

**SIPRI**  
**YEARBOOK**  
**2006**

**ARMAMENTS,  
DISARMAMENT AND  
INTERNATIONAL  
SECURITY**



The Stockholm International Peace Research Institute is an independent international institute for research into problems of peace and conflict, especially those of arms control and disarmament. It was established in 1966 to commemorate Sweden's 150 years of unbroken peace and celebrates its 40th anniversary in 2006.

The Institute is financed mainly by a grant proposed by the Swedish Government and subsequently approved by the Swedish Parliament. The staff and the Governing Board are international. The Institute also has an Advisory Committee as an international consultative body.

The objectives of SIPRI's research are

- to promote transparency in security and arms control
- to contribute to conflict prevention and resolution
- to disseminate information to the broader public.

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This booklet illustrates the type of analysis, facts and data to be found in the 888-page

*SIPRI Yearbook 2006  
Armaments, Disarmament and  
International Security*

The SIPRI Yearbook has been published since 1969. It brings together objective data and state-of-the-art analysis, offered by SIPRI's own staff and other experts, on all major aspects of arms control, peace and security. The 2006 edition marks SIPRI's 40th anniversary with several retrospective chapters, alongside up-to-date reporting and original analysis.

More information on the Yearbook is available at  
<http://yearbook2006.sipri.org/>

The Yearbook can be obtained through all the main bookshops, from Oxford University Press or online via the above URL.

This summary is available on the Internet in Dutch, English, French, German, Spanish and Swedish at  
[http://www.sipri.org/contents/publications/pocket/pocket\\_yb.html](http://www.sipri.org/contents/publications/pocket/pocket_yb.html)

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## **Euro-Atlantic security and institutions**

- Pragmatism dominated Euro-Atlantic relations in 2005. Beyond the rift over Iraq, the USA and European EU/NATO members recognize their roles in global affairs as complementary rather than confrontational.

- In some cases, the flow of Euro-Atlantic cooperation has reverted to international institutions such as NATO, the Organization for Security and Co-operation in Europe (OSCE) and the UN. Much less is heard from the USA about the value of ad hoc coalitions.

- The USA has gradually coordinated its policy more closely with Europe. The Bush Administration's proclivity to use force unilaterally is unchanged, but the turmoil in Iraq prevents it from going beyond hinting at further 'pre-emptive' use of force.

- The rivalry between the EU and NATO is entering a new phase as their geographical and functional agendas increasingly overlap. The EU's Constitutional Treaty setback in 2005 did not seriously affect the implementation of its ambitious security agenda, but it raises questions about the EU's aspiration to be a more effective security actor.

- In the post-Soviet area, there is an increasingly clear and sharp divide between countries that have embarked on democratization and those that maintain authoritarian rule. Russia's continuing role in this area makes it hard to resolve any of the region's frozen or pending conflicts without either involving Russia or facing its abstention.

- Developments in the Western Balkans—such as settling the status of Kosovo, the separation of Serbia and Montenegro and the centralization of power in Bosnia and Herzegovina—will not end the potential for conflict in the region caused by the non-coincidence of state and ethnic borders.

## **Major armed conflicts**

- Non-state actors are increasingly prominent in conflicts, and the limited capacity of the international community to hold them accountable for their abuse of civilians continued to pose a grave threat to human security in 2005.

- The irregularity of non-state groups and the fragmentation of violence were recurring themes in 2005. Efforts towards peace in Darfur, Sudan, were beset by factionalism and inter-group hostility between Darfurian rebels.

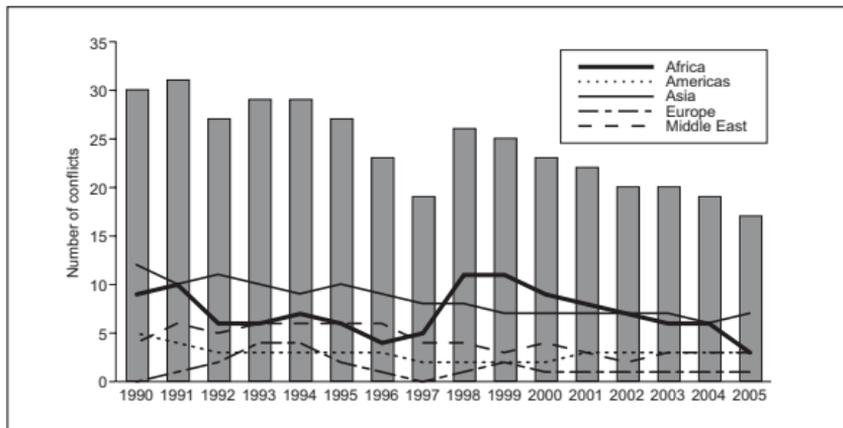
- Opposition from non-state actors can allow governments to deny the existence of 'conflict' as it is normally understood. In this way the Russian Government continued to emphasize criminal and 'terrorist' elements in its hard-line policy towards Chechnya and the surrounding republics in 2005.

- Continued unrest in the Democratic Republic of the Congo challenged conventional assumptions about distinct 'conflict' and 'post-conflict' phases, owing to sustained militia violence and the faltering reintegration of former combatants.

- In Iraq, violence continued unabated during 2005. A transitional government, a new constitution and elections in December 2005 could not halt the deepening of sectarian divides. 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 the year.

- The long-running Israeli–Palestinian and Kashmiri conflicts reflect changing trends in engagement with conflict, influenced in turn by decolonization, superpower dominance and the current preoccupation with international terrorism.

**Regional distribution and total number of major armed conflicts, 1990–2005**



**Locations of the 17 major armed conflicts in 2005**

**Africa**

Burundi  
Sudan  
Uganda

**Europe**

Russia  
(Chechnya)

**Americas**

Colombia\*  
Peru  
USA<sup>†</sup>

**Middle East**

Iraq\*  
Israel  
Turkey

**Asia**

Afghanistan\*  
India (Kashmir)\*  
Myanmar  
Nepal\*  
Philippines<sup>‡</sup>  
Sri Lanka

\* Conflicts in these 5 locations caused 1000 or more battle-related deaths in 2005.

<sup>†</sup> The conflict in the USA refers to that between al-Qaeda and the USA and its coalition partners.

<sup>‡</sup> There were 2 conflicts in the Philippines.

## **Peace-building: the international focus on Africa**

- In 2005 the international community focused unprecedented attention on Africa. By December 2005, 75 per cent of UN resources were devoted to Africa. Despite this, reports from the UN Millennium Project and the British-led Commission for Africa reveal that Africa is currently the region farthest from attaining any of the Millennium Development Goals.

- Côte d'Ivoire, Liberia and Zimbabwe have in recent years illustrated the negative impact of conflict and weak governance on economic development. However, the examples of Angola and Mozambique show how strong the turnaround can be when conflict and governance problems are resolved.

- In September 2005 the World Summit announced the establishment of the UN Peacebuilding Commission, which is designed to assist countries emerging from conflict.

- The *Human Security Report 2005* showed a strong correlation between the sharp decline in armed conflicts and the deployment of peace missions.

- There was some success for the UN missions in Liberia and Sierra Leone in 2005, but problems in Côte d'Ivoire and the Democratic Republic of the Congo demonstrated the harsh realities of peace-building in Africa.

- The international community's biggest failure was in Darfur, Sudan. The under-resourced African Union (AU) proved inadequate in tackling the crisis, and the AU mission was merged into a UN-led mission. Events in Darfur strengthened the argument that the UN should support regional operations and that such operations, when appropriate, should be financed from the UN peacekeeping budget.

## **Multilateral peace missions, 2005**

*By lead-organization type*

UN	21
Regional organizations or alliances	31
Non-standing coalitions	6
<i>Total</i>	<i>58</i>

• The number of missions and their size have grown dramatically: 289 500 military and 175 000 civilian personnel were deployed in a total of 58 multilateral peace missions in 2005 (including 184 000 military staff and civilian police in Iraq).

• Some believe that the size and complexity of the peace-keeping missions are in danger of overstressing the capacity of the UN and other organizations undertaking such missions.

• Regional organizations and UN-sanctioned non-standing coalitions of states conducted 37 of the 58 missions, the highest number since the end of the cold war.

• Peace missions undertaken by coalitions of the willing have declined since 2003, and it is unlikely that sizeable 'peace missions' like the Multinational Force in Iraq will be launched in the near future because of the enormity of the resource and financial burdens placed on the lead nations.

• Six new missions were launched by the EU under the European Security and Defence Policy (ESDP), the highest number of missions initiated in a single year by a regional organization. This represents a new stage in Europe's involvement in peacekeeping and illustrates the EU's deepening commitment to being a global security actor.

## **Islam, conflict and terrorism**

- Since 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.

- Internal transformation and conflict within the Muslim world as a result of globalization is promoting the emergence of new, dynamic and sometimes 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 in conflict suggest that more sophisticated security policies need to be developed to prevent and terminate conflict involving individuals and groups linked to the Muslim world.

## **Regional security cooperation in the early 21st century**

- Regional and sub-regional groups have proliferated since 1945, with many now focusing on security building.

- Existing analytical models—the alliance, the collective security system, the security regime and the security community—are out of touch with today’s real-life groups. A new analysis based on security functionality establishes four areas where a regional security group can be effective:

- (a) security dialogue and conflict management;

- (b) development of systems of military cooperation based on mutual restraint or on shared capacity building for new-style peace missions;

- (c) the promotion of democratic standards in government and human rights as ways of bolstering peaceful and secure conditions, and as ends in themselves; and

- (d) the promotion of security through prosperity and economic interdependence, and by cooperative approaches to risks and challenges such as terrorism and proliferation.

- The USA is wary of frameworks that might restrict its own freedom of action, and can sometimes drive wedges between regional neighbours, but the US line on regionalism as such became more benign in 2005/2006.

- Regional security cooperation has become entrenched across much of the globe. However, regional security groups are still most effective when working within the framework of the UN and other global norms.

## **National governance of nuclear weapons: opportunities and constraints**

- The rather disappointing record of the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (NPT) raises the question of whether the global governance of nuclear weapons can work without first ensuring their democratic governance at the national level.

- Since the end of the cold war and the events of 11 September 2001 the issue of civilian control and oversight of nuclear weapon programmes has become more pertinent. Effective civilian control 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.

- Democratic accountability for nuclear weapons should not be a concern only in transitional or authoritarian states, such as Iran, but also in consolidated democracies.

- Problems exist in all nuclear weapon states. For example, there is ambiguity in the UK about its '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 break-up of the Soviet Union has resulted in the near impossibility of civilian control; and in Pakistan there is uncertainty over the future of the country's nuclear arsenal beyond the leadership of President Pervez Musharraf. The USA provides the best, yet imperfect, model.

- It is vital to explore how all nuclear weapon states balance the usability and security of nuclear weapons against political control and oversight.

## **Transparency in the arms life cycle**

- A review of quantitative data at the multinational level on the arms life cycle reveals that transparency in government does not meet the needs of representative institutions, the media or the public at large. Such openness is a prerequisite for democratic control and the accountability of government actions, both nationally and internationally.

- The value of information depends on availability, reliability, comprehensiveness, comparability and disaggregation. Data rarely meet these requirements.

- The lack of internationally agreed definitions, or adherence to existing definitions, makes international comparisons difficult.

- No systematic, reliable, valid, global (or in most cases even regional) set of quantitative data on the arms life cycle exists. The widespread preference of governments for secrecy in these matters is part of the explanation.

- There remains much uncertainty over global inventories of nuclear weapons, despite some progress towards greater transparency since the late 1960s. Transparency about biological weapons may even have decreased.

- More positive trends have been noted for chemical weapons, military expenditure and arms transfers for a variety of reasons, including new multinational agreements, public demand for information and developments in policy debates.

- The Small Arms Survey highlights the growing political relevance of small arms and light weapons, but a number of factors combine to obscure data.

- Crucially, major additional resources are required to achieve transparency in the entire arms life cycle.

## **Military expenditure data: a 40-year overview**

- Two major shifts have taken place in the use of military expenditure data in the past 40 years. First, in the post-cold war period the focus has moved from the cold war blocs of the North to the developing countries in the South. Second, the UN's approach to military expenditure data has shifted away from disarmament and towards transparency.

- Broader changes in the international peace and security community mean that the idea of disarmament as a direct path to development has lost ground, while the active promotion of security, e.g., through confidence building and conflict prevention, has gained ground.

- Increased awareness of the interdependence of security and development is resulting in new ideas on how to promote both. Less encouragingly, the start of the 21st century was dominated by the application of huge military resources in the name of defending and promoting democracy.

- Data availability and accessibility have improved over time, especially for primary sources in developing countries. However, the quality of the data remains unsatisfactory.

- The relevance of military expenditure data is an ongoing question. The use of such data to assess military strength can lead to misconceptions, as illustrated by the cold war experience. Its relevance is further challenged by the changing concept of security. This new concept focuses increasingly on internal and human security, and thus blurs the dividing line between internal and external defence.

- This does not mean that military expenditure data are of no utility, rather that they should be supported by other data series.

## **Military expenditure**

- World military expenditure in 2005 is estimated to have reached \$1118 billion. 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.

- The USA now accounts 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 US spending is attributable to the military campaigns in Afghanistan and Iraq. Hurricanes Katrina and Rita also played a role.

- The increase in US spending is largely a result of supplementary allocations outside of the regular budget, which means that some funding decisions have moved from the Congress to the President.

- Factors contributing to rising military spending are the high and rising market prices of minerals and fossil fuels. These have allowed countries such as Algeria, Azerbaijan, Russia and Saudi Arabia to free up revenue for military expenditure from oil and gas sales.

- China and India have shown a sustained increase in their military expenditure largely commensurate with their economic growth. Their spending remains only a fraction of the USA's in absolute terms.

## Arms production

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

- The value of the combined arms sales of the 2004 SIPRI Top 100 was \$268 billion. US and West European companies accounted for most of this sum: 63.3 per cent was accounted for by 40 US companies, and 29.4 per cent by 36 West European companies.

- Acquisition activity has continued but has slowed since the late 1990s. Five large acquisitions with a value of close to or greater than \$2 billion each were concluded in 2005.

- In the post-cold war period, three main types of changes in arms production have become apparent: structural, technological and compositional.

(a) Concentration has increased: the share held by 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.

(b) As civil technology has become more important for weapon systems, there has been a qualitative shift in the nature of weapon technology towards IT and electronics.

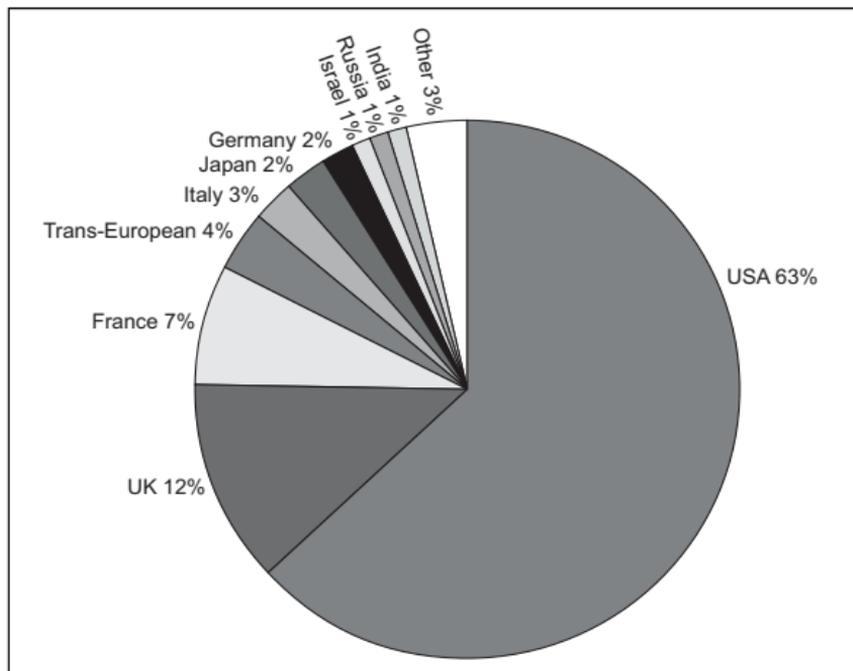
(c) The privatization of defence services is drawing new suppliers into military contracting. This has become apparent in the conflict in Iraq, where companies are taking on support roles that in the past the armed forces would have undertaken.

- Despite internationalization in terms of markets and supply chains, home markets and home government support remain vital to arms-producing companies.

**Arms sales of the 5 largest arms-producing companies in the world (excluding China), 2004**

1 Boeing (USA)	\$27.5 billion
2 Lockheed Martin (USA)	\$26.4 billion
3 Northrop Grumman (USA)	\$26.0 billion
4 BAE Systems (UK)	\$19.8 billion
5 Raytheon (USA)	\$17.2 billion

**National shares of arms sales of the SIPRI Top 100 arms-producing companies in the world (excluding China), 2004**



## **International arms transfers**

- The volume of major arms transfers has increased each year since 2003, according to the SIPRI trend-indicator value and aggregated national arms transfer statistics. Russia and the USA each accounted for roughly 30 per cent of global deliveries of major weapons in 2001–2005. Some 43 per cent of Russia's deliveries went to China and 25 per cent to India.

- Deliveries of major weapons to Iraq suggest that suppliers outside Europe and North America have been unsuccessful in that market and may continue to be so.

- Some West European governments seem to have qualms over the export of weapons to Iraq. As long as European countries are in control of their own arms export policies, the largest military suppliers to Iraq in the future might include Central and East European countries.

- Sharpened international competition in arms transfers is encouraging 'commercial pragmatism' in some countries' implementation of their export policy. Such attitudes may be hardened by the USA's attempts to make other states accept its export control policy. In 2005 China, Israel and suppliers in Europe were affected by US re-export controls or sanctions.

- Some governments' commitment to transparency and the UN Register of Conventional Arms (UNROCA) mechanism seems to be waning. Moreover, EU member states' reporting practices make it difficult to assess their interpretation and application of the EU Code of Conduct on Arms Exports. Transparency will suffer if commercial pragmatism reduces political willingness to report on national arms exports. The ambition to further harmonize the reporting format could inadvertently complicate understanding of the data reported.

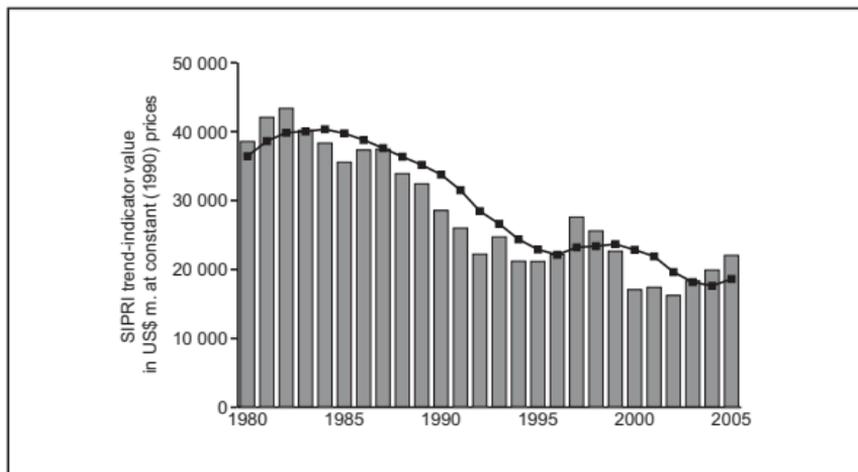
## ***The 5 largest exporters of major conventional weapons in 2001–2005\****

*Shares of world exports*

1	Russia	31%
2	USA	30%
3	France	9%
4	Germany	6%
5	UK	4%

\* Deliveries from EU states to non-EU states made up 27% of world deliveries in 2001–2005, making the EU the third largest exporter.

## ***The trend in international transfers of major conventional weapons, 1980–2005***



The bar chart shows annual totals; the line denotes the 5-year moving average, plotted at the last year of each 5-year period.

## **Developments in the Russian arms industry**

- After 1991 the huge arms industry of the Soviet era contracted markedly and the management and oversight of the Russian military sector underwent frequent, far-reaching change.
- Since President Vladimir Putin came to power in 1999, military output has recovered somewhat and spending on procurement and research and development has increased.
- Russian military production remains largely dependent on exports.
- The Soviet legacy is still much in evidence. 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.

## **The security dimension of European collective efforts in space**

- Europe has long been a major power in outer space. However, the development of European space capability generally arises through a confused mixture of national and multinational entities and efforts. The principal players are France, Germany, Italy, the UK and, at the collective level, the EU and the European Space Agency.

- European states recognize the need to collaborate further on developing a security dimension to their space activities. The impetus for cooperation comes from the trend towards collectivism in foreign and defence policy, and from Europe's desire to build capabilities that are independent of the USA.

- Because of the large costs, the EU is increasingly becoming involved in Europe's new space efforts, e.g., the Global Monitoring for Environment and Security (GMES) programme.

- Europe's collective space ambitions, both civil and military, are plagued by budgetary disputes. Space is currently not high on the EU military capability development agenda, and military leaders continue to balk at paying for expensive, dedicated satellite-based capabilities.

- As the EU becomes the tool of choice for the security and military operations of its members and seeks to profile itself as an international actor, it 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.

## **Nuclear arms control and non-proliferation**

- The effectiveness and viability of the 1968 Treaty on the Non-Proliferation of Nuclear Weapons was called into question in 2005 by the deadlock over key treaty implementation issues, including nuclear disarmament, that arose at the seventh five-yearly review conference of states parties to the treaty, held in New York in May.

- The international controversy over the nature of Iran's nuclear programme intensified during 2005. The International Atomic Energy Agency (IAEA) provided further detail about Iran's failure to declare important nuclear activities as required by its safeguards agreement with the agency. Meanwhile, Iran ended voluntary suspension of its uranium enrichment programme.

- No breakthrough was made in the Six-Party Talks on the future of the nuclear programme in North Korea, which declared for the first time in February 2005 that it possessed nuclear weapons.

- There were several new or enhanced international initiatives aimed at increasing the safety and custodial security of global stocks of nuclear weapon-usable materials and addressing concerns about nuclear terrorism.

- In 2005 the US and Indian governments launched the Civil Nuclear Cooperation Initiative, which would, if approved by the US Congress and the Indian Government, pave the way for US exports of civil nuclear technology to India. The proposed deal has been widely criticized for violating the guidelines of the Nuclear Suppliers Group and for undermining global nuclear non-proliferation efforts.

***World nuclear forces: numbers of deployed warheads as of January 2006***

<i>Country</i>	<i>Year of first nuclear test</i>	<i>Deployed warheads</i>
USA	1945	5 521
Russia	1949	5 682
UK	1952	185
France	1960	348
China	1964	c. 130
India	1974	c. 50
Pakistan	1998	c. 60
Israel	–	100–200
<i>Total</i>		<i>c. 12 100</i>

- More than 27 000 nuclear warheads were held by eight states, including reserves and those in inactive storage. No public information is available to verify North Korea's claim to have developed nuclear weapons.

- Some 440 nuclear bombs were deployed at eight bases in six NATO countries in Europe available for delivery by NATO and US aircraft.

- The five NPT-defined nuclear weapon states, with the exception of the UK, continued major nuclear force modernization programmes in 2006.

- The USA's centralized operational plan of the cold war era has been replaced with a set of smaller, more flexible nuclear targeting plans known collectively as Operations Plan 8044. Among these is Concept Plan 8022, which envisions the rapid use of nuclear and conventional forces, preemptively if necessary, to destroy threats posed by states armed with weapons of mass destruction.

## **Multilateral control of the nuclear fuel cycle**

- Recent events in Iran have highlighted the fact that technologies for the development of nuclear energy for peaceful purposes can also be used for the production of nuclear weapons. As nuclear fission is likely to remain a significant source of electricity for the coming decades, ensuring the security and development of nuclear power will remain important in the medium term.

- In 2005 there was renewed interest in multinational approaches to managing sensitive nuclear fuel cycle facilities as a way of ensuring that civilian nuclear energy programmes cannot be exploited for military purposes.

- Three approaches to prevent nuclear energy technology being used to produce nuclear weapons have been developed by the international community:

- (a) introducing legal and regulatory barriers to the transfer of sensitive technology and materials;

- (b) promoting multilateral arrangements for the joint use, development and ownership of sensitive nuclear fuel cycle facilities; and

- (c) employing proliferation-resistant nuclear technologies.

A combination of these approaches seems most promising because each could reinforce the others' strengths and cancel their weaknesses.

- The IAEA, Russia and the USA are each exploring all three of these approaches simultaneously. However, the optimal combination of measures is not yet clear.

## **Reflections on continuity and change in arms control**

- Multilateral arms control treaties are increasingly being supplemented and supported by other measures, but these generally lack symmetry, reciprocity and universal participation. However, UN Security Council Resolution 1540, on non-proliferation of weapons of mass destruction (WMD), does possess these features.

- Changing views on the desirability and feasibility of verification have complicated the assessment and enforcement of compliance with arms control agreements and will continue to do so.

- Some recent arms control initiatives have focused on items that can have both civilian and military uses. However, denial of access to dual-use technology should only be sought when the technology concerned is very likely to be misapplied.

- The greater prominence of non-state actors in security matters is inspiring new thinking in arms control. A prime concern is the control of, and selective denial of access to, technologies and materials that could be used by non-state groups for acts of mass terrorism.

- More positively, non-state actors, including private businesses, are becoming engaged in shaping and implementing export controls and are more aware of the need to be active partners in security building.

## **Chemical and biological warfare developments and arms control**

- In 2005 the two action plans (on universality and on national implementation) adopted in 2003 by the states parties to the 1993 Chemical Weapons Convention (CWC) were extended, and another eight countries became parties to the convention.

- Some 36 per cent of the USA's chemical weapon stockpile of 31 000 tonnes and around 4 per cent of Russia's stockpile of 40 000 tonnes had been destroyed by the end of 2005. Neither country seems likely to destroy all of its stocks by the treaty-mandated deadlines.

- The US-led Iraq Survey Group in 2005 published several addenda to its 2004 final report, focusing on Iraq's past chemical and biological weapon programme. The UN Monitoring, Verification and Inspection Commission (UNMOVIC) remains excluded from Iraq.

- While the scale of the threat of terrorist use of biological and chemical weapons remains unclear—as illustrated by the failure in the high profile 'ricin conspiracy' case in the UK to produce any evidence of ricin production—effective bio-safety and bio-security measures should be implemented as soon as practicable.

- The World Health Assembly adopted new International Health Regulations in 2005—legally binding provisions on sharing epidemiological information about the spread of infectious diseases. The European Centre for Disease Prevention and Control, in Stockholm, started operations in 2005.

- In 2005, 29 April was established as a day of remembrance for all victims of chemical warfare.

## **Enhancing bio-security: the need for a global strategy**

- To prevent the proliferation of biological weapon programmes and to counter emerging threats from terrorists, so-called threat reduction activities have since 1991 focused mainly on Russia and other former Soviet states. Such activities have centred on, among other things, eliminating relevant equipment and infrastructure and redirecting the efforts of former weapon scientists to peaceful activities.

- The current trend in threat reduction activities is to move away from these traditional approaches and instead focus on wider geographical areas—particularly Africa and parts of Asia—and on addressing broader threats, including those related to public health and bio-terrorism.

- In the past decade the world has confronted new biological challenges because of a combination of emerging and re-emerging diseases, rapid advances in biotechnology and a perceived increased threat of bio-terrorism. Emerging and re-emerging diseases pose a grave threat to humankind, and there is a need for a global strategy to decrease the risk of the use of biological agents as weapons.

- Such a global strategy should include effective measures to improve worldwide bio-security at facilities working with dangerous pathogens. It should also include global standards and guidelines to prevent the proliferation of biological materials, technology and expertise to criminal actors.

- In case of breaches of the security measures and in order to protect public health from naturally occurring as well as accidentally released agents, effective and properly implemented preparedness and response systems are needed.

## **Conventional arms control**

- Controls on conventional armed forces continue to have a substantial stabilizing, security-building role in intra-European relations. In this respect, Europe remains a role model, but it faces challenges in maintaining this status.

- Disagreements between Russia and the West continue to stall adaptation and evolution of the European 'hard' conventional arms control regime.

- Entry into force of the 1999 Agreement on Adaptation of the Treaty on Conventional Armed Forces in Europe (Adapted CFE Treaty) remains stalled until Russia completes military pullouts from Georgia and Moldova. In the spring of 2006 the viability of the CFE Treaty regime appeared uncertain, with Russia positioning itself for a showdown at the May CFE Third Review Conference.

- Little progress has been made in rethinking the OSCE's approach to confidence and security building to match the emergence of combinations of intra-state violence and trans-state or global threats.

- China, Russia and the USA are reportedly moving towards ratifying Protocol V on Explosive Remnants of War of the 1981 Certain Conventional Weapons Convention. In parallel, opposition continues to an agreement on anti-vehicle mines.

## **Transfer controls**

- The need to include the widest possible participation in efforts to strengthen export controls is being increasingly recognized.

- The high level of support in 2005 for UN Security Council Resolution 1540 suggests a growing international awareness of the importance of enforcement of export controls.

- International outreach and assistance are in more demand as countries try to accelerate adoption of the most rigorous international standards. Both the EU and Japan are considering how best to finance and deliver the needed assistance in order to complement US efforts.

- 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 and the like extends export controls beyond military and strategic products.

- To help in achieving counterterrorism objectives, many member states of the IAEA are examining how export controls could reduce the risk of non-state actors acquiring or using radiological weapons.

- There is a possibility that broad support for closer scrutiny of exports to countries widely recognized as proliferation risks may, at some point, come to include support for technology denial.

## **Arms control and disarmament agreements and agreements on humanitarian law of armed conflict in force as of March 2006**

- 1925 Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare (1925 Geneva Protocol)
- 1948 Treaty for Collaboration in Economic, Social and Cultural Matters and for Collective Self-defence among Western European States (Brussels Treaty)
- 1948 Convention on the Prevention and Punishment of the Crime of Genocide (Genocide Convention)
- 1949 Geneva Convention (IV) Relative to the Protection of Civilian Persons in Time of War
- 1954 Protocols to the 1948 Brussels Treaty (Paris Agreements on the Western European Union)
- 1959 Antarctic Treaty
- 1963 Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water (Partial Test-Ban Treaty, PTBT)
- 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (Outer Space Treaty)
- 1967 Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (Treaty of Tlatelolco)

- 1968 Treaty on the Non-proliferation of Nuclear Weapons (Non-proliferation Treaty, NPT)
- 1971 Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil thereof (Seabed Treaty)
- 1972 Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (Biological and Toxin Weapons Convention, BTWC)
- 1974 Treaty on the Limitation of Underground Nuclear Weapon Tests (Threshold Test Ban Treaty, TTBT)
- 1976 Treaty on Underground Nuclear Explosions for Peaceful Purposes (Peaceful Nuclear Explosions Treaty, PNET)
- 1977 Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (Enmod Convention)
- 1977 Protocol I Additional to the 1949 Geneva Conventions, and Relating to the Protection of Victims of International Armed Conflicts
- 1977 Protocol II Additional to the 1949 Geneva Conventions, and Relating to the Protection of Victims of Non-International Armed Conflicts
- 1980 Convention on the Physical Protection of Nuclear Material
- 1981 Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be

Deemed to be Excessively Injurious or to have Indiscriminate Effects (CCW Convention, or 'Inhumane Weapons' Convention)

- 1985 South Pacific Nuclear Free Zone Treaty (Treaty of Rarotonga)
- 1987 Treaty on the Elimination of Intermediate-Range and Shorter-Range Missiles (INF Treaty)
- 1990 Treaty on Conventional Armed Forces in Europe (CFE Treaty)
- 1991 Treaty on the Reduction and Limitation of Strategic Offensive Arms (START I Treaty)
- 1992 Treaty on Open Skies
- 1992 Concluding Act of the Negotiation on Personnel Strength of Conventional Armed Forces in Europe (CFE-1A Agreement)
- 1993 Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Chemical Weapons Convention, CWC)
- 1995 Treaty on the Southeast Asia Nuclear Weapon-Free Zone (Treaty of Bangkok)
- 1996 Agreement on Confidence- and Security-Building Measures in Bosnia and Herzegovina (suspended as of 24 September 2004)
- 1996 Amended Protocol II to the 1981 CCW Convention on Prohibitions or Restrictions on the Use of Mines, Booby-traps and Other Devices

- 1996 Agreement on Sub-Regional Arms Control concerning Yugoslavia (Serbia and Montenegro), Bosnia and Herzegovina, and Croatia (Florence Agreement)
- 1997 Inter-American Convention against the Illicit Manufacturing of and Trafficking in Firearms, Ammunition, Explosives, and Other Related Materials
- 1997 Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction (APM Convention)
- 1999 Inter-American Convention on Transparency in Conventional Weapons Acquisitions
- 1999 Vienna Document 1999 on Confidence- and Security-Building Measures
- 2002 Treaty on Strategic Offensive Reductions (SORT)

### **Treaties not in force as of March 2006**

- 1972 Treaty on the Limitation of Anti-Ballistic Missile Systems (ABM Treaty): no longer in force as of 13 June 2002
- 1993 Treaty on Further Reduction and Limitation of Strategic Offensive Arms (START II Treaty)
- 1996 African Nuclear-Weapon-Free Zone Treaty (Treaty of Pelindaba)
- 1996 Comprehensive Nuclear-Test-Ban Treaty (CTBT)
- 1999 Agreement on Adaptation of the 1990 Treaty on Conventional Armed Forces in Europe

## **Abbreviations**

EU	European Union
CCW	Certain Conventional Weapons (Convention)
GDP	gross domestic product
IAEA	International Atomic Energy Agency
IT	information technology
NATO	North Atlantic Treaty Organization
NPT	Treaty on the Non-Proliferation of Nuclear Weapons
OSCE	Organization for Security and Co-operation in Europe
UN	United Nations



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# SIPRI YEARBOOK 2006

## ARMAMENTS, DISARMAMENT AND INTERNATIONAL SECURITY

This booklet illustrates the type of analysis, facts and data to be found in the 37th edition of the SIPRI Yearbook, which analyses developments in 2005 in

- Security and conflicts
- Military spending and armaments
- Non-proliferation, arms control and disarmament

with extensive annexes on arms control and disarmament agreements and a chronology of security- and arms control-related events.

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