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## PRESS RELEASE

# SIPRI Yearbook 1995

## Armaments, Disarmament and International Security

*'The facts, data and analyses of various aspects of international security and the process of arms control and disarmament presented in this Yearbook lead to the following conclusions.*

*National and international security are multi-dimensional. Both security and defence in the policies of the great powers and many other states are perceived in a much broader sense than was formerly the case. They are no longer confined to the military dimension, although it is an essential component, but increasingly embrace such issues as economy, ecology, demography, communications, and the development of civilization and technology.*

*Threats and tensions, formerly of an inter-bloc character and largely concentrated along the East–West divide, are now evident in many regions, while the chief vectors of potential antagonisms are along the North–South line. . . .*

*. . . The security structures and institutions called into being in the cold war period with the aim of staving off conflicts between the blocs are not fully equal to the task of preventing the new type of conflicts. The transformation of security institutions and structures is still far from the desirable new international security system. As Boutros-Ghali noted: '[t]he different world that emerged when the cold war ceased is still a world not fully understood'. It is the moral duty of the scientific and intellectual communities to facilitate an understanding of the changed nature and the root causes of conflicts and to offer decision makers ways in which they may be peacefully solved. The considerations and data presented in this volume offer a modest contribution to this goal.'*

**From the Introduction**

### SIPRI Yearbook 1995

#### Armaments, Disarmament and International Security

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# Highlights from the SIPRI Yearbook 1995

## Armed conflicts and regional security

- In 1994, among the 31 major armed conflicts in 27 locations around the world, no 'classical' interstate war was waged. All of them were intra-state conflicts. However, there were interstate components in several conflicts, such as Nagorno-Karabkh, Bosnia and Herzegovina and Tajikistan.
- Conflict settlement efforts achieved success in varying degrees in three previously conflict-ridden regions—Southern Africa, Central America and the Middle East. All efforts failed to end the wars in the former Yugoslavia, and even the more limited goals of peacekeeping and provision of humanitarian aid were severely jeopardized. Rwanda cruelly demonstrated the inadequacies of international mechanisms for preventing conflict.
- As the United Nations continued its reform efforts, while remaining wary of major new involvements, regional organizations struggled to take up the slack.
- In Europe, a serious effort was made in 1994 to harmonize the security policies of NATO, the European Union, the Western European Union and the Conference on Security and Co-operation in Europe. High priority was attached to including the reforming states of Central and Eastern Europe in these institutions, without creating new divisions in Europe.
- On the territory of the former Soviet Union, the armed conflict in Chechnya was the most destabilizing. Eight states or regions of the FSU were areas of conflict or tension, and three are classified as major armed conflicts in 1994.

## Military spending, arms production, arms trade and export controls

- Aggregate world military spending continued to decline in 1994, although this trend was not apparent in every region or country. Expenditure levels fell in the CIS states, notably in Russia, and in other industrialized states, but rose in the Middle East and South Asia.
- The production of military equipment continues to decline. In the OECD countries, many companies have reduced output without losses in market value or earnings and with little government intervention. In Russia, production cuts have been drastic and chaotic and not part of deliberate company strategies or government defence industrial policy.
- The global volume of deliveries of major conventional weapons appears to have been stable in 1991–94. The volume of deliveries by the USA declined but still accounted for 55% of the total in 1994.
- Only 33 states participated actively in the multilateral weapon-related export control regimes which now seek to establish rules for trade and technology transfer. There is greater consensus on taking measures to prevent proliferation of weapons of mass destruction than to prevent the spread of conventional weapons.

## Arms control and disarmament

- Ukraine fulfilled its pledge to accede to the Non-Proliferation Treaty as a non-nuclear weapon state. This marked a milestone in settling the contentious legacy of the former Soviet nuclear arsenal.
- The massive withdrawal of Russian troops from Germany and the Baltic states was completed in 1994.
- The instruments of ratification for the START I Treaty were exchanged by the five states parties, bringing the treaty into force and paving the way for even deeper reductions in nuclear arms set out in the follow-on START II Treaty.
- The Chemical Weapons Convention did not attract the required number of signatories and therefore did not enter into force in January 1995. By 1 April 1995, only 27 states had ratified the Convention.

# **SIPRI Yearbook 1995**

## **Armaments, Disarmament and International Security**

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## SUMMARIES from the SIPRI YEARBOOK 1995

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### 1. Major armed conflicts

Margareta Sollenberg and Peter Wallensteen

In 1994, 31 major armed conflicts were waged in 27 locations around the world, compared with 33 conflicts and 28 conflict locations in 1993 (revised data). As in 1993, no 'classical' interstate war was waged. However, in 5 of the 31 conflicts recorded for 1994, other states participated in the fighting with regular forces: Armenia in the conflict in Azerbaijan over Nagorno-Karabakh; Yugoslavia (Serbia and Montenegro) in the conflict between Bosnia and Herzegovina and Bosnian Serbs; Croatia in Bosnia and Herzegovina versus Bosnian Croats; Russia and Uzbekistan in the conflict in Tajikistan; and a peacekeeping/peace enforcement force comprising forces from several African states in Liberia.

The most destructive conflict in terms of the total number of human lives during the year was the war in Rwanda since it was accompanied by genocidal massacres by Hutu extremists, targeting other Hutu as well as Tutsi. High death tolls were also recorded for Algeria, Angola, Turkey, Afghanistan and Yemen.

Two new major armed conflicts were added in 1994: the war in Yemen, which broke out in May and ended in July; and the conflict between the Myanmar Government and the Mong Tai Army, over the status of the self-declared Shan State.

In December 1994 armed conflict broke out in Chechnya, between the unilaterally declared independent Republic of Chechnya and the Russian Government. By the end of the year, however, the number of deaths had not risen above 1000, the threshold criterion for it to be registered as a major armed conflict in 1994.

In terms of the regional distribution of conflict locations, Europe again exhibits an upward trend for the past five years. The most significant trend is seen in Central and South America, with a decline followed by a stable trend since 1992.

A peace process has ended a major armed conflict in South Africa, and cease-fire agreements or other arrangements reduced the fighting in the Nagorno-Karabakh

conflict in Azerbaijan, in Bosnia and Herzegovina (the conflict between the government and Bosnian Croat forces), in the Abkhazia conflict in Georgia and in Bangladesh. In some situations, the presence of UN peacekeeping forces contributed to the implementation of a cease-fire and a reduction in the number of deaths.

• *Appendix 1A, by Margareta Sollenberg, Ramses Amer, Carl Johan Åsberg, Birger Heldt, Ann-Sofi Jakobsson, Kjell-Åke Nordquist, Thomas Ohlson and Anna Schnell, gives data on the major armed conflicts of 1994.*

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### 2. Armed conflict prevention, management and resolution

Trevor Findlay

In 1994 some of the world's longest running and most intractable armed conflicts were resolved or brought closer to resolution, most notably those in Angola, Northern Ireland, South Africa and Mozambique. Although not engaged in armed conflict for decades, Israel and Jordan sealed their *de facto* peace with a treaty, while Israelis and Palestinians took major steps in implementing their peace agreement. A seemingly satisfactory solution in Haiti also ensued.

Gross inadequacies in the international community's capacity for preventing and containing armed conflict were revealed by Rwanda's genocidal massacres, Yemen's brief but bloody civil war and Russia's attempt to quell Chechnya. Of the major new armed conflicts that erupted in 1994, those in Rwanda and Yemen ran their course without a negotiated settlement, and that in Chechnya continued unabated into 1995.

Of the armed conflicts least amenable to negotiated settlement in 1994, the most widely publicized was that in Bosnia and Herzegovina. Others included civil wars in Algeria, Afghanistan, the Caucasus and Tajikistan. The most elaborate attempt at conflict management, keeping armed conflict at as low a level as possible, occurred in the former Yugoslavia—in Croatia and Bosnia and Herzegovina. Efforts of a similar kind but less intense, mostly carried out by UN

and other multilateral peacekeeping missions, continued in various parts of the world, including Cyprus, Georgia (Abkhazia and South Ossetia), Lebanon and Liberia. The UN continued on its reform path but was more cognizant of its own limitations, while the Security Council was less willing to intervene robustly either with peacekeeping or peace enforcement operations. The debate about the use of force by or on behalf of the UN was sharpened by the termination of the ill-fated Somali mission and the continuing failure of the international community to bring Bosnia closer to peace, whether through negotiations, sanctions or NATO air power.

- *A table of international observer, peacekeeping and electoral operations in 1994 is included as appendix 2A, by Jaana Karhilo, and a document on US policy for reforming multilateral peace operations is reproduced in appendix 2B.*

- *Appendix 2C, by Jaana Karhilo.* The international community failed to respond effectively to the massacre of up to 1 million Rwandans in politically motivated ethnic violence. The UN Assistance Mission for Rwanda (UNAMIR), constrained by its limited mandate and resources, was unable to halt the killings, which constitute one of the worst instances of genocide in this century. Deployed in October 1993 to oversee the implementation of a transitional political process, the peacekeeping force was initially scaled down by the Security Council in April after the simultaneous eruption of preplanned massacres of opposition politicians and Tutsi and a resumption of the civil war.

Later efforts to expand UNAMIR, first delayed by US adherence to its new restrictive policy on peace operations, brought out the limitations of the UN's capability for rapid reaction. In spite of the existence of UN stand-by arrangements, the Secretariat struggled for months to raise the necessary troops and equipment while refugees inundated camps on Rwanda's borders, where their armed incursions continue to destabilize the region. In the interim, France launched a multilateral humanitarian mission in June.

### 3. South Africa: from apartheid to multi-party democracy

Thomas Ohlson

A multi-party government dominated by the African National Congress (ANC) came to power in 1994 in South Africa after the country's first elections, based on a universal franchise. By the late 1980s the main protagonists, the ANC and the National Party (NP), were forced by circumstances into a stalemate which made implementation of unilateral conflict resolution strategies impossible. The transition was a long-drawn-out process which mixed confrontation and violence with compromise and negotiation as the main parties gradually abandoned old goals and moved towards positions based on tolerance, pragmatism and problem-solving. Apartheid as a juridical system is gone but it lives on as a socio-economic structure, a security system, a lifestyle and a mental legacy. White power remains entrenched in economic and state structures. The ending of legislated apartheid is a necessary but not sufficient condition for the ending of apartheid as a system of racial domination. The biggest challenge facing South Africa is the necessity to rapidly improve life for the majority without upsetting the weak social contract that underpins the new post-apartheid polity.

The risk of destabilizing conflicts and large-scale violence was considerably less in December 1994 than at the beginning of the year owing to five generally positive factors.

1. The new democratic political system passed its first test: the conducting of peaceful elections.
  2. A human rights regime was established through a Bill of Rights in the Constitution and the creation of a powerful Constitutional Court.
  3. The NP and the ANC committed themselves to solve their conflicts through a policy of national reconciliation.
  4. The level of political violence was considerably reduced following the elections.
  5. South Africa's international isolation was broken, with all that entails in terms of new possibilities, rights and responsibilities.
- Three generally negative factors are also at work:

1. Most of the fundamental causes of violence and conflict are deeply rooted and

structural in nature. Their gradual elimination requires time, resources and a conducive external environment.

2. There is a huge discrepancy between what is desirable and what is possible with regard to socio-economic reconstruction and the reform and legitimization process of the state apparatus at various levels.

3. Several constitutional issues with conflict potential remain unresolved, such as autonomy and the relationship between and respective powers of national, regional and local government.

The potential for conflict remains significant. If these conflicts can be handled under the Constitution and within the framework of new institutions and the emerging norms of a new political culture, this will support stability.

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#### **4. Central America: a firm and lasting peace?**

Stephen Baranyi

Nicaragua, El Salvador and Guatemala are the countries in the region where conflicts have been most severe and long-drawn-out. Central America has experienced major changes in the 1990s, including the ending of war in El Salvador and Nicaragua and UN-sponsored peace negotiations in Guatemala. Most interstate disputes have been resolved. The factors which have made this degree of normalization possible are: the collapse of the USSR and related shifts in US foreign policy with the end of the cold war; creative peacemaking by Latin American medium-sized powers such as Costa Rica and Mexico; an integrated approach to peace promotion on the part of the UN, to a lesser extent the Organization of American States (OAS) and non-governmental organizations (NGOs); the exhaustion of the belligerents; and the emergence or re-emergence of skilled and credible national conciliators.

The UN has achieved significant success in supporting the peace processes initiated by local powers in the Contadora Group. Its observer missions oversaw demobilization of the warring parties in Nicaragua in 1992 and monitored elections which were declared to be free and fair; verified the implementation of a cease-fire in El Salvador, supervised demobilization of the combatants and investigated human rights violations and the judicial system; and in late 1994 prepared to

monitor the agreements reached in Guatemala on human rights. Nevertheless only the parties involved at the national level can eventually ensure a firm and lasting peace in each of the countries.

Enduring institutional weaknesses, human rights violations, and social and economic inequities continue, however; they are impeding conflict resolution in Nicaragua and El Salvador, and the obstacles to peace in Guatemala seem even more daunting. The conditions that initially gave rise to armed conflict in all these countries—the enduring power of the traditional élites, the need for land reform and judicial reform, the failure to bring those responsible for human rights violations to justice, and the glaring gap between macroeconomic growth and the incomes of the majority—persist. They are made worse by the harshness of the policy reforms required by the International Monetary Fund (IMF) and the World Bank as a condition for reconstruction loans.

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#### **5. The Middle East: continuation of the peace process**

Geoffrey Kemp and Jeremy Pressman

By the end of 1994, the Arab–Israeli peace process had reached a critical threshold. Despite significant achievements, the future of the peace process was threatened by terrorism, communal violence and stalled negotiations. The timing of elections will be a key factor in both Israel and the USA. With US presidential elections in November 1996 and Israeli parliamentary elections also expected in 1996, time is running out before several central figures, most notably Israeli leaders, are distracted by domestic concerns. Many of the organizations and countries that oppose the Arab–Israeli peace process have little concern for deadlines. Extremists on many fronts are actively seeking to undermine the process and bring back the days of confrontation. At the heart of the Arab–Israeli conflict, Arafat's precarious position is a concern for all sides. He lacks the funds and the institutional base to quickly provide social services or economic benefits to the Palestinian people. With the security-minded Israelis on one side and the Islamist forces led by Hamas on the other, he has little room for manoeuvre or margin for error. There are already many obstacles, and the final negotiations on the status of the West

Bank and Gaza Strip are not due to start until 1996. If Arafat were toppled, chaos could result or a group that rejects the peace process could take power.

On the positive side, Israel and Jordan signed a peace treaty, and Israeli and Palestinian negotiators produced several new agreements to implement the 1993 Declaration of Principles and begin the programme of Palestinian self-rule. On the regional level, multi-lateral talks began to build a foundation for regional cooperation on a number of subjects, including economic, military and environmental issues. However, bilateral talks between Israel and Syria did not produce any major breakthroughs.

In 1994 the peace process moved forward in ways unthinkable just two or three years ago. All the participants should take pride in the advances and moves towards peace.

However, many significant problems remain unsettled. Israeli–Palestinian and Israeli–Syrian progress holds the key to a complete break with the Arab–Israeli history of hatred and warfare. A final resolution of the conflict will have to wait until 1995 and beyond.

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## 6. The former Yugoslavia: lessons of war and diplomacy

Mario Zucconi

The beginning of 1994 seemed to show a heightened involvement and resolve on the part of NATO and the United Nations Protection Force (UNPROFOR) in Bosnia and Herzegovina and Croatia with the successful ultimatum to the Serbs laying siege to Sarajevo, the downing of four Serbian aircraft by NATO in February, and the increasingly active role played by the US Administration to support the more resolute use of force in both NATO and the UN. The situation appeared to stabilize somewhat with agreements between the Bosnian Government and Bosnian Croats, and Muslim–Croat military cooperation, after February and March.

However, the second part of the year witnessed an increasingly bitter dispute between the United Nations and NATO and among the NATO members about when and how to apply force. The conflict in Bosnia and Herzegovina had an increasingly negative impact on the functioning and legitimacy of both organizations—all this against a background of continuing failure to reach a

political solution. As the year ended there were signs on the one hand of increasing fatigue and exhaustion among the warring parties in Bosnia and Herzegovina and on the other of a possible rekindling of the conflict on Croatian territory.

The UN and NATO had different objectives and different views of the use of force. The UN's objective was humanitarian relief, for which operation NATO was to provide protection by its overflights; it specifically saw its role as protection, not punishment. Yet even these objectives in fact required measures that went beyond traditional peace-keeping measures. For NATO, consistency, credibility and speed of response were crucial if its overflights or (slightly later) air strikes were to be at all effective. The UN was frequently reluctant to make use of NATO power; there were instances of the Secretary-General or his representative in the former Yugoslavia, Yasushi Akashi, refusing to authorize air strikes which UNPROFOR commanders had requested. The resolve apparent at the beginning of the year disappeared after Bosnian Serbs detained UNPROFOR personnel to use them as 'human shields' after NATO had bombed the runway at Udbina in Krajina in November. By the end of the year NATO was making contingency plans for UNPROFOR's withdrawal.

Domestic pressures confused relations within the two organizations. In the USA there was pressure from Congress (particularly after the November 1994 congressional elections) for resolute action and for the lifting of the arms embargo on the Bosnian Government. This led to the USA unilaterally withdrawing from the policing of the arms embargo and to conflicts within NATO. Russia played a useful role in the spring in putting pressure on the Serbian Government after the siege of Sarajevo, but later turned to seeking some rewards for Serbia for its cooperation. In the closing months of 1994 the UN had 13 500 peacekeeping troops in Croatia and over 22 000 peacekeepers in about 20 locations in Bosnia and Herzegovina.

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## **7. Russia and its neighbourhood: conflict developments and settlement efforts**

Vladimir Baranovsky

In 1994, alongside the continuing conflict-generating trends in the independent states of the former Soviet Union (FSU), there were modest signs of stabilization and successful conflict management. The hostilities in some conflict areas stopped; negotiations brought certain positive (if modest) results; and relations between the states were less troubled than in the first years of their independence.

The positive record of 1994 includes the completion of Russia's troop withdrawals from the Baltic states, the playing down of the most serious tensions in the Commonwealth of Independent States (CIS) and its more business-like pattern of operation, and the negotiations that were held on a number of conflicts in the FSU. For most of the year domestic developments in Russia were less explosive than in the recent past, although there were clear signs that the stabilization was only superficial.

However, there remains the risk of serious domestic crises within and tensions between the former Soviet republics, the situation in and the policies of Russia being the most important factors. The war in Chechnya was the most dramatic culmination of the crises in 1994, significantly spoiling the overall record of the year and drastically changing the overall climate both in and around Russia. The conflict in the North Caucasus could serve as a catalyst to the many negative domestic trends. Independent public opinion has also become more outspoken, however, and the Kremlin may become increasingly interested in neutralizing its failures and manifesting the continuity of Russia's reformist course.

Four of the eight major FSU conflict or conflict-prone regions are located in the Caucasus (Chechnya, Abkhazia, South Ossetia and Nagorno-Karabakh), three in the European part of the FSU (the Trans-Dniester region, the Baltic states and the Crimea), and one in Central Asia (Tajikistan). Russia has been involved in all of them, either as a party to the conflict or as an external 'pacifier'. Russian peacekeeping forces have operated in South Ossetia, the

Trans-Dniester region, Abkhazia and Tajikistan and are being negotiated for deployment in Nagorno-Karabakh. The conflict-management efforts of international organizations have developed in all these regions (although in some cases, as in the Crimea, they did not go beyond low-profile representation). The cautious and mainly symbolic activities of the Conference on Security and Co-operation in Europe (CSCE) in Chechnya are the first case in which Russia has accepted international involvement in a domestic Russian conflict. In 1994 the CIS continued as an institutional infrastructure providing for multilateral interaction between the new independent states. With the evaporation of both the initial illusions and the initial scepticism about the CIS, the participating states seem to proceed from the assumption that it could play a useful albeit limited role in organizing their mutual relations. However, most of the over 400 multilateral documents adopted remain on paper. The CIS states seem to accept both the 'variable geometry' approach (with a limited number of participants in specific projects) and the bilateral cooperation approach as more practical and reliable.

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## **8. Europe: the multilateral security process**

Adam Daniel Rotfeld

The political debate and decisions taken in 1994 regarding the security of Europe constituted a new stage in the process initiated at the turn of the decade by the collapse of the bipolar system and the breakup of multinational totalitarian states in Europe.

The decisions made in 1994 were an attempt to respond to a number of new challenges: how the existing security institutions in Europe might contribute to ending, limiting and preventing future outbreaks of bloody conflicts such as those that have engulfed areas of the former Yugoslavia and the former Soviet Union; how the USA will accommodate its role and active involvement in European security to the new realities; how to stave off the isolation of Russia and its embracing of a hegemonic and neo-imperialist policy, and pave the way to integrating the Russian Federation into the

changing security structures of the European political order; how to overcome the invisible but tangible division of Europe; where to draw the eastern borders of Europe; and how to expand NATO and the European Union (EU).

However, the real issue is neither one of formal legal interpretations of treaty provisions nor of purely institutional arrangements. Specific interests of individual great powers are, as a rule, concealed behind the façade of formal arguments or complex debates on the institutional transformation of the existing security systems. The bipolar system not only caused the subordination of the interests of the Central and East European (CEE) states to Soviet policy but also blurred the differences in the security policies of Western states. When this system disappeared, national security interests reasserted themselves, even overriding international community or alliance interests. The declared policy of expanding and deepening European integration is accompanied by centrifugal tendencies and the growth of nationalism in the East, a remarkable differentiation and competition among the partners of the EU, and a weakening of links between Western Europe and the USA and of the US military-political presence in Europe.

The Western states face the dilemma of how to expand NATO and the EU eastward without creating new divisions in Europe. In 1994 a serious effort was made to harmonize security policy within the framework of NATO and NACC, the PFP, the EU/WEU and the CSCE. The priority in shaping an efficient multilateral security system is inclusion of the reforming CEE states in the mutually reinforcing Western security institutions.

• *Documents on European security including an extract from the Budapest Document 1994 are appended to chapter 8.*

## 9. Inventories of fissile materials and nuclear weapons

David Albright, William M. Arkin, Frans Berkhout, Robert S. Norris and William Walker

While 1994 may have marked a turning-point in the development of nuclear warheads and weapon systems, nuclear disarmament carries its own risks. Weapons must be dis-

mantled and their components stored, programmes must be established for disposing of the surplus nuclear weapon material, and steps must be taken to improve physical security in nuclear weapon states and extend international safeguards to cover their activities. Reductions under way do not necessarily reduce the threat of nuclear proliferation, nor do they amount to complete nuclear disarmament.

Civil nuclear programmes are also giving rise to increasing quantities of plutonium which could find its way into the wrong hands. In response, safeguards agencies are taking a number of steps to strengthen safeguards on civil programmes.

The central estimates of the world inventories of plutonium and highly enriched uranium (HEU) at the end of 1993, rounded to two significant figures, are: for plutonium, 1100 tonnes (excluding c. 120 t not yet discharged from operating commercial power reactors); and for HEU, 1700 tonnes (excluding 100–200 t dedicated to naval reactors).

Much the largest inventories of weapon-grade plutonium are held by Russia and the USA. About 95% of the world inventory of HEU is located in the FSU and the USA, with 60% in the FSU alone. While all the nuclear weapon states are believed to have halted HEU production for weapons, only the UK, the USA and Russia have officially announced such a halt.

The only countries in which the production of plutonium for military purposes may still be occurring are India and Israel, estimated to have accumulated stocks of about 350 kg and 440 kg of weapon-grade plutonium, respectively. Together, these countries may be producing about 60–80 kg of weapon-grade plutonium annually.

North Korea has frozen its plutonium production under an October 1994 framework agreement with the USA. Until that agreement was signed, North Korea accumulated enough weapon-grade plutonium for at least four to five nuclear weapons.

At the beginning of 1995, there were at least 20 000 nuclear warheads in the operational inventories of the declared nuclear weapon states: 7770 strategic and several hundred tactical warheads for the USA; 8527 strategic and 2000–6000 tactical warheads for the CIS; 250–300 warheads for the UK; just over

500 warheads for France; and approximately 300 warheads for China. Israel had fewer than 100 warheads.

Beyond the implementation of long-established modernization programmes, the UK and the USA have no plans for developing or deploying newly designed weapons. Research and development on nuclear weapons has a decidedly end-of-era feeling as the nuclear weapon states accommodate themselves to the likely agreement on a comprehensive nuclear test ban (CTB). The nuclear arms race appears to have been largely halted, at least among the established nuclear weapon states.

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## 10. Chemical and biological weapons: developments and destruction

Thomas Stock and Anna De Geer

In 1994 attention in the chemical and biological warfare field focused primarily on the ratification of the 1993 Chemical Weapons Convention (CWC).

Reports of proliferation of biological weapons (BW) or chemical weapons (CW) continued, and the number of countries accused of involvement in proliferation activities was of the same magnitude as in past years. There were fewer allegations of CW possession and use in 1994.

Implementation of the Destruction Agreement between Russia and the USA progressed, but the agreement is not yet fully implemented. The second phase of the 1989 Wyoming Memorandum of Understanding was completed in mid-December 1994.

There was concern about the slow pace and increasing cost of CW destruction in the primary possessor states, Russia and the USA. In the USA construction of CW destruction facilities is delayed. The overall cost of the US destruction programme is growing. In the final evaluation of alternative destruction technologies submitted by the US Army it was noted that there is no alternative to the currently used baseline incineration technique. However, additional funding has been provided for research on alternative technologies. Russia has not yet approved a final CW destruction programme, and estimates of its total cost approach those of the US programme. No destruction facility is functional, and debate about the accuracy of the declared total amount of the Russian CW stockpile continues. International support for

Russia's CW destruction is essential, and the contribution that will be needed continues to grow.

The issue of CW dumped at sea in the past and the possible consequences of this for humans and the environment continued to be the subject of much debate and are of particular concern to the countries around the Baltic Sea.

The origin of the so-called Gulf War Syndrome remains unknown, and new theories about its origin were advanced. The US Senate has indirectly acknowledged that the syndrome exists by approving a bill to compensate veterans suffering from illnesses acquired during the Persian Gulf War.

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## 11. Military technology: the case of China

Eric Arnett

Is China's economic success likely to contribute to an arms build-up in China through the strengthening of China's own technology base and its local production? Is China likely to be able to mobilize resources quickly for production or for rapid technological advances in the event of a change in its security situation? The chapter concludes that the answer to both these questions is 'no'.

China has in the past been able to marshal the resources for major projects (the development of nuclear weapons and delivery systems). There have been recent advances in managerial methods, less formalization, better communications and more openness, enhanced travel opportunities and greater mobility within the scientific labour force. China is particularly strong in the civilian software and information technology sectors, and there is at present a renewed appreciation of the importance of science and scientists for the advancement of the country. Nevertheless its access to imported technology is low—only Russian and Israeli military technology has been available since the Tiananmen Square incident. Its capacity to absorb technology is also limited. Most of the technology which China is now gaining as a result of economic success, for instance through joint ventures, concerns low-technology civilian and consumer goods. China's preferred method of acquiring technology, by copy-producing (or 'reverse engineering') is not suitable for

high-technology components and sub-systems which are such a significant part of military technology. There is little interchange with the civilian economy or between basic research and product innovation. There are still severe bureaucratic problems; Soviet-style management practices and structures persist, in spite of improvements. There are signs of a divergence of view between the armed forces and those responsible for military R&D, production and procurement. Finally, scientists are being lost to the growth sectors of the economy with resulting loss of skills and morale at military R&D stations. China will not be able to take full advantage of what it has achieved unless the control of the Communist Party is relaxed, and even this will not be a sufficient condition for a better exploitation of technology. In the unlikely event of China's leadership turning to the People's Liberation Army (PLA) for a successor to Deng, the odds are that the required additional reforms will not even be attempted and more advanced technology will not be forthcoming. More probably, China will eventually develop a more advanced military technology base and be allowed access to more military imports, but only under conditions that are consistent with a more reassuring security policy.

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## 12. World military expenditure

Paul George, Robert Bedeski, Bengt-Göran Bergstrand, Julian Cooper and Evamaria Loose-Weintraub

Aggregate world military spending continued to fall in 1994, driven largely by falling expenditure levels in the industrialized countries. Procurement bore the brunt of the reductions in Russia and in NATO, where the cuts were mainly led by the USA. Further planned US cuts in procurement may prove to be unrealistic. In Russia the defence budget process appears to have settled down, and the 1994 budget (not approved until July 1994) was for military expenditure of 40.6 trillion roubles or 5.99% of GDP. Military spending also declined in the CIS countries. The preponderance of cuts in the industrialized countries and the FSU should not conceal the fact that military expenditure is rising or remains at very high levels in regions such as the Middle East and South

Asia, where there appears to be a trend towards increasing outlays. India and Pakistan increased their expenditure between 1992 and 1994 by 12% and 19.5%, respectively. As economies grow in South-East Asia, the types of weapon being purchased there indicate clearly that major resources are being committed to enhancing power-projection capabilities. However, without reliable data on defence budgets, exchange rates and inflation figures it is difficult to determine meaningful comparative statistics. Data on China and the former Soviet republics are inadequate; and it has become more difficult to gain access to transparent data on defence budgets for the CEE countries in recent years. Because of these problems, SIPRI has not attempted to produce an aggregate figure for world military spending.

• *Appendix 12A contains tables of world military expenditure and appendix 12B explains the sources and methods of the data collection.*

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## 13. Arms production

Elisabeth Sköns and Ksenia Gonchar

Stagnation continues in the sale and production of military equipment in the OECD countries and the developing countries. The 100 major arms-producing companies in 1993 had combined arms sales of about \$156 billion during the year—6% less than the dollar value of their arms sales during 1992. If all companies were included, the decline would probably be greater. In the countries of the OECD, industry has by and large been successful in adapting to the reduction in demand for its products by reducing arms production capacity, concentrating or diversifying. In the USA capacity reductions have largely taken the form of mergers and acquisitions. Many US companies have been able to achieve significantly increased profits through rising incomes from divestitures, rationalizations, personnel cuts and other forms of cost reduction. In Europe, with its smaller and more fragmented market, the potential for consolidation is not so great and costs continue to be a severe problem. European armaments cooperation is not proceeding as quickly as anticipated.

Information on the Russian military sector has become available to an extent previously unthinkable, fragmentary and unsatisfactory though some of it is. Dramatic changes have taken place in the military industry as a result of the sharp fall in the defence budgets, a fall in demand for the civilian products of the defence-related industries and the loss of arms export revenues.

Domestic procurement has declined to around one-fifth of the 1991 level, and Russia's share in world arms exports has dropped significantly. Hundreds of defence enterprises are standing still, the defence complex has declined dramatically in the pay hierarchy of industry in general, and close to 2 million jobs were lost from military industry in 1991–94.

Russian Government policy has been reactive—trying to maintain the structure of the defence complex and compensate for losses on the domestic market by promoting exports. However, some signs of an attempt to introduce urgent restructuring and a coordinated national security and defence industrial policy did appear in 1994.

The emerging policy appears to be to obtain state control over a core of the military industry, to restructure sources of finance and to let a large part of the remaining military production facilities close down.

• *Appendix 13A contains data on the 100 largest companies in the OECD and developing countries in 1993.*

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#### **14. The trade in major conventional weapons**

Ian Anthony, Pieter D. Wezeman and Siemon T. Wezeman

The global trend-indicator value of foreign deliveries of major conventional weapons in 1994 is estimated by SIPRI at \$21 725 million in constant (1990) US dollars. The index produced using the SIPRI valuation system is not comparable to official economic statistics such as GDP, public expenditure and export/import figures. The purpose of the valuation system is to enable the aggregation of data on physical arms transfers. Similar weapon systems require similar values, and SIPRI has created an index of trend-indicator values which can be aggregated in a number of different ways. The SIPRI system was designed as a *trend-measuring device*, to permit the measurement

of changes in the total flow of major weapons and to illustrate its geographical pattern.

Allowing for the fact that data for the past calendar year are usually revised upwards in subsequent years as new and better information becomes available, the global volume of deliveries of major conventional weapons appears to have been stable during the period 1991–94 after a period of rapid decline between 1987 and 1991.

The USA remained predominant as a supplier of major conventional weapons. Although the volume of US deliveries declined for the second successive year, the USA still accounted for 55% of total deliveries. The volume of deliveries of major conventional weapons recorded for Russia in 1994 was sharply reduced from the level recorded for 1993.

Among the recipients, Asia, Europe and the Middle East remain the most important centres of demand for major conventional weapon transfers. While Middle Eastern countries accounted for 31% of the total volume of major weapon deliveries in 1985, in 1994 this share was 24%. While European countries accounted for 26% of deliveries of major conventional weapons in 1985, in 1994 they accounted for 31%. This increase in share has occurred in spite of the significant reduction in major weapon acquisitions by members of the former Warsaw Treaty Organization. In the period 1990–94, south-eastern Europe, in particular Greece and Turkey, has seen significant deliveries of major conventional weapons.

• *Extensive data appendices to chapter 14, by Ian Anthony, Gerd Hagemeyer-Gaverus, Pieter D. Wezeman and Siemon T. Wezeman, provide details of the arms trade in major conventional weapons in 1994. An appendix explains the sources and methods of the data collection, and there are separate studies of 'The 1994 review of the UN Register of Conventional Arms', by Edward J. Laurance and Herbert Wulf; 'South Africa's arms production and exports', by Ravinder Pal Singh and Pieter D. Wezeman; and 'The impact of light weapons on security: a case study of South Asia', by Chris Smith.*

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## 15. Multilateral weapon-related export control measures

Ian Anthony, Anna De Geer, Richard Kokoski and Thomas Stock

The issue of export controls has occupied an important place in multilateral diplomacy for some time, but their evolution has recently been affected by the new international environment. Several questions central to the export control debate have taken on new implications: What is the role of technology in international security after the cold war? What sort of political alignments will emerge to replace the antagonistic bipolar security system? How can arms control address current international security issues?

In 1994 only 33 states participated actively in multilateral weapon-related export control regimes. Attention was focused on attracting new members and harmonizing the regimes, which no longer emphasize technology denial but seek to establish rules for trade and technology transfer.

Each regime examined has or had a different focus. The COCOM embargo sought to prevent exports that could contribute to the military potential of a list of target countries. The Zangger Committee and the Nuclear Suppliers Group (NSG) try to restrict exports that could contribute to the acquisition of nuclear weapons by non-nuclear weapon states. The Australia Group aims to limit the transfer of chemical weapon precursors, equipment used in the production of chemical and biological weapons, and biological warfare agents and organisms. The Missile Technology Control Regime (MTCR) seeks to limit the spread of delivery systems other than manned aircraft with a range of 300 km or greater that are capable of delivering nuclear, biological and chemical weapons.

Because of major incompatibilities in the specific interests of the major suppliers agreement has not been reached on multilateral efforts to address problems associated with conventional arms transfers. By contrast, the possible spread of nuclear, biological and chemical weapons causes alarm and there is a consensus among some 30–35 countries that they have a strong mutual self-interest in taking measures to prevent further proliferation. Accordingly, there has been a progressive harmonization

in the membership of the multilateral regimes designed to address the potential proliferation of materials, equipment and technology related to nuclear, biological and chemical weapons and missile delivery systems.

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## 16. Nuclear arms control

James E. Goodby, Shannon Kile and Harald Müller

The past year was highlighted by Ukraine's accession to the NPT as a non-nuclear weapon state and the subsequent entry into force of the START I Treaty. The entry into force of the Treaty concluded one of the key pieces of 'unfinished business' left over from the cold war and paved the way for further reductions in Russian and US strategic nuclear arsenals. It also marked an important milestone in settling the contentious legacy of the former Soviet nuclear arsenal.

The resolution of the diplomatic impasse over START I was facilitated by the intensified bilateral denuclearization cooperation between the USA and Belarus, Kazakhstan, Russia and Ukraine. US-funded Cooperative Threat Reduction programmes shifted decisively from the negotiation to the implementation phase, as large-scale financial and material assistance began to be delivered to the former Soviet republics. The bulk of this assistance was earmarked for strengthening central control over former Soviet nuclear weapons, improving their physical security and safety, dismantling warheads and disposing of the fissile materials they contain.

International efforts to halt the spread of nuclear weapons continued to occupy a prominent place on the arms control agenda. Seven states acceded to the NPT as non-nuclear weapon states, and regional non-proliferation efforts made some headway. A framework agreement was reached between North Korea and the USA that held out the prospect of resolving a serious crisis over North Korea's nuclear programme. Despite these hopeful developments, the future of the NPT remained clouded in the run-up to the 1995 NPT Review and Extension Conference.

The nuclear arms control agenda is by no means completed. Ratification of START II is in jeopardy as opposition to the accord

mounts in the Russian Parliament.

International efforts to negotiate a legally binding global ban on the production of fissile material for weapons were in 1994 stalled in the Conference on Disarmament (CD).

The progress made in eliminating nuclear weapons has added new issues to the arms control agenda. The disposal of fissile materials from dismantled nuclear warheads poses a serious technical and financial challenge for both Russia and the USA. They have been unable to reach agreement on a dismantlement regime with reciprocal inspection arrangements and on cooperative measures to increase the transparency of national stockpiles of fissile materials. The major post-cold war trend in nuclear arms control continued in 1994: the emergence of 'deals' in which nuclear weapons or nuclear weapon capabilities are exchanged for financial and other assistance. Although this approach proved to be fruitful, concerns have been expressed that it could gradually become a counterproductive 'reward' system for would-be proliferator states.

• *Appendix 16A, by Rick Kokoski.* With the implementation of the 1987 US–Soviet Intermediate-range Nuclear Forces (INF) Treaty and with the START I and II treaties, the dismantlement of nuclear weapons is creating a substantial and rapidly growing surplus of weapon-usable fissile material. Warhead dismantlement has been proceeding in both the USA and Russia at a rate of about 2000 warheads per year. Since each warhead contains some 3 kg of plutonium and 15 kg of HEU, this process is releasing about 6 tonnes of plutonium and 30 tonnes of HEU per year in each country.

It is important to make the elimination of these weapons as irreversible as possible to avoid the proliferation dangers associated with the fissile material removed. The difficulty lies in eliminating fissile material. HEU can be dealt with by blending it down for use as reactor fuel, but there is no such procedure for plutonium and effectively dealing with the proliferation danger inherent in plutonium stockpiles requires substantially more effort.

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## 17. The ABM Treaty and theatre ballistic missile defence

Alexei Arbatov

For over two decades the Anti-Ballistic Missile (ABM) Treaty has been an important diplomatic tool for managing the strategic nuclear arms competition. The Treaty was signed by the USA and the USSR and entered into force in 1972. Amended in a Protocol in 1974, it is now in force for the USA and for Russia as the legal successor to the USSR. It obligates them not to undertake to build a nation-wide defence system against strategic ballistic missile attack and severely limits the development and deployment of permitted missile defences. Among other provisions, it prohibits giving air-defence missiles, radars or launchers the technical capability to counter strategic ballistic missiles or from testing them in a strategic ABM mode.

Ballistic missile defence (BMD) reappeared on the arms control agenda in 1993: at issue was the Clinton Administration's proposal to permit the testing and deployment of new advanced-capability theatre missile defence (TMD), or anti-tactical ballistic missile (ATBM), systems designed to defend US allies and US armed forces operating overseas. Critics have argued that these systems would have significant capabilities to intercept strategic ballistic missiles and that allowing deployment would create a serious loophole in the ABM Treaty.

TMD systems are not formally subject to the Treaty, which limits only strategic ABM systems. However, the threshold between strategic and theatre ballistic missiles is not technically clear-cut and the characteristics of strategic and non-strategic defences overlap. In November 1993 the USA initiated discussions with Russia at the Standing Consultative Commission (SCC) seeking to establish a demarcation between theatre and strategic missile defence systems based on demonstrated technical performance parameters. These discussions had stalled by the end of 1994. The Clinton Administration announced in early 1995 that the USA would proceed with the testing of a sophisticated new long-range TMD system, despite objections that doing so would be a violation of the ABM Treaty.

Both US and Russian advanced-capability TMD programmes and the proposed allowances in the ABM Treaty seem excessive in comparison to avowed current threats or hypothetical future threats. Even if agreement is reached in the SCC on revising the ABM Treaty, the testing and deployment of the systems currently under development threaten to undermine the integrity of the Treaty as one of the cornerstones of the post-cold war strategic nuclear balance. They would reduce the prospects for further nuclear disarmament by the USA and Russia and compel the other nuclear weapon states to reconsider their strategic force modernization plans. In addition, they would threaten eventually to weaken the non-proliferation constraints among the non-nuclear weapon states.

New provisions for more intrusive verification methods and transparency could ensure ABM Treaty compliance in line with the post-cold war logic of TMD advocates. The ability of the USA and Russia to cooperate in the development of theatre anti-missile technologies would be a good test of the validity of their 'strategic partnership'.

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### **18. The comprehensive nuclear test ban**

Eric Arnett

1994 was the first year of serious negotiations on a CTB treaty in more than a decade and the first year ever of purposeful CTB negotiations in the CD. It was not possible to conclude the CTB treaty before the 1995 NPT Review Conference, and the approach of presidential elections in France (held in May 1995) meant that the French delegation was unable to allow movement on some key issues. The issue of the scope of the treaty was unresolved at the end of the year. Even so there was considerable progress. A working draft of the treaty was in existence when the 1994 session of the CD closed. All states participating agree that all nuclear tests should be banned without a nuclear yield threshold, but one complex issue that is far from resolution is the question whether hydronuclear experiments (HNEs) should be allowed. An HNE involves the detonation of nuclear devices with a fission yield much lower than that of a full nuclear test. The UK, USA and USSR are known to have

conducted HNEs. All five permanent members of the UN Security Council are concerned to keep open the option of conducting HNEs. Either allowing underground HNEs or banning them above-ground would make for difficulties of verification. The five permanent members of the UN Security Council have been unable to arrive at an agreed position on the question. France, moreover, may conduct as many as 20 tests before the CTB treaty enters into force and it stops its testing programme. This means that France may not be prepared to sign a treaty unless either the treaty permits tests with yields up to 200 tonnes or it completes its testing first.

Although there is no agreement on specific verification measures, general agreement has emerged that an authority will be set up to verify compliance with the Treaty through a network of seismic monitoring stations and some or all of atmospheric monitoring and hydro-acoustic and infrasound stations, backed up by national means. Most of the facilities that will be involved are wholly or partly owned by the NATO countries. There is disagreement about the relationship of the authority to the International Atomic Energy Agency (IAEA). The start-up costs of the authority have been estimated at \$100 million, and running costs thereafter at \$60–80 million per year.

Russia and the Group of 21 have called for agreement on the CTB during 1995, before the US election campaign reaches its height and before the prospect of presidential elections in Russia once again makes resolution of key issues difficult. Others agree that it should open for signature in 1996. The earliest date at which a CTB treaty could come into force is 1997.

During 1994 France, Russia and the USA continued to observe their moratoria on nuclear tests, and the UK was still unable to test because it is dependent on the US Nevada Test Site. China conducted two nuclear tests in 1994.

• *Appendix 18A, by Ragnhild Ferm, provides data on nuclear explosions from 1945 to 1994.*

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## 19. Chemical and biological arms control

Thomas Stock, Erhard Geissler and Tim Trevan

In 1994 steady progress was made towards implementation of the Chemical Weapons Convention, although the pace was slower than originally expected. Only 19 states had ratified the CWC by 31 December 1994, making it impossible for the Convention to enter into force on 13 January 1995. The Preparatory Commission for the CWC continued work on procedures related to declarations and verification. The national implementation experiences of states which have ratified the CWC have shown that establishing the legal and organizational framework is more time-consuming and expensive than expected. The 1994 regional seminars provided information about the national preparations in several signatory states. In 1995 significantly more states are expected to ratify the CWC.

The parties to the Biological Weapons Convention (BWC) are increasingly interested in strengthening it by legally binding measures, and a relatively large number of states participated in a Special Conference held in September 1994 to evaluate the report submitted by the *Ad Hoc* Group of Governmental Experts to identify and examine potential verification measures from a scientific and technical standpoint (VEREX). Opinions vary about the feasibility of verification measures and their value in increasing confidence in the BWC. The Special Conference established an *Ad Hoc Group*, open to all states parties to consider a variety of measures to strengthen the BWC. The Group first met in January 1995 and will hold two more meetings in 1995. In 1994 the United Nations Special Commission on Iraq (UNSCOM) continued its activities in Iraq to fulfil its mandated obligations, and the destruction of all CW and chemical agents was completed. UNSCOM does not expect that any single element of its system to monitor Iraq's compliance with its obligations not to reacquire proscribed weapons will, operated in isolation, provide sufficient assurance that a clandestine proscribed programme would be quickly detected. However, the system is designed, as a multi-layered whole, to provide such assurance. UNSCOM will continue

to develop and evaluate the system in the early months of 1995. Depending on the level of Iraqi cooperation, UNSCOM should be able to judge the effectiveness of the system soon after all its components are in place.

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## 20. Conventional arms control and security dialogue in Europe

Zdzislaw Lachowski

In 1994 there were both positive and negative developments in enhancement of the conventional arms control regime in Europe. In spite of political arguments over the shape of a security regime for Europe, the implementation of existing disarmament and arms control agreements proceeded without major delays, and members of the CSCE continued to abide by their provisions.

The second phase of reducing CFE Treaty-limited equipment in the Atlantic-to-the-Urals zone and the massive Russian troop pull-out from the CEE and Baltic states were successfully completed in 1994. Reductions of military personnel under the CFE-1A Agreement were under way.

Alongside these positive developments, however, adverse tendencies and issues became more apparent. Disquieting signals are emerging of growing Russian political and military assertiveness in the former Soviet republics and even beyond. Developments such as the conflicts in Chechnya and the Transcaucasus, accompanied by increasing demands by Russia regarding various aspects of its European and global status, have made a dent in the European partnership relations. Russia's arms control decision making, hitherto a political process, is increasingly being influenced if not taken over by the military. The armed conflict in Chechnya not only contravenes the spirit of the code of conduct agreed at the CSCE Budapest Summit Meeting but also infringes the Vienna Document CSBM provisions and threatens to undermine the CFE Treaty regime. There is concern about the motives behind Russia's mounting military projection to the south. Russia's world outlook and political approach to domestic and external problems are undergoing an accelerating transformation.

The Budapest CSCE Summit Meeting took important decisions with respect to security cooperation, but failure to agree on key issues illustrated the complexity of the problems addressed by the Forum on Security Co-operation and the helplessness of the international community in the face of local crises and conflicts. While the cooperative security regime is not yet seriously endangered, the need to complete a comprehensive agenda for arms control and security cooperation was clearly signalled.

• *Appendices give the status of implementation of the Vienna CSBMs (Zdzislaw Lachowski) and the Treaty on Open Skies (Stefanie Bailer). The Vienna Document 1994 is also appended.*

**Annexe A**, by Ragnhild Ferm, summarizes the major multilateral and US–Russian (former Soviet) arms control agreements and lists the states parties as of 1 January 1995.

**Annexe B**, by Ragnhild Ferm, is a chronology of the major arms control and security events of 1994.

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## **21. Inhumane conventional weapons: efforts to strengthen the constraints**

Jozef Goldblat

The 1981 ‘Inhumane Weapons’ Convention (or Convention on Certain Conventional Weapons, CCW Convention) restricts the use of conventional weapons which are particularly cruel and directly affect the civilian population. Its provisions, especially those regarding mines, have proved ineffective. The mines—mostly anti-personnel mines—planted in many countries kill and maim thousands of non-combatants and render entire regions uninhabitable. To reinforce the constraints, a CCW Convention Review Conference will be held in the autumn of 1995. The experts preparing the Conference recognized the need to ban the use of anti-personnel mines which are not equipped with detectable elements and self-destructing mechanisms. However, the new restrictions would not apply to mines placed within marked and guarded minefields. Moreover, any party would be relieved from compliance in situations where military action makes it impossible to comply. This escape clause could bring to nothing all the constraints. Nor is it likely that all transfers of anti-personnel mines will be banned. The expected meagre results of the forthcoming Review Conference could be offset, at least to some degree, by the prohibition on the use of laser weapons to blind persons, a particularly abhorrent method of warfare.

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