

SIPRI YEARBOOK 2006

ARMAMENTS, DISARMAMENT AND INTERNATIONAL SECURITY

Chapter summaries

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Contact details

For press enquiries, contact Evamaria Loose-Weintraub, el-weintraub@sipri.org or the chapter authors

Telephone: +46 8 655 97 00

Stockholm International Peace Research Institute
Signalistgatan 9
SE-169 70 Solna
Sweden
Fax: +46 8 655 97 33

Further information is available at URL <<http://yearbook2006.sipri.org>>

Introduction. The world of peace and security research in a 40-year perspective

Alyson J. K. Bailes

In its 40 years of existence, SIPRI has witnessed a shift from the clear-cut bipolar confrontation of the cold war to a much more complicated strategic environment. No simple formula such as North–South or West–West confrontation, a new US ‘empire’, or the identification of human categories like terrorism or Islam as ‘the’ enemy can be either intellectually or morally satisfying.

Notions of danger and security have also become more complex over the past 40 years, shifting away—in particular—from any sense that armaments are the core of the problem. A wider spectrum of trans-state, intra-state and personal violence has taken the place of state-to-state conflict, and the salience of ‘human security’ threats such as epidemic disease and natural disasters has grown. Non-state actors of all kinds have gained in power, as security menaces but potentially also as contributors to solutions. Different levels of security response, from sub-national through national and regional to global, need to be integrated and correctly applied.

In general, there has been a shift in preference towards ways of tackling threat and risk that are active, cooperative and interventionist even when not actually ‘pre-emptive’. All regional security organizations now exhort their members to build up their military capacities for benign uses such as peace missions. The assumption increasingly seems to be that it is not arms and armed forces that are bad

in themselves, but their use by bad people for bad purposes—if these terms can be defined—that must be prevented.

Considering the scale of change in the substantial security environment, institutions like the UN, NATO, the EU and the OSCE have proved remarkably long-lived and adaptable. New ones have arisen in many regions to join them. Patterns of institutional action have, however, changed in a way that has blurred old divisions between security providers and those dealing with economic or other ‘civilian’ topics. The security importance of the latter is now better understood in the contexts both of complex crisis management and peace-building, and of

tackling non-traditional threats like terrorism and proliferation. Organizations that can work in several dimensions at once, and can mobilize both resources and legislative powers, have an inherent advantage in this light (but also have special problems of governance).

In the cold war, disarmament and arms control work was carried out in

discrete institutional frameworks; its main successes came in the form of binding international legal instruments, including provisions for follow-up and monitoring. This process peaked around the mid-1990s; latterly, the ‘treaty method’ has come under fire from the USA and has shown some real weaknesses in terms of coverage, enforceability and enforcement. While the idea of universal constraints on dangerous objects or transactions is not

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dead yet and may mutate into new forms (such as UN Security Council Resolution 1540 on weapons of mass destruction), the control of weapons has proceeded more actively on various other fronts. Alternative methods include:

- voluntary and unilateral cuts in forces and weapons,
- enforced disarmament such as that imposed on Iraq,
- qualitative or 'soft' constraints on the way that military resources are used,
- weapon restrictions with a humanitarian motivation,
- international cooperation to control exports and transfers of sensitive goods and technologies,
- multi-element 'package' approaches to persuade individual states to refrain from or surrender dangerous capabilities.

Various mixtures of such measures have brought solutions for some individual WMD-related problems and may yet solve others, but they work best when applied on a basis of clear international norms and in a setting of institutional cooperation. For a single country to act as judge and executioner raises questions of legitimacy and, as the past few years have shown, of effectiveness. Ultimately, all multinational

institutions have more in common with each other than they do with unregulated national action in pursuit of the same goals. All face essentially the same challenge today: to preserve their self-belief and to keep building cooperative approaches in the face of hecklers and offenders from both outside and inside their ranks.

In the brief space of the four decades since 1966 the world has witnessed positive transformations, not only with the end of the East–West

confrontation but also, for example, in South-East Asia, Southern Africa and Latin America. There are also depressingly many instances of conflicts that have got no better or got worse, and of good causes that have not advanced at all. One thing that has not changed or has only become more obvious is the importance in security affairs of transparency, exact information and rigorous analysis. In today's world, actions need not only be well intentioned or inherently good, but must be shown and understood to be good in the face of the continuing profound diversity of world opinions. Progress in dealing with that challenge will be one key to how global security fares over SIPRI's next 40 years.



Chapter 1. Euro-Atlantic security and institutions

Pál Dunay and Zdzislaw Lachowski

Pragmatism dominated Euro-Atlantic relations in 2005. Beyond the still basically unsolved rift over Iraq, the USA and the European countries that are members of the EU or NATO have recognized their roles in global affairs as shared, complementary and cooperative rather than divergent and confrontational.

The USA has gradually normalized its relations and coordinated its policy more closely with its European partners. The USA's

pragmatism in its dealings with European countries and institutions seems to owe less to a philosophical reassessment than to specific blockages in Iraq and on the domestic front. The Bush Administration's proclivity to use force unilaterally seems unchanged, but the Iraqi turmoil prevents it from going beyond occasional hints of further 'pre-emptive' use of force. The present posture of the USA could thus be characterized as self-restrained unilateralism.

In some cases, the flow of Euro-Atlantic cooperation has reverted to international institutions such as NATO, the OSCE and the UN. In other cases, bilateral channels have been used for rapprochement, and much less is currently heard from the USA about the value of ad hoc coalitions.

In the institutional dimension of Euro-Atlantic relations, the rivalry between the main actors—the EU and NATO—is entering a new phase as their geographical and functional agendas increasingly overlap. Both organizations have evidently lost their enlargement momentum for years to come. The EU's Constitutional Treaty setback in 2005 has had a muted,

apparently non-fatal, impact on the implementation of its ambitious security agenda for the coming years. Nonetheless, it raises questions about the EU's ambition to be a more effective security actor in world affairs.

NATO, entangled in the competing visions and interests of its members, still lacks a clear strategic mission for the future. It seeks to emphasize its relevance

by embarking on new kinds of missions, such as non-military state-building tasks, indirect peacekeeping support and humanitarian relief using military resources. Other European security-related bodies are even more burdened with internal troubles and dwindling legitimacy.

Relations between Russia and other post-Soviet states on

the one hand and the West on the other are about to take a decisive turn. The recognition of Russia's importance in Eurasia beyond its post-Soviet sphere of influence—including Iran, the Korean Peninsula and the Middle East—continued to underpin efforts for strategic cooperation in 2005. Several Western actors, however, voice their concerns more clearly regarding Russia's domestic and international political course. In the post-Soviet area, there is an increasingly clear and sharp divide between countries that have embarked on democratization and those that strive to maintain authoritarian rule. The resulting bad chemistry complicates the resolution of pending conflicts. Central Asia, thus far much less scarred by conflicts than the Caucasus, could be more vulnerable to instability as a

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result of the push for regime change, on the one hand, and the toughening of domestic restrictions, on the other. The strategic implications of a major breakdown in any large Central Asian state, given the acute interest of the USA and Russia as well as China in the region, are difficult to estimate.

Appendix 1A, by *Pál Dunay*, examines the issues of **status and statehood in the Western Balkans**. The region, embracing Albania and most of former Yugoslavia, is going through the third wave of major political rearrangement since the end of the cold war. The first, with the 1995 Dayton General Framework Agreement as its climax, and the second, following the 1999 Kosovo operation and the subsequent departure of leading politicians—Alija Izetbegovic, Slobodan Milosevic and Franjo Tudjman—from power, are now followed by the regulation of pending status and statehood matters. Three main challenges are posed: the timeframe and guarantees that will let **Kosovo** gain independent

statehood, the process of establishing **Montenegro**'s independence and the relationship of the constituent entities of **Bosnia and Herzegovina**.

All three challenges will affect **Serbia**'s role and status. Following Montenegro's independence, if Bosnia and Herzegovina consolidates its statehood and if Kosovo gains it in the medium term, Serbia will become considerably smaller and a less central player in the Western Balkans. It is open to question whether it can reconcile itself with such a reality. If Albanian-populated areas associate themselves with

The Western Balkans may acquire a bipolar structure with Albania and Serbia potentially competing for regional hegemony

the state of **Albania** in the long run, the Western Balkans may acquire a bipolar structure, with Albania and Serbia potentially competing for regional hegemony. The absence of EU membership prospects for the two states may not be conducive to stability in the Western Balkans. The attention,

support and assistance of the world at large, primarily of the EU and the USA, are indispensable for regional stability in the long run.

Chapter 2. Major armed conflicts

Caroline Holmqvist

Notwithstanding the enduring nature of certain contemporary conflicts, the past decades have seen major changes in both the dynamics and understanding of conflicts. In particular, the increasing prominence of non-state actors has given rise to challenges in managing and responding to conflict, and the limited capacity of the international community to hold non-state actors accountable for their abuse of civilians continued to pose a grave threat to human security in 2005.

The **Israeli–Palestinian and Kashmiri conflicts** illustrate how shifting perceptions of conflict—from decolonization and superpower dominance to the current preoccupation with international terrorism—have influenced international attitudes and engagement with these conflicts. Despite continuity in the insurgent groups’ ultimate objectives, the two cases also illustrate a changing trajectory of conflict owing to the particularities of contemporary non-state actor activity. While the Palestinian Authority continued to have problems in reining in militant elements, Hamas’ ascent to power through municipal and later parliamentary elections in Palestine cast the international community’s method of engaging with the conflict in a new light. In Kashmir interstate relations between India and Pakistan told only part of the story in 2005; the emergence of new armed groups in the region and the purported links between Kashmiri extremist groups and international networks were testimony to the fluidity of the insurgency.

The frequent irregularity of non-state groups and fragmentation of violence were

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recurring themes in conflicts in 2005. Efforts to instigate a comprehensive peace process in **Darfur, Sudan**, during the year were compromised by factionalism and inter-group hostility on the part of the Darfurian rebels and the corresponding failure to identify adequate representation from the rebel side. The irregular violence in the region has continued to plague the peace process, despite the signing of a peace agreement in May 2006.

The fact that the opposition is from non-state actors may allow governments to deny the existence of ‘conflict’ (conventionally understood as physical confrontation between two parties with a clear political incompatibility). In this way the Russian Government continued to emphasize criminal and ‘terrorist’ elements in its hard-line policy towards **Chechnya** and the surrounding republics in 2005.

Continued unrest in **the Democratic Republic of the Congo** challenged conventional assumptions about distinct phases of ‘conflict’ or ‘post-conflict’ given the frequent continuation of non-state violence despite the existence of formal ‘peace’. Sustained militia violence and the faltering reintegration of former combatants created a volatile mix and continued to hamper effective peace-building in the region.

In **Iraq** violence continued virtually unabated during 2005. Landmark events included the installing of a transitional government and the adoption of a new constitution, paving the way for the general elections that were held in December 2005. However, formal political development

could not stave off the formation of sectarian divides in the country. Persistent wrangling over the nature of political representation, combined with the extreme levels of violence, frustrated any real movement towards peace. The US-led Multinational Force was confronted with a paradoxical situation because its presence in the country continued to provide a key recruiting incentive for the insurgency, while the prospect of departure amid highly insecure conditions was widely regarded as an abdication of responsibility. Dealing with the activity of non-state actors was at the heart of the challenges faced in Iraq. The failure to understand either the motivations of belligerents or the composition of the insurgency, let alone identify reliable entry points for political dialogue, continued to cast a shadow over Iraq at the end of 2005.

Appendix 2A, by *Lotta Harbom and Peter Wallensteen*, presents data on the **patterns of major armed conflicts** in the period 1990–2005. In 2005 there were 17 major armed conflicts in 16 locations. No interstate conflicts were active in 2005, for the second year running, and Asia was the region with the highest number of conflicts. Since the end of the cold war, there have been 57 major armed conflicts. There has been a steady decline in the number of conflicts since 1999, and the figure for 2005 is the lowest for the entire post-cold war period. **Appendix 2B** explains the **definitions, sources and methods** for the data presented in appendix 2A.

Appendix 2C, by *Neil J. Melvin*, considers **Islam, conflict and terrorism**. With the end of the cold war, religion has increasingly been viewed as a key element in many of the world's conflicts. In recent years, and particularly after the events of 11 September 2001 in the USA, radical Islam has been identified as a source of violence, including terrorism. While some observers have seen in the growth of religious extremism a 'clash of civilizations' in which Islamists are taking a leading role, recent research has shown a more complex picture of Muslim societies and their relationship to the rest of the world. From this perspective, internal transformation and conflict within the Muslim world as a result of globalization is promoting the emergence of new, dynamic and, in some circumstances, violent movements that are often opposed to traditional Islam. The diversity of contemporary Islamist movements and the variety of factors that shape the role of Islam within conflict suggest the need for more sophisticated development of security policies intended to prevent and terminate conflict involving individuals and groups linked to the Muslim world.

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Chapter 3. Peace-building: the new international focus on Africa

Sharon Wiharta

An unprecedented level of attention was focused on Africa in 2005. Over the past decade the UN has intensified its engagement in Africa and, by December 2005, 75 per cent of UN

resources were devoted to Africa. Nearly half the number of deployed UN personnel are African. However, the release in 2005 of major reports from the UN Millennium Project and the British-led Commission for Africa pointed to the stark fact that Africa is currently the region that is farthest from attaining any of the Millennium

Development Goals. In recent years, Africa has provided pointed illustrations of the negative impact of weak governance and conflict on economic development—as in Côte d’Ivoire, Liberia and Zimbabwe—and of how strong the turnaround can be when governance problems and conflict are resolved—as in Angola and Mozambique. With recognition of the growing political will in Africa to tackle the inter-connected security and development challenges facing the continent, 2005 saw a renewal of the global commitment to increasing stability and strengthening the continent’s own capacity to address peace and security challenges.

One of the first tangible achievements of the September 2005 World Summit was the establishment of the UN Peacebuilding Commission. This momentous measure was designed to assist countries emerging from conflict and to ensure that “post-conflict” does not mean “post-engagement” of the international

community’. The Commission will improve coordination among all actors within and outside the UN system involved in the post-conflict peace-building process, while at the same time promoting the need to anchor peace-building efforts in local contexts and dynamics, and therefore recognizing the primacy of local stakeholders. The *Human Security Report 2005* showed a strong correlation between the sharp decline in armed conflicts and the deployment of peace missions.

In 2005 there were mixed results in peacekeeping and peace-building efforts in Africa. In **Liberia**, the UN mission achieved some success in implementing the transitional priorities, while the UN mission in **Sierra Leone** marked a successful completion of its six-year mandate, firmly putting the country on the road to a sustainable peace. However, success was not recorded elsewhere in the continent, where peace missions demonstrated the austere realities of peace-building in Africa in 2005 and the problems that will continue to challenge international actors in 2006. Repeated threats of violence in **Côte d’Ivoire** severely hampered the UN mission from carrying out its mandated tasks. The UN also struggled to bring stability in the **Democratic Republic of the Congo** and in 2006 requested the support of the EU to deploy a limited military operation to assist in providing a secure environment for the forthcoming elections.

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The biggest failure of the international community was in **Darfur, Sudan**. Constrained by the lack of appropriate and necessary equipment, trained and skilled peacekeeping personnel, and financial resources, the African Union (AU) proved woefully inadequate to assume responsibility for tackling Africa's crises. The subsequent decision to merge the AU mission into a UN-led mission was testimony to the AU's embryonic capacity to launch complex peace operations in a sustainable manner. It provides a strong argument for the international community to give serious consideration to the recommendations of the UN High-level Panel on Threats, Challenges and Change that the UN should provide equipment for regional operations and that such operations, when appropriate, should be financed from the UN peacekeeping budget.

Appendix 3A lists all **multilateral peace missions** that started, were active or were concluded in 2005. Data on contributing countries, the number and type of personnel, the cost and the casualties of the missions are given.

The number of multilateral peace missions and their size have grown dramatically, as testified by the 289 500 military and 175 000 civilian personnel deployed in a total of 58 multilateral peace missions in 2005 (including the 184 000 military personnel and civilian police in Iraq). This is in contrast to the 40 missions that were deployed between 1948 and 1989. The sheer number of missions and their increasingly complex nature are arguably putting the UN and other

organizations in danger of over-stretching institutional capacities. Regional organizations and UN-sanctioned non-standing coalitions of states conducted 37 of the missions, the highest number recorded since the end of the cold war. Since 1997 the engagement of non-UN actors has consistently been more pronounced than that of the UN. However the number of peace missions carried out by coalitions of the willing remained constant over the four-year period 1999–2002 and has been on the decline since 2003. Given the current international political climate, and the enormity of the resource and financial burdens placed on the lead

nations, it is unlikely that sizeable peace missions on the scale of the Multinational Force in Iraq will be launched in the foreseeable future.

The year 2005 was a significant one for civilian missions under the EU's European Security and Defence Policy (ESDP)—the six new missions launched was the highest number of missions initiated in a single year by any regional organization. The most notable development in the EU's peacekeeping efforts is the intensity and geographic diversity of the missions. This represents a new stage in Europe's involvement in peacekeeping and is testimony to the EU's deepening commitment to be a global security actor.

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Chapter 4. Regional security cooperation in the early 21st century

Alyson J. K. Bailes and Andrew Cottey

Regional and sub-regional organizations have proliferated since 1945, with a fresh surge in the 1990s, and many of them have had the overt or existential mission of security building. There has, however, been little new generic analysis of the role of the ‘region’ (itself clearly a subjective construct) in relation to security, while the established analytical models—the alliance, the collective security system, the security regime and the security community—often fail to capture either the discourse actually used, or the work done, by today’s real-life groupings.

A new analysis in terms of security functionality points to at least four sets of purposes that a regional security group can perform (often concurrently).

- The most basic is security dialogue and conflict management, aimed at establishing or maintaining peace within the region. European, African and Latin American organizations all have explicit conflict prevention and management instruments to this end, and the EU is the most ambitious in seeking to extend its influence for the purpose worldwide.
- Second, groups can develop systems of military cooperation based on mutual restraint—to reduce dangers from military activity (like the confidence-building measures developed by the Conference on Security and Co-operation in Europe, CSCE)—or on shared capacity building for older-style defence and

new-style peace missions, which is now a key ambition for the African Union as well as NATO and the EU.

- Third, regional organizations can intrinsically and expressly promote democratic standards in government, and respect for human rights, as ways of bolstering peaceful and secure conditions as well as being ends in themselves. This ambition has been a feature of European organizations (since the creation of the Council of Europe), of the Organization of American States and of the African Union, among others, but has faced greater cultural and practical obstacles in Asia and the Middle East.

- Fourth, regional cooperation can promote security by advances in purely economic fields (improving both prosperity and interdependence), and by cooperative approaches to functional risks and challenges including those presented by the ‘new threats’ of terrorism and proliferation.

The USA has promoted several regional defence systems (most obviously, NATO) and other forms of multilateral security cooperation, but its policy has elements of ambiguity that have been apparent under the leadership of President George W. Bush. The USA is equally wary of frameworks that might constrain its freedom of action, and of regional ventures that may rise to challenge its power, while US policies sometimes—deliberately or not—drive wedges between regional neighbours. Even so, the US line in 2005–2006 has become more benign towards

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European (and African) security coordination, and there are positive general statements about regional frameworks in the revised US National Security Strategy of March 2006.

Regional security cooperation can also be examined from the viewpoint of normative quality and effectiveness.

Relevant criteria are whether the cooperation is free and democratically conducted, or coerced and hegemonic; whether it takes a zero-sum approach (to another group, or outsiders in general); whether it is rigidly framed or shows ability to grow and adapt; and whether it gives an appropriate return on the efforts invested.

It is difficult to say what conditions make such cooperation possible or impossible: some groups have worked well even with one member much bigger than the others (although it is hard to get deeply integrative results in such cases), in regions with a great diversity of states, among states of different material levels of development, and even in face of severe cultural and historical differences.

Regional security cooperation has become well entrenched across much of

the globe and continues to spread. Critics may dispute its usefulness in face of the toughest security challenges, like terrorism and violent conflict, and it is true that even the strongest regional groups have imperfect records and could not pretend to master all such challenges on their own.

Their strength lies rather in finding non-conflictual paths to difference resolution

and peace-building, and in exploring the added value of multi-state cooperation for new as well as old security tasks. Can such security groups be good neighbours in a world that still contains many single-state powers and unorganized regions? In principle, their security achievements can be of more

general value so long as they work within the framework of the UN and other global norms; but much remains unclear about their impact on practical global politics. Further objective research into the regional security phenomenon would be useful from this viewpoint, and also for discovering the best ways to help those regions most obviously bereft of its benefits.

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Chapter 5. National governance of nuclear weapons: opportunities and constraints

Hans Born

More than 60 years after the dawn of the nuclear age, the discussions of the governance of nuclear weapons still focus on the governance of nuclear weapons at the international level and in particular in the context of the Non-Proliferation Treaty (NPT). In contrast, much less attention has been paid to the governance of nuclear weapons at the national level. However, the rather disappointing record of the NPT raises the question of whether the global governance of nuclear weapons can work without first ensuring their democratic governance at the national level.

The issue of civilian control and oversight of nuclear weapon programmes has become more pertinent in the post-cold war period and particularly so following the events of

11 September 2001. Effective civilian control may be considered an important factor in preventing further proliferation of nuclear weapons. This is a vital concern as can be demonstrated by recent events such as the discovery of the activities of **the A. Q. Khan network** in 2004.

It is no coincidence that much of the recent talk of nuclear weapons in the media focuses on countries like Iran, where the weak democratic system of checks and balances has led to a general belief that bad governance of nuclear affairs is inevitable. The international community, however, has not expressed anxiety about other, more democratic countries that may be at a turning point in their nuclear policies.

The matter of democratic accountability regarding nuclear weapons should not be a

concern only in transitional or authoritarian states, but also in consolidated democracies. Indeed, problems exist in all nuclear weapons states:

- there is ambiguity in **the UK** about the special relationship with the USA;
- in **France**, nuclear weapons are considered part of the *domaine réservé* of the president;
- **Indian** governments have used nuclear weapon tests to boost their domestic popularity;
- in **Russia**, the breakup of the Soviet Union has resulted in the near impossibility of civilian control;
- **Pakistan** poses concern in the eventuality that

The record of the NPT raises the question of whether the global governance of nuclear weapons can occur without first ensuring their democratic governance at the national level

President Musharaf is no longer in power and the nuclear arsenal falls into the wrong hands;

- **Israel's** opaque nuclear posture leaves little grounds for transparency or control;
- **the USA** constitutes the best and yet imperfect standard, with a strong Congress but an even stronger president as commander-in-chief.

It is therefore essential to explore how nuclear weapon states (both democratic and non-democratic) balance the need for the usability and security of nuclear weapon systems with the need for political control and oversight. It is also important to broaden the debate on the control of nuclear weapons beyond the prevalent 'command and control' approach.

Chapter 6. Transparency in the arms life cycle

Björn Hagelin, Mark Bromley, John Hart, Shannon N. Kile, Zdzislaw Lachowski, Wuyi Omitoogun, Catalina Perdomo, Eamon Surry and Siemon T. Wezeman

Transparency is commonly understood as the release of information by governments. A review of the availability of quantitative data on a multinational level about the arms life cycle ‘from development to destruction’, shows that government openness is not sufficient to provide the information required by representative institutions, the media and the public at large. Such openness is a prerequisite for democratic control and for the accountability of government actions at the national and international levels.

However, transparency is relative. The value of information depends on features such as availability, reliability, comprehensiveness, comparability and disaggregation. Data rarely meet all these requirements for each phase of the acquisition cycle. There are variations between countries in the definitions that determine what they include and exclude in their reported data. The problem of definition is increasing, while the activities of arms producers remain partly beyond the control of the citizens of the countries where they operate. The dual-use nature of many current innovations in science and technology is making it both more important and harder to pin down and compare the financial commitment to specifically military research and development.

The lack of internationally agreed definitions, or adherence to existing definitions, poses obvious problems for

international comparisons. There is no systematic, reliable, valid and global—or in most cases, even regional—set of quantitative data on the arms life cycle. Persistent government preferences for secrecy are part of the explanation, as illustrated by the limited transparency in national arms inventories in general and in nuclear and biological weapons in particular. Although some progress has been made since the late 1960s towards greater transparency in nuclear arsenals, there remain large uncertainties about global inventories of **nuclear weapons** and weapon-usable fissile material. For **biological weapons**, transparency could even be decreasing.

More positive trends have been noted regarding data on **chemical weapons**, **military expenditure** and **arms transfers**. Destroyed chemical weapons as well as remaining stockpiles are reported as part of multinational agreements. Increasing transparency in arms transfers is partly the result of public demand and of governments’ willingness to release more and better data. Data on military expenditure—an important share of public finance in many countries—have become, among other things, part of the policy debate about development assistance, and the changing character of threats and armed conflicts has also increased the demand for data on internal security expenditure and on the balance between expenditure for internal and external

Government openness is not sufficient to provide the information required by representative institutions, the media and the public

security. Such demands come not only from governments and their development assistance agencies, but also from foreign investors and non-governmental organizations. The Small Arms Survey illustrates the increasing political relevance of small arms and light weapons. However, the existence of national forces and stocks of weapons abroad, as well as access to foreign bases, makes it hard to keep track of the exact



size and deployment of national inventories at a given time, let alone to assess operational military capability in a particular regional setting.

Making the whole life cycle 'from development to destruction' transparent will call for major additional resources. Meeting that demand is a challenge to all governments and other organizations that count public transparency among their highest aims.

The SIPRI Yearbook in other languages

Translations of previous editions of the SIPRI Yearbook are available

In Arabic from the **Centre for Arab Unity Studies (CAUS)**, Beirut, URL <<http://www.caus.org.lb/Home/index.php?Lang=en>>

In Chinese from the **China Arms Control and Disarmament Association (CACDA)**, Beijing, URL <<http://www.cacda.org.cn/english/>>

In Russian from the **Institute of World Economy and International Relations (IMEMO)**, Moscow, URL <<http://www.imemo.ru/eng/>>

In Ukrainian from the **Ukrainian Centre for Economic and Political Studies (UCEPS, the Razumkov Centre)**, Kyiv, URL <<http://www.uceps.org/eng/section/Books/>>

Summaries of previous editions of the SIPRI Yearbook in **English, Dutch, Farsi, French, German, Spanish** and **Swedish** are available online at URL <http://www.sipri.org/contents/publications/pocket/pocket_yb.html>

Chapter 7. Military expenditure data: a 40-year overview

Wuyi Omitoogun and Elisabeth Sköns

Over the past 40 years, military expenditure data have been used in a variety of political contexts. There have been two fundamental shifts in the use of such data. First, there has been a shift of focus from military expenditure in the countries belonging to the cold war military blocs in the North to that of the developing countries in the South in the post-cold war period. Second, in the UN there has been a shift in the aims of the use of military expenditure data away from disarmament and development towards transparency. This reflects broader changes in the international peace and security community, where the idea of disarmament as a direct path to development has lost ground, while the idea of promoting security through, for example, confidence building, conflict prevention and peacekeeping has gained ground. Increased awareness of the interdependence of security and development is resulting in new ideas on how to promote both. This will hopefully lead to increased use of non-military resources for security provision in the future. However, the picture is mixed since the first half-decade of the 21st century was dominated by the opposite practice: the application of huge military resources in the name of defending and promoting democracy.

In general, it appears that data availability and accessibility have tended to improve over time, especially in terms of access to primary sources for developing countries. This is in part because of the general tendency for improved

transparency and is possibly also promoted by the efforts of the UN, the international donor community and data-gathering organizations. However, in spite of the improved access to data, the quality of the data remains unsatisfactory. Tracking states' conflict-related expenditure is also a major challenge. The industrialized countries' new modes of financing procurement through private finance require further understanding in order to assess their implications for data quality.

The relevance of military expenditure data for the analysis of peace and security issues has been a perpetual issue throughout the 40-year period. The use of military expenditure data to assess military strength, in spite of the fact that such data by their nature are an input measure, tends to lead to misconceptions, as the cold war experience demonstrates. The relevance of military expenditure data is further challenged in the current security environment, with fundamental questions posed by the increased focus on internal security and the changing concept of security. Human security, with its focus on the individual rather than the state, and the blurring of the dividing line between internal security and external defence mean that military expenditure data are of less relevance. This does not mean that data on military expenditure are of no utility, but rather that they need to be complemented by other types of data series in order to capture the dimensions of internal security and human security.

The idea of disarmament as a direct path to development has lost ground



Chapter 8. Military expenditure

Petter Stålenheim, Damien Fruchart, Wuyi Omitoogun and Catalina Perdomo

World military expenditure in 2005 is estimated to have reached \$1001 billion at constant (2003) prices and exchange rates, or \$1118 billion in current dollars. This

corresponds to 2.5 per cent of world GDP or an average spending of \$173 per capita.

World military expenditure in 2005 presents a real terms increase of 3.4 per cent since 2004, and of 34 per cent over the 10-year period 1996–2005.

The USA, responsible for about 80 per cent of the increase in 2005, is the principal determinant of the current world trend, and its military expenditure now accounts for almost half of the world total.

The process of concentration of military expenditure continued in 2005 with a decreasing number of countries responsible for a growing proportion of spending: the 15 countries

with the highest spending now account for 84 per cent of the total. **The USA** is responsible for 48 per cent of the world total, distantly followed by **the UK, France, Japan and China** with 4–5 per cent each. The rapid increase in the USA's military spending is to a large extent attributable to the

ongoing costly military campaigns in Afghanistan and Iraq. However, in 2005 the effects of hurricanes Katrina and Rita also played an important role. Most of the increase in US military spending resulted from supplementary allocations administered outside the regular budget, moving control of funding decisions from the Congress to the President.

World military expenditure in 2005 is estimated to have reached \$1118 billion or \$173 per capita

The USA is responsible for about 80 per cent of the increase in 2005 and its military expenditure now accounts for almost half of the world total

A factor that has aided the upward trend in military expenditure is the high and rising world market prices of minerals and fossil fuels. This is reflected especially in Algeria, Azerbaijan, Russia and Saudi Arabia, where increased proceeds from oil and gas exploitation have boosted government revenues and freed up funds for military spending. The boost in the military expenditure of Chile and Peru is directly resource-driven, because their military spending is linked by law to profits from the exploitation of key natural resources.

China and India, the world's two emerging economic powers, are demonstrating a sustained increase in their military expenditure and contribute to the growth in world military spending. In absolute terms their current spending is only a fraction of the USA's. Their increases are largely commensurate with their economic growth.

Appendix 8A, by *Petter Stålenheim, Damien Fruchart, Wuyi Omitoogun and Catalina Perdomo*, contains **tables of military expenditure** by region, country and income

group, in local currency and constant dollars and as a share of gross domestic product for the period 1996–2005.

Appendix 8B, by *Petter Stålenheim*, contains data on the **military expenditure of NATO member countries**, by category, for the period 2000–2005. **Appendix 8C**, by *Petter Stålenheim*, explains SIPRI's **sources and methods** for military

expenditure data collection. **Appendix 8D**, by *Catalina Perdomo and Åsa Blomström*, discusses and presents data on **the reporting of military expenditure data** to SIPRI, the UN and other organizations.

Appendix 8E, by *Michael Ward*, analyses in depth **the international comparisons of military expenditures**, in particular the use of purchasing power parities (PPPs) in place of market exchange rates. Comparing one country's expenditure on the military (or any other sector) with that of another country expressed in a different currency poses significant problems. A traditional approach has been to convert currencies using market exchange rates. A preferable method is to use PPP rates, which indicate how much, hypothetically, it would cost in one country to acquire the same (military)

goods and services bought by another country, and thus allow more accurate international

comparisons of the economic burden represented by the spending. However, there are conceptual and empirical issues in the estimation of PPPs that need to be resolved. In the case of military expenditure, these are further

compounded by military secrecy, the coverage of military budgets, the nature of military prices and the uniqueness of military products.

Comparing one country's expenditure on the military with that of another country expressed in a different currency poses significant problems

Chapter 9. Arms production

J. Paul Dunne and Eamon Surry

Arms sales by the 100 largest arms-producing companies (the 'SIPRI Top 100') showed a marked rise of 15 per cent during 2004. This continues a rising trend since the late 1990s.

The value of the combined arms sales of the SIPRI Top 100 was \$268 billion.

Companies in the USA and Western Europe accounted for most of this amount: 63.3 per cent was accounted for by 40 US companies; and 29.4 per cent by 36 West European companies.

Acquisition activity is continuing in the international arms industry, albeit at a less rapid pace than during the 1990s. Five very large acquisitions were concluded in 2005, each with a deal value close to or greater

than \$2 billion. Intra-US acquisitions are driven by a rush into new expanding sectors, such as information technology and military services, and are facilitated by large cash surpluses.

Transatlantic acquisitions are dominated by British companies seeking to access the lucrative US market.

Considering the **development of the arms industry in the post-cold war period**, three main types of changes are apparent:

structural, technological and compositional.

- The arms industry has become increasingly concentrated, nationally as well as internationally. The share of the top 5 companies in the total arms

sales of the SIPRI Top 100 increased from 22 per cent in 1990 to 44 per cent in 2003.

- There has been a clear and significant qualitative change in the nature of technology because civil technology has become increasingly important for weapon systems. This has led to an increasing importance of IT and electronics companies, often previously civil companies, in the defence sector and an increased number of civil companies in the supply chains of the main contractors. The demands of the USA's 'global war on terrorism' have reinforced this trend.
- The privatization of defence services and support is drawing new kinds of suppliers into military contracting. This has been made apparent in Iraq, with companies taking on support roles that in the past the armed forces would have undertaken. A big growth area is the provision of security—guarding people and buildings. While some of these activities can be seen as an expansion of the arms industry, other support activities are not military services but general security services and construction, creating a periphery of private companies around the core arms industry.

These developments have resulted in marked changes in the arms industry and further changes can be expected. It is, however, important to recognize that **arms contractors continue to have a set of unique characteristics**, due to the nature of the arms market, making them different to firms in other industrial segments. The

nature of arms procurement and its elaborate rules and regulations mean that they face considerable barriers to exit, while non-specialists continue to face considerable barriers to entry for the same reasons. In spite of internationalization in terms of markets and supply chains, the home market and home government support remain vital to arms-producing companies.

The arms industry has become increasingly concentrated, nationally as well as internationally

Appendix 9A, by *Eamon Surry and the SIPRI Arms*

Industry Network, lists the **100 largest arms-producing companies in 2004**, along with data on their size and profits. **Appendix 9B**, by *Eamon Surry*, gives details of the **major mergers and acquisitions** in the North American and European arms industry in 2005.

Appendix 9C, by *Julian Cooper*, outlines **developments in the Russian arms industry**. Since 1991 the huge Soviet arms industry has contracted markedly and the administrative structures for the management and oversight of the Russian military sector have undergone frequent and far-reaching change. Since President Vladimir Putin came to power, military output has recovered to some extent and spending on procurement and research and development has increased, but Russian military production remains dependent on exports. The Soviet legacy is still apparent: the industry remains relatively isolated from the rest of the world with a reluctance to establish transnational partnerships or permit foreign ownership. The level of transparency, while improving, is still short of that accepted as normal in democratic countries.

Chapter 10. International arms transfers

Björn Hagelin, Mark Bromley and Siemon T. Wezeman

The global downward trend in international transfers of major weapons was reversed in 2003. Since then there has been an increase in the volume of major arms transfers as reflected in the SIPRI trend-indicator value. The change is also reflected in the financial values of **global arms exports** according to national reporting, which is **estimated at \$44–53 billion**, or 0.5–0.6 per cent of world trade, in 2004, the most recent year for which data are available.

The five largest suppliers in the period 2001–2005 were Russia, the USA, France, Germany and the UK, in order according to the SIPRI trend-indicator value. The combined exports from EU member states made it the third largest exporter of major conventional weapons. Russia and the USA each accounted for roughly 30 per cent of global deliveries of major weapons. In 2005 the five largest suppliers accounted for over 80 per cent of total deliveries.

In the period 2001–2005, 43 per cent of Russia’s deliveries went to China and 25 per cent to India. China and India have become important to arms exporters because both are in a position to become economic powers and leaders in technology applications. The USA’s relations with India are today labelled ‘strategic’, and the US policy is to keep India and Japan strong in order to offset China’s rising regional influence. While the present volume of US transfers of major weapons to India is low, the USA

seems prepared to offer the country advanced weaponry, including technology transfers and co-development of weapons.

The four largest recipients of US exports in 2001–2005 were Greece, Israel, the UK and Egypt, in that order.

The search for new markets and the drive to maintain existing markets sharpen international competition. In some cases this supports commercial pragmatism in national implementations of

export policy; that is, markets that are not subject to international embargoes are regarded as open markets. In parallel, there is evidence of political fatigue in some governments with regard to their commitment to transparency and the UN arms export reporting mechanism, the UNROCA. The UNROCA showed large discrepancies in reported data between exports and imports, and the criteria that different countries used to decide which weapons to

report and how a ‘transfer’ is defined remain at variance. Transparency will suffer if a tendency for commercial pragmatism in national arms export policy spreads and reduces political willingness to report on national arms exports. At the same time, it remains difficult to interpret the data that are actually being reported.

Appendices 10A, 10B and 10C provide data on the transfers of major conventional weapons and explain SIPRI’s **sources and methods** for data collection.

The search for new markets and the drive to maintain existing markets sharpen international competition

China and India have become important to arms exporters as both are in a position to become economic powers and leaders in technology

Chapter 11. The security dimension of European collective efforts in space

Theresa Hitchens and Tomas Valasek

Europe, both collectively and nationally, has long been a major power in outer space, with countries maintaining an array of facilities for satellite launches, satellite production and research. Like many other elements of European power, space capability is not a fully unified project, but rather arises through the accumulation of a confused mixture of national and multinational entities and efforts. The major national players in space are the four European states with the largest economies: France, Germany, Italy and the UK. At the collective level, there are two principal organizations: the 25-nation EU and the 17-nation European Space Agency (ESA). In addition, other joint European projects involve sets and subsets of national governments and multinational organizations.

While European space activities have focused on civil and commercial applications, over the past several years European states and Europe collectively have recognized the need to add a security dimension to their space programmes. This has been a slow and halting process. Even today, European states jealously guard their military space capabilities; they are often wary of inter-European cooperation and more so of collective endeavours. That mindset is beginning to change, however, spurred in large part by the revolution in military space power in the USA, where the increased exploitation of space assets for both tactical and strategic purposes has

provided an undisputed edge on the battlefield. In particular, several European nations—individually, bilaterally or multilaterally—are for the first time pursuing programmes for earth imaging and communications satellites dedicated to military use.

The more the EU becomes the tool of choice for the security and military operations of its members, and the more it seeks to profile itself as a global actor, the further it will be driven towards the use of space for security and military purposes

The pressures for more cooperation in military space activities also stem from the trend towards collectivism in foreign affairs and defence policy that began with the articulation of the EU Common Foreign and Security Policy (CFSP), and its European Defence and Security Policy (ESDP). Since the 1990s, European militaries cooperate ever more closely on the ground, on the seas and in the air. The European Commission has pledged €3.96 billion to be spent on security and space in the period 2007–13.

A second, but no less important driver has been Europe's desire to build capabilities that are independent of the USA—a trend that has its roots in the end of the cold war but which has accelerated in recent years as European views about US unilateralism have hardened and US restrictions on space technology transfer have tightened. While European states have a growing desire for information from sources other than the USA, no European country could itself hope to finance a space programme that could deliver such information. The EU is therefore increasingly becoming a locus for new space efforts, such as the massive and

complex Global Monitoring for Environment and Security (GMES) programme.

At the same time, there remain a number of constraints—from political to economic—on the development of European military space power. Space, while important for modern warfare, is not at the top of the list of EU capability priorities, which is dominated by more immediate needs such as airlift, sealift and transport helicopters. Military leaders, even in Europe's leading space power, France, continue to balk at paying for expensive, dedicated satellite-based capabilities, including the navigation,

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positioning and timing services to be provided by Europe's flagship Galileo programme.

However, the more the EU becomes the tool of choice for the security and military operations of its members, and the more it seeks to profile itself as a global actor, the further it will be driven towards the use of space for security and military purposes. If the trend continues, the EU will most probably progress from operating dual-use assets and distributing data from national networks to deploying collectively owned technology for the exploitation of space for security purposes.

Chapter 12. Reflections on continuity and change in arms control

Ian Anthony

Legal and diplomatic means are being restored as the preferred method to control arms, and efforts to promote dialogue on international politico-military aspects of security remain valid and necessary. The multilateral arms control treaties form one part of this emerging regime, but the treaties are increasingly being supplemented and supported by a number of other measures. These measures generally lack three characteristics of cold war arms control—symmetry, reciprocity and universal participation.

However, UN Security Council Resolution 1540 does have these features.

Improvements in verification and a tendency towards greater transparency facilitated arms control agreements during a short period after the end of the cold war. These gains have now been lost. The changing view on the desirability and feasibility of verification has complicated arms control compliance assessment and enforcement and will continue to do so in future.

Arms control was traditionally focused on items specially designed and developed for military use. Some recent initiatives have focused on items that can have civilian as well as military uses. However, a strategy based on the elimination or complete denial of access to dual-use items is neither feasible nor desirable. Dual-use technology is not a threat in and of itself, and denial of access to dual-use technology is only sought when the technology concerned is going to be misapplied or when the risk that it will be misapplied is unacceptably high.

Arms control was traditionally confined to states. However, recent thinking has focused on how the capabilities available to non-state groups can be controlled and access to them denied on a selective basis

Arms control was traditionally an activity confined to states. However, recent thinking has focused on how the capabilities available to non-state groups that may be planning acts of mass impact terrorism can be controlled and access to them denied on a selective basis. In a more positive context, non-state actors, including the private sector, are becoming engaged in security building.

Chapter 13. Nuclear arms control and non-proliferation

Shannon N. Kile

In 2005 the global nuclear non-proliferation regime continued to face a number of serious challenges from both inside and outside the regime. The seventh five-yearly Review Conference of the 1968 Non-Proliferation Treaty (NPT), which forms the main legal and normative foundation of the regime, ended without any substantive decisions on key treaty-related issues. The review conference highlighted deep divisions in the states parties' views about the nature of the main implementation and compliance challenges facing the NPT, particularly with respect to the question of what should be the relative balance between the treaty's disarmament and non-proliferation obligations. The conference's meagre outcome was widely seen as a lost opportunity to strengthen nuclear non-proliferation and disarmament efforts.

The controversy over the scope and nature of Iran's nuclear programme continued to be the subject of high-level diplomacy in 2005. The negotiations between Iran and the E3 (France, Germany and the UK) on the future of Iran's nuclear programme broke down after having made little progress. The main point of contention was Iran's uranium enrichment programme, which Iran had voluntarily suspended in 2004 but announced that it would restart in 2005. The E3 insisted that Iran accept a complete and permanent cessation of the programme. Iran rejected this demand and reaffirmed its plans to develop a complete nuclear fuel cycle. In August 2005, Iran reactivated the uranium

conversion facility located near Esfahan and subsequently declared that it would resume work on centrifuge enrichment. This led to calls from the E3 and the USA for Iran to be reported to the UN Security Council.

During 2005 the International Atomic Energy Agency (IAEA) provided further detail about Iran's failure to declare important nuclear activities as required by its comprehensive safeguards agreement with the agency. The IAEA reported that it had not found evidence of a secret Iranian military nuclear weapon programme but added that it was not in a position to give credible assurances that there were no undeclared nuclear activities taking place in the country.

Elsewhere, there were two new rounds held in the Six-Party Talks on North Korea's nuclear weapon programme. A

Joint Statement on the principles guiding the talks issued by the parties in September was a potential breakthrough. However, it quickly became apparent that the Joint Statement left unsettled a number of key questions and points of contention that had emerged in the talks. Little subsequent progress was made towards resolving the diplomatic impasse, against the background of a hardening of the positions of both North Korea and the USA.

During 2005 international concern about the dangers of nuclear material falling into the hands of non-state actors, including terrorist groups, led to growing support for measures to protect nuclear material and facilities around the globe. Progress was

International concerns about the dangers of nuclear material falling into the hands of non-state actors, including terrorist groups, led to growing support for measures to protect nuclear material and facilities around the globe

made in implementing the US-funded Global Threat Reduction Initiative (GTRI) programme, which is aimed at consolidating and expanding existing efforts to remove potential nuclear weapon-usable material from vulnerable sites. The parties to the 1980 Convention on the Physical Protection of Nuclear Material amended the convention to make it legally binding for the parties to protect nuclear facilities and material in domestic use, transport, and storage. The convention had previously only covered material in international transport. In September, the IAEA Board of Governors adopted a Nuclear Security Plan covering the period 2005–2009. The goal of the plan is to assist countries in upgrading physical protection of their nuclear material and facilities, detecting illicit nuclear trafficking across borders and improving control of radioactive sources.

Appendix 13A, by *Shannon N. Kile, Vitaly Fedchenko and Hans M. Kristensen*, contains **tables of data on nuclear forces** held by eight nuclear weapon states. At the beginning of 2006, the five states defined in the NPT as nuclear weapon states—China, France, Russia, the UK and the USA—continued to deploy approximately 12 300 operational nuclear weapons. If all warheads are counted—deployed, spares, those in both active and inactive storage, and ‘pits’ (plutonium cores) held in reserve—these five states possessed an estimated total of 32 300 warheads. With the exception of the UK, these states all had significant nuclear weapon modernization programmes under way. India and Pakistan, which along with Israel are de facto nuclear weapon states outside the NPT, are believed to be increasing the number of their nuclear warheads and developing new, longer-range ballistic missiles for delivering them.

Appendix 13B, by *Christer Ahlström*, considers **legal aspects of the 2005 Indian–US Civil Nuclear Cooperation Initiative (CNCI)**. The CNCI, which has yet to be approved by the US Senate, allows US exports of civilian nuclear technology to India, while committing India to assume the responsibilities of a nuclear weapon state. The USA’s engagement with India in this field has raised concerns about the impact on the nuclear non-proliferation regime, in particular on the Nuclear Suppliers Group and the NPT.

Appendix 13C, by *Vitaly Fedchenko*, examines the theory and practicalities of **multilateral control of the nuclear fuel cycle**. Recent events in Iran have highlighted that the development of nuclear energy for peaceful purposes provides the means for production of nuclear weapons.

The international community has developed three approaches to deal with this problem: the introduction of legal and regulatory barriers to the transfer of

technology and sensitive types of materials; the promotion of multilateral arrangements for the joint use, and development or ownership, of sensitive nuclear fuel cycle facilities; and the use of innovative proliferation-resistant nuclear technologies. Nuclear security and energy security developments in 2005 once again prompted discussion of the strengths and weaknesses of these approaches, and the importance of the latter two was emphasized.

Recent events in Iran have highlighted that the development of nuclear energy for peaceful purposes provides the means for production of nuclear weapons

Chapter 14. Chemical and biological warfare developments and arms control

Richard Guthrie, John Hart and Frida Kuhlau

In 2005 the states parties to the 1972 Biological and Toxin Weapons Convention (BTWC) held the third of their annual expert and political meetings, which considered codes of conduct for scientists. As the process of scientific study involves communication between scientists and relies on the free exchange of information between individuals and between institutions, a framework that includes codes of conduct relating to any activities that could potentially promote the hostile uses of biological sciences should enhance the overall regime. The BTWC is the only one of the global conventions prohibiting possession of a class of weapons of mass destruction (WMD) that has no formal verification and compliance mechanisms. The states parties started preparations for the Sixth BTWC Review Conference, to be held in late 2006.

The economic and national security implications of diseases received unprecedented attention during 2005. The World Health Assembly adopted new International Health Regulations in May comprising legally binding provisions on sharing epidemiological information about the spread of infectious diseases. The European Centre for Disease Prevention and Control (ECDC) began operations in Stockholm.

The states parties to the 1993 Chemical Weapons Convention (CWC) decided to extend the two action plans adopted in 2003. The Action Plan on national implementation measures contributed to an increase in the number of parties that had

established or designated a national authority or that had adopted and reported national legislation covering all key areas required by the CWC. The Action Plan on universality contributed to Antigua and Barbuda, Bhutan, Cambodia, the Democratic Republic of the Congo, Grenada, Honduras, Niue and Vanuatu becoming parties to the CWC in 2005. A new goal of trying to raise membership of the convention to at least 180 by the end of 2006 was set.

An open-ended working group was established to prepare for the Second CWC Review Conference, to be held no later than 2008. A proposal was endorsed to establish 29 April, the day the CWC entered into force in 1997, as a day of remembrance for victims of chemical warfare and that a memorial to its victims be established in The Hague.

The states that declared the possession of chemical weapons at the time the CWC entered into force for them are Albania, India, Libya, Russia, the USA and ‘another state party’, not identified at its request but widely understood to be South Korea. The CWC requires all these chemical weapons to be destroyed by 2012 at the latest. The continuing difficulties with chemical weapon destruction mean that it is becoming increasingly unlikely that all states will meet the mandated destruction deadlines under the CWC. It is important that the parties with chemical weapon stockpiles remain actively engaged to ensure that political and technical difficulties associated with their destruction programmes are resolved. In

The magnitude of terrorist threat in the chemical and biological field is still unclear

relation to the two largest chemical weapon holders, some 36 per cent of the USA's stockpile (about 31 000 tonnes in total) and around 4 per cent of the Russian stockpile (about 40 000 tonnes in total) had been destroyed by the end of 2005.

In 2005 the US-led Iraq Survey Group ended its inspections and closed its investigation into the past chemical and biological weapon programmes in Iraq, releasing a series of addenda to its 2004 report and concluding that the investigation had 'gone as far as feasible'. The United Nations Monitoring, Verification and Inspection Commission (UNMOVIC) remained excluded from Iraq but continued the monitoring and analysis of past and current issues according to its mandate in UN Security Council resolutions. The last of the major official national inquiries into the issues of pre-war intelligence relating to Iraq was published.

In the Netherlands, Frans van Anraat was convicted of supplying chemicals for Iraq's chemical warfare programme in the 1980s. In the UK a court case claiming a terrorist conspiracy for the production of ricin finished on 8 April 2005. Although the arrests in January 2003 had been cited many times as evidence that terrorists were actually acquiring biological materials for hostile uses, the prosecution evidence to the court showed that no evidence of ricin production had been found.

The magnitude of terrorist threat in the chemical and biological field is still

unclear. In recent cases, such as the London 'ricin conspiracy', the initial claims and the final results were very different. However, this should not lead to complacency. There is still a need to prevent the inappropriate use of biological and chemical materials. It would be prudent to ensure that effective bio-safety and bio-security measures are adopted as soon as is practicable.

Appendix 14A, by *Roger Roffey and Frida Kuhlau*, considers the need for **a global strategy to enhance bio-security**. Recent outbreaks of diseases—and the feared transfer of bird flu

to humans—in combination with rapid developments in biotechnology have heightened the perceived risk of bioterrorism. This has emphasized the need to improve bio-security worldwide at

facilities that deal with dangerous pathogens. Also required are legislation and standards to help prevent the acquisition of materials, technology and expertise by those who would use them for criminal acts such as bio-terrorism or biological warfare.

Outbreaks of diseases, rapid developments in biotechnology and the perceived risk of bioterrorism have emphasized the need to improve bio-security

Chapter 15. Conventional arms control

Zdzisław Lachowski

Much effort has been devoted to arms control in the field of conventional weapons, both globally and regionally, but it has failed to take firm root outside

Europe. Europe remains a role model in this context insofar as controls on conventional forces continue to have a substantial stabilizing, security-building role in intra-European relations based on openness, transparency and mutual reassurance. However, because of critical security changes since 1989, even Europe faces serious challenges in maintaining this heritage.

The year 2005 marked the 15th anniversary of the signing of the 1990 Treaty on Conventional Armed Forces in Europe (CFE Treaty). The updating of Europe's 'hard' conventional arms control regime remains stalled by disagreements between Russia and the West over texts adopted at the 1999 Istanbul Summit of the Organization for Security and Co-operation in Europe (OSCE). As a result, entry into force of the 1999 Agreement on Adaptation of the CFE Treaty remains hostage to Russia's completion of its promised military pull-outs from Georgia and Moldova. In Georgia, the May 2005 agreement on the complete closure of Russian military bases and other facilities in the country was welcomed as a promising 'step forward', but in Moldova deadlock persists over Russian personnel and equipment. In the spring of 2006 the viability of the CFE Treaty regime appeared uncertain, with Russia positioning itself for a showdown at the 2006 CFE Third Review Conference.

In 2005 the OSCE participating states continued to evaluate, adjust and develop certain arms control-related endeavours, including confidence- and security-

Little progress has been made in rethinking confidence- and stability-building approaches to the kinds of menace that Europe actually faces today

building measures (CSBMs) and other arrangements. Little progress has been made in rethinking confidence- and stability-building approaches to the kinds of menace that Europe actually faces today: combinations of intra-state violence and trans-state or global threats. One of the vital tests for CSBMs is whether they are applicable in intra-state 'foul-weather' conditions

(i.e., during times of crisis, conflict, war, etc.), such as the frozen conflict in Moldova. The 'demilitarization' and confidence-building schemes for Moldova presented by the OSCE were controversial on political and military grounds.

Globally, the problem of 'inhumane weapons' continues to engage the international community. The 1997 Anti-Personnel Mines Convention, widely supported both by states and grassroots movements, is viewed as a valuable contribution to 'human security' as well as traditional 'hard' security. With regard to Protocol V on Explosive Remnants of War, the three main actors—China, Russia and the USA—are reportedly moving more actively towards ratifying it. However, the main opponents to an agreement on anti-vehicle mines continued to block progress on various grounds such as doubts regarding civilian risks posed by such mines and the alleged technological and financial challenges.

Chapter 16. Transfer controls

Ian Anthony and Sibylle Bauer

The high level of support in 2005 for two recent initiatives—UN Security Council Resolution 1540 and the Proliferation Security Initiative (PSI)—suggests a growing awareness of the need to pay the same attention to enforcement of export controls that has been paid to the development of modern and comprehensive legislation.

There is growing sensitivity to the need to include the widest possible participation in these efforts to strengthen export control, and to base future efforts on cooperation to implement agreed international standards. The need to accelerate the adoption of the highest international standards through national laws and regulations continues to stimulate demand for export control outreach and assistance. The export control regimes have all continued their active outreach efforts, and both the EU and Japan have been considering how best to help the USA finance and deliver assistance in the quantities needed and to the locations where there is demand.

Export controls are being applied in new functional areas as part of the wider effort

to adapt arms control to a changing security environment. A new EU regulation on trade in goods that could be used for capital punishment, torture or

other cruel, inhuman or degrading treatment extends export controls beyond the realm of military or strategic products in pursuit of human rights objectives. To help achieve counter-terrorism objectives, many of the member states of the International Atomic Energy Agency (IAEA) are examining

how export controls might reduce the risk of acquisition and use of radiological weapons by non-state actors.

The need for broader participation in the development and implementation of international standards has been accompanied by a growing discussion of the need for discrimination, both negative and positive, between recipient countries. The long-standing support for closer scrutiny of exports to countries widely recognized to represent proliferation challenges may, at some point, tip into support for technology denial.

There is growing sensitivity to the need to include the widest possible participation in efforts to strengthen export control

Annexes

Annex A, by *Nenne Bodell*, summarizes the major **arms control and disarmament agreements** and lists the states parties as of 1 March 2006.

Annex B, by *Nenne Bodell*, is a **chronology** of the major arms control and security-related events of 2005.

About the authors

Dr Christer Ahlström (Sweden) is Counsellor for legal affairs at the Swedish Embassy in The Hague, Netherlands.

Dr Ian Anthony (UK) is SIPRI Research Coordinator and Leader of the SIPRI Non-proliferation and Export Controls Project.

Alyson J. K. Bailes (UK) has been Director of SIPRI since July 2002.

Dr Sibylle Bauer (Germany) is a Researcher with the SIPRI Non-proliferation and Export Controls Project.

Åsa Blomström (Sweden) is Project Secretary for the SIPRI Military Expenditure and Arms Production Programme and the Arms Transfers Project.

Nenne Bodell (Sweden) is Head of the SIPRI Library and Documentation Department and of the SIPRI Arms Control and Disarmament Documentary Survey Project.

Dr Hans Born (Netherlands) is a Senior Fellow in Democratic Governance of the Security Sector at the Geneva Centre for the Democratic Control of Armed Forces (DCAF).

Mark Bromley (UK) is a Research Associate with the SIPRI Arms Transfers Project.

Julian Cooper (UK) is Deputy Director of the Centre for Russian and East European Studies (CREES) and Professor of Russian Economic Studies, University of Birmingham.

Dr Andrew Cottey (UK) is Jean Monnet Chair in European Political Integration in the Department of Government, University College Cork.

Dr Pál Dunay (Hungary) is a Senior Researcher with the SIPRI Euro-Atlantic, Regional and Global Security Project.

J. Paul Dunne (UK) is Professor of Economics at the University of the West of England, Bristol, Chair of the British affiliate of Economists for Peace and Security, and co-editor of the new Economics of Peace and Security Journal.

Vitaly Fedchenko (Russia) is a Researcher with the SIPRI Reinforcing European Union Cooperative Threat Reduction Programmes Project, with responsibility for nuclear security issues and EU–Russian relations.

Damien Fruchart (UK) is a Research Assistant with the SIPRI Military Expenditure and Arms Production Programme.

Richard Guthrie (UK) is the Leader of the SIPRI Chemical and Biological Warfare Project.

Dr Björn Hagelin (Sweden) is the Leader of the SIPRI Arms Transfers Project.

Lotta Harbom (Sweden) is a Research Assistant with the Uppsala Conflict Data Program at the Department of Peace and Conflict Research, Uppsala University.

John Hart (USA) is a Researcher with the SIPRI Chemical and Biological Warfare Project.

Theresa Hitchens (USA) is Director of the Center for Defense Information (CDI) and leader of CDI's Space Security Project.

Caroline Holmqvist (Sweden) is a Research Associate with the SIPRI Armed Conflict and Conflict Management Programme.

Shannon N. Kile (USA) is a Senior Researcher with the SIPRI Non-proliferation and Export Controls Project.

Hans M. Kristensen (Denmark) is the Director of the Nuclear Information Project at the Federation of American Scientists (FAS) in Washington, DC.

Frida Kuhlau (Sweden) is a Research Associate with the SIPRI Chemical and Biological Warfare Project.

Dr Zdzislaw Lachowski (Poland) is a Senior Researcher with the SIPRI Euro-Atlantic, Regional and Global Security Project.

Dr Neil J. Melvin (UK) is the Leader of the SIPRI Armed Conflict and Conflict Management Project.

Wuyi Omitoogun (Nigeria) is a Researcher with the SIPRI Military Expenditure and Arms Production Programme.

Catalina Perdomo (Colombia) is a Research Assistant with the SIPRI Military Expenditure and Arms Production Programme.

Roger Roffey (Sweden) is Research Director at the Swedish Defence Research

Agency (FOI), Division of Nuclear, Biological and Chemical Defence.

Elisabeth Sköns (Sweden) is the Leader of the SIPRI Military Expenditure and Arms Production Programme.

Petter Stålenheim (Sweden) was in 2005–2006 acting Leader of the SIPRI Military Expenditure and Arms Production Programme and is Head of the Military Expenditure Data Sub-Project.

Eamon Surry (Australia) is a Research Associate with the SIPRI Military Expenditure and Arms Production Programme.

Tomas Valasek (Slovakia) is the Director of the Brussels office of the Center for Defense Information (CDI).

Connie Wall (USA) is Head of the SIPRI Editorial and Publications Department.

Professor Peter Wallensteen (Sweden) is Dag Hammarskjöld Chair in Peace and Conflict Research at Uppsala University and directs the Uppsala Conflict Data Program.

Michael Ward (UK) is an independent consultant on economic statistics and development issues. He previously worked for the World Bank.

Siemon T. Wezeman (Netherlands) is a Researcher with the SIPRI Arms Transfers Project.

Sharon Wiharta (Indonesia) is a Research Associate with the SIPRI Armed Conflict and Conflict Management Programme.

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