suspicions as to the purpose of these armaments, which in turn trigger countervailing armament efforts which ultimately lower the level of security for all. By making the defence of domestic territory the sole and clear objective of national military policies, NOD aims to strike a balance between the imperatives of ensuring adequate national military security and of avoiding provocation.

NOD aims towards national military defences strong enough to ensure adequate national military security, but not strong enough to be seen as threatening by others. The provision of adequate yet non-threatening military defence, can be highly useful in a region such as the Middle East where political and military confrontations are inextricably linked, and where political settlement in the absence of military security is inconceivable. In the Middle East thus, NOD could reduce prevailing military tensions and open the way for broader political arrangements on the future of the region.

The introduction of NOD in the Middle East, would not require that all Middle Eastern states adopt the same NOD model. Rather, each Middle Eastern state can select the particular NOD model most suitable to its requirements. Most NOD models are suitable for most Middle Eastern states, though particular models may be better suited to different states.

Non-Offensive Defence in the Middle East — Bjørn Møller

Non-Offensive Defence in the Middle East: Necessity versus Feasibility — Ioannis A. Stivachtis

Cooperative Security and Non-Offensive Defence in the Middle East — Gustav Däniker

Non-Offensive Defence and its Applicability to the Middle East: An Israeli Perspective —
Shmuel Limone

Bjørn Møller, Gustav Däniker, Shmuel Limone and Ioannis A. Stivachtis

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A Peace of Timbuktu: Democratic Governance, Development and African Peacemaking

Mali is admired for two recent accomplishments. The first is the country's transition to democracy, which took place in 1991–1992. This effort included the overthrow of Moussa Traoré's twenty-three year military dictatorship on 26 March 1991—a process of military and civilian collaboration which fostered national reconciliation, a referendum for a new constitution, and elections which brought to power Mali's first democratically elected President, Government and Legislature. The second achievement is the peacemaking between the Government of Mali and the rebel movements in the northern part of the country: this process successfully prevented the outbreak of civil war and presents useful lessons in preventive diplomacy for the international community. The peacemaking culminated in a ceremony known as the Flame of Peace, when rebel weapons were incinerated in Timbuktu on 27 March 1996. This study of the events surrounding the uprisings in the North of Mali and the measures which restored peace (and those which will maintain it) is the result of a collaboration between the United Nations Development Programme and the United Nations Institute for Disarmament Research.

This peace process was remarkable for the way in which the United Nations agencies were able to help, discreetly dropping oil into the machinery of peacemaking. For a cost of less than \$1 million, the United Nations helped the Malians to avoid a war, and lit the Flame of Peace. With less than \$10 million, the United Nations became the leading partner of Mali's Government and civil society, in peace-building, disarming the ex-combatants and integrating 11,000 of them into public service and into the socio-economy of the North through a United Nations Trust Fund. The experience shows that not only is peacemaking better than peace-keeping, but that it is much cheaper.

A Peace of Timbuktu includes in-depth coverage of the following topics:

- Mali's History and Natural Environment
- The Build-up to the Crisis in Northern Mali
- The Armed Revolt 1990–1997
- Peacemaking and the Process of Disarmament
- The International Community as a Catalyst for Peace
- Ensuring Continued Peace and Development in Mali
- The Flame of Peace Burns New Paths for the United Nations

United Nations Secretary-General Kofi Annan has written the preface. The book includes maps, texts of relevant documents and laws, and a bibliography, as well as photographs by the authors and peace drawings by the children of Mali.

Robin Edward Poulton and Ibrahim ag Youssouf

Sales No. G.V.E.98.0.3

ISBN 92-9045-125-4

Soon to be available in French

Nuclear-Weapon-Free Zones in the 21st Century

The establishment of nuclear-weapon-free zones (NWFZs) through the initiative of regional parties, approved by the United Nations General Assembly, and endorsed by the relevant external states, is an important contribution to non-proliferation, disarmament and, above all, to international security.

Jointly with OPANAL (The Organization for the Prohibition of Nuclear Weapons in Latin America and the Caribbean) and the Government of Mexico, UNIDIR convened an international seminar on "Nuclear-Weapon-Free Zones in the Next Century" in Mexico City on 13–14 February 1997 — the thirtieth anniversary of the Treaty of Tlatelolco's opening for signature. This book analyzes the role of the Treaty of Tlatelolco as the first effective expression of a NWFZ in a densely inhabited part of the globe. It also covers other NWFZs (existing or proposed). The relationship between NWFZs and peace processes, as well as cooperation among existing NWFZs, is also noted.

- Towards the Consolidation of the First NWFZ in the World — *Sergio González Gálvez*
 Precursor of Other NWFZs — *Enrique Román-Morey*
 Tlatelolco and a Nuclear-Weapon-Free World — *William Epstein*
 Actual Projection of the Treaty of Tlatelolco — *Jorge Berguño Barnes*
 Major Paradigms of International Relations — *Luis Alberto Padilla*
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 A World Free of Nuclear Weapons in the Year 2020 — *Antonio de Icaza*
 The Role Carried Out by the Zones Exempt from Nuclear Arms — *Joëlle Bourgois*
 Strengthening of OPANAL: New Challenges for the Future — *Héctor Gros Espiell*

Péricles Gasparini Alves and Daiana Belinda Cipollone

Editors

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also available in Spanish
 Sales No. G.V.S.97.0.29
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Increasing Access to Information Technology for International Security

The European security landscape is undergoing a profound transformation at present, and there is an increasing need to improve mutual understanding of regional security issues in a rapidly changing world. Institutes and related organizations working in the field of international security have an important role to play in this regard.

This book contains a forward-looking appraisal of how information technology can best serve institutes and the security dialogue. It addresses issues such as how to promote concrete cooperation between research institutes in Europe and North America. Of particular importance is the appraisal of present and prospective demands for cooperative ventures between and among institutes in Europe, the United States and Canada. It also provides insight on how to put together intellectual, human, material and financial resources to foster cooperation, notably in the identification of partners, information needs, connectivity issues and fund-raising strategies. In this respect, a number of innovative recommendations are made in a plan of action to increase cooperation in the late 1990s and well into the next millennium.

- Assessing Partnership Initiatives — *Andreas Wenger & Stephan Libiszewski*
Identifying the Needs of International Organizations — *Anthony Antoine & Gustaaf Geeraerts*
Increasing Interregional Exchanges and Partnerships — *Seyfi Tashan*
Information Needs and Information Processing in International Security — *Gerd Hagemeyer-Gaverus*
A New Approach to Conflict Prevention and Mediation Processes — *Albrecht A. C. von Müller*
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Preparing Tomorrow's Research Establishments — *István Szönyi*
Joint Research Activities: The Bulgarian Experience — *Sonia Hinkova*

Péricles Gasparini Alves

Editor

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ISBN 92-1-100759-3

The Transfer of Sensitive Technologies and the Future of Control Regimes

This book comprises papers by fourteen international experts from the diplomatic, military and academic communities in which they identify tomorrow's key technologies in both weapon systems and components, particularly emerging technologies that may become objects of control and constraint eight to ten years hence. This includes conventional weapons and weapons of mass destruction, but special attention is also given to sensor technologies and technologies for the collection, processing and dissemination of information. The authors attempt to identify cooperative technology transfer controls which are likely to forge *new* approaches to solve *old* problems. In this connection, the book presents imaginative and challenging ideas as regards the relationship between technology supplier and recipient states. This publication is essential to those who are interested in following the trends in the transfer of sensitive technologies in the next decade, as well as those concerned with the political and diplomatic issues related to such developments.

Foreword — *General Alberto Mendes Cardoso*
Major Weapon Systems — *Ravinder Pal Singh*
Chemical and Biological Weapons — *Graham S. Pearson*
Nuclear Weapons — *Mark Goodman*
Emerging Sensor Technology: Technology Transfer and Control — *Leonard John Otten III*
The Transfer of Space Technology — *Masashi Matsuo*
Impacts of the "Information Revolution" — *Jeffrey R. Cooper*
Chemical, Biological and Nuclear Weapons Enabling Technology — *Michael Moodie*
Launchers and Satellites — *Mario Sciola*
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Prospective Technology Transfer Controls — *Alain Esterle*
The Role of Intelligence Services — *Rodrigo Toranzo*
Intelligence Services and Non-Proliferation Control Instruments — *the Brazilian Intelligence Service*
The Export/Import Monitoring Mechanism (EIMM) — *Frank R. Cleminson*
Summary and Conclusions — *Sverre Lodgaard*

Péricles Gasparini Alves and Kerstin Hoffman

Editors

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ISBN 92-1-100744-5

Curbing Illicit Trafficking in Small Arms and Sensitive Technologies: An Action-Oriented Agenda

This book illustrates that illicit trafficking affects both the stability of states and the safety of their populations. There are no national or regional boundaries delimiting this type of traffic: the problem is truly global and has multifaceted ramifications. Curbing its further development and proliferation calls for a better assessment of the phenomenon and a new way of looking at problems and identifying solutions. In a world of growing interdependence, one of our greatest challenges today is making bold decisions establishing new priorities and starting innovative cooperative ventures, while changing old ways of thinking and working.

Issues and Aspects — *Jasjit Singh*

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Editors

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GV.S.98.0.8

ISBN 92-9045-128-9

Disarmament and Conflict Resolution Project

In order to explore the different demobilization and disarmament experiences of belligerents within peace processes in efforts to resolve intra-state conflicts, the DCR project produced a series of case studies which focus on individual, multinational peace operations. Furthermore, the project published a series of issue papers which draw on the lessons learned in particular cases to put forward broader conclusions and recommendations about the role that disarmament should play in future peace operations.

Case Studies

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Training, by Ilkka Tiihonen, Virginia Gamba, Jakkie Potgieter, Barbara Carrai, Claudia Querner and Steve Tulliu. ISBN 92-9045-126-2

Building Confidence in Outer Space Activities

This book sets out to clarify some of the prerequisites and modalities of a confidence-building process in outer space. It is the result of efforts undertaken by several experts on outer space matters who examine the role of earth-to-space monitoring in enhancing the safety of outer space activities and preventing the deployment of weapons in that environment. The book concludes by proposing the creation of an International Earth-to-Space Monitoring Network (ESMON) as the most appropriate means to improve both transparency and predictability in outer space activities.

Preface — *Sverre Lodgaard*

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Monitoring Outer Space Activities — *Ralph Chipman & Nandasiri Jasentuliyana*

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Establishing an Earth-to-Space Monitoring Network — *Péricles Gasparini Alves*

Péricles Gasparini Alves

Editor

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Evolving Trends in the Dual Use of Satellites

Earth-observation, global-positioning, communications and other satellite data are playing increasingly important roles in international security events. This book evolved from discussions by various experts in different areas of satellite technology and applications who met to debate the evolution and implications of such dual-use events. Particular emphasis has been given to providing an understanding of the policy orientation of space agencies and private companies both in traditional and emerging space-competent states. Moreover, the book aims at improving the knowledge of manufacturers, suppliers, users and experts' capabilities and possibilities for cooperation. In this context, attention has been directed to a discussion on the different technical and financial aspects of satellite R&D, as well as the present and prospective markets for satellite data, particularly tomorrow's dual use of satellites.

- Satellite Capabilities of Traditional Space-Competent States — *Masashi Matsuo*
 Satellite Capabilities of Emerging Space-Competent States — *Gerald M. Steinberg*
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