6. Military expenditure

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I. Introduction

World military expenditure in 2001 is estimated at $839 billion (in current dollars), accounting for 2.6 per cent of world gross domestic product (GDP) and a world average of $137 per capita. This estimate, which is based on adopted defence budgets, is likely to be revised upwards when supplementary expenditures resulting from the 11 September 2001 attacks on the United States and the ensuing 'war on terrorism' have been taken fully into account.

A few countries account for the major part of the world total. Five countries account for over half and the 15 major spenders account for over three-quarters of the world total. The high-income countries—the industrial countries and those in the Middle East—have the highest per capita spending. The developing countries—particularly those in Africa and the Middle East—have the heaviest economic burden of military expenditure in terms of its share of GDP.

After the decline from 1987 to 1998, military expenditure began to rise again, both globally and in most regions of the world. Over the three-year period 1998–2001, it increased by around 7 per cent in real terms. The increase of 2 per cent in 2001 is smaller than the increases in 1999 and 2000, but world military expenditure is likely to rise much faster in the coming years, owing primarily to a substantial increase in US military spending.

Apart from the spending increases that were planned in 2001, the attacks of 11 September are also likely to have an impact on future trends in military expenditure, not only in the USA but in several other countries as well.

Section II of this chapter provides an overview of the global trends in military expenditure. Section III describes the impact of the war on terrorism on military expenditure on the basis of information available at the end of 2001. Regional developments in military expenditure are summarized in section IV. Section V presents the main findings of the chapter.

Appendix 6A presents SIPRI data on military expenditure for 158 countries for the 10-year period 1992–2001. Country data are provided in three formats: in their original form, in local currency and current prices (table 6A.2); in constant US dollars, to establish changes in military expenditure in real terms, that is, after adjusting for inflation (table 6A.3); and as a share of GDP, which provides a rough measure of the economic burden of military expenditure (table 6A.4). Appendix 6B presents data on NATO countries' expenditure on personnel and military equipment.

The SIPRI military expenditure data are based on official statistics, in most cases allocations for the ministry of defence or for a broader functional category such as national defence. It is important to note that official statistics on military and military-related expenditure have a range of limitations and that their interpretation requires some caution. The main limitations of official data are described in appendix 6C, which presents the sources and methods for SIPRI's military expenditure data. Appendix 6D describes the responses to requests for data by SIPRI and the United Nations as well as other initiatives to improve transparency in military expenditure. Appendix 6E analyses the long-term trends in US military expenditure and the US defence budget for fiscal year (FY) 2003.

II. World military expenditure: trends and pattern

The level of world military expenditure in 2001, on the basis of adopted defence budgets, is estimated to be $772 billion, at 1998 prices and exchange rates (appendix 6A, table 6A.1). This figure corresponds to roughly $839 billion in current dollars.[1] After an 11-year period of decline, world military expenditure has risen since 1998. The total increase was of the order of 7 per cent in real terms—1.3 per cent in 1999, 4.0 per cent in 2000 and about 2 per cent in 2001. Actual expenditure for 2001 is likely to be considerably higher owing to supplementary expenditure after 11 September, primarily in the United States, to finance the war on terrorism and counter-terrorism measures.

On a regional basis, the increase since 1998 seems to be a general one. Military expenditure has increased in all regions except Oceania, although the increase in Western Europe was very small (table 6.1). The regions with the highest rates of growth in military expenditure over the period 1998–2001 are Africa (31 per cent), Central and Eastern Europe (28 per cent), South Asia (26 per cent) and the Middle East (25 per cent) (table 6.1). The regions that have contributed most to the global increase in terms of volume of expenditure over this period are the Middle East (an increase of $15 billion), Central and Eastern Europe ($13 billion), North America and East Asia ($7 billion each).

Among the country income groups, military expenditure increased most rapidly in the poorest countries, while the high-income countries had the smallest rate of growth between 1998 and 2001 (table 6.1, column 3). In terms of absolute increase (table 6.1, column 6), the high-income group nonetheless represents a significant increase in spending—$9 billion (at constant 1998 prices and exchange rates) between 1998 and 2001. The volume increases in the upper–middle-income and low-income countries were only slightly higher ($11 billion and $14 billion, respectively), although their growth rates were much higher. The group with a high increase in both relative and absolute terms is the lower–middle-income countries. The combined military expendi-

[1] This estimate in current dollars is derived by applying the US inflation rate between 1998 and 2001 (8.7% over 3 years) to the world figure of $772 billion at constant (1998) prices and exchange rates.

ture of this group increased by 29 per cent in real terms and by $20 billion in absolute terms. This is to a great extent explained by the fact that Russia is included in this group; excluding Russia, the military expenditure of this group increased by 18 per cent, or $7 billion.

Further disaggregation of the world total shows that the global increase in military expenditure is due primarily to the volume increases of a few major spenders. Of the total increase of $53 billion (at constant 1998 prices and exchange rates) in total world military expenditure over the period 1998–2001, 10 countries—Russia, China, the USA, Saudi Arabia, Iran, India, Brazil, Italy, Oman and Nigeria—contributed almost $50 billion.

Two of the major spenders have announced large military expenditure increases. The US budget proposal for FY 2003 includes a total increase in outlays for national defence of $54 billion, or 16.6 per cent in real terms, between FY 2001 and FY 2003 (see appendix 6E). China has announced an increase of 17.6 per cent in its 2002 budget for national defence.

The global pattern

The global pattern of military expenditure corresponds by and large to the global economic and political structure. The greater part of military spending takes place in the rich regions. In 2001, the 32 high-income countries accounted for 70 per cent of the world total, while the 51 low-income countries accounted for 8 per cent (table 6.1). The 63 countries in Africa and Latin America together accounted for only 5 per cent of the world total.

The major spenders

World military expenditure is concentrated in a few countries. The 15 major spenders accounted for over three-quarters of the world total and the 5 major spenders for more than half of the total in 2001 (table 6.2). The USA is by far the largest spender, accounting for 36 per cent of world military expenditure. The next four in size are Russia, France, Japan and the UK. Their level of military expenditure is significantly lower, each accounting for 5–6 per cent of the world total, and their combined military expenditure is roughly half that of the USA. The next layer of major spenders consists of Germany, China, Saudi Arabia, Italy and Brazil, each with 2–4 per cent of the world total.

The rank order of military spenders, as with all cross-country economic comparisons, is highly dependent on the method used to convert local currencies into dollars. If Russian military expenditure is converted by use of the market exchange rate instead of the purchasing power parity (PPP) rate,[2] Russia ranks number 12.

Many of the major spenders listed in table 6.2 are regional powers that dominate the regional military expenditure totals presented in appendix 6A, table 6A.1. India accounted for 72 per cent of South Asian military expendi-

[2] See appendix 6C.

Table 6.1. Changes in world and regional military expenditure estimates, 1992–2001

Figures are calculated and expressed in US $b., at constant (1998) prices and exchange rates. Figures in italics are percentages.

	Relative change (%)			Absolute change ($b.)			World share (%)
Country groups[a]/ (no. of countries)	(1) 1992–01	(2) 1992–98	(3) 1998–01	(4) 1992–01	(5) 1992–98	(6) 1998–01	(7) 2001
Africa (44)	*+ 32*	*+ 1*	*+ 31*	+ 3	± 0	+ 3	*2*
North (3)	. .	*+ 33*	. .	. .	+ 1	. .	. .
Sub-Saharan (41)	. .	*– 14*	. .	. .	– 1	. .	. .
Americas (21)	*– 17*	*– 20*	*+ 3*	– 66	– 75	+9	*41*
North (2)	*– 21*	*– 23*	*+ 3*	– 75	– 82	+ 7	*37*
Central (8)	*+ 21*	*+ 17*	*+ 4*	+ 1	± 0	± 0	*–*
South (11)	*+ 46*	*+ 36*	*+ 8*	+ 8	+ 6	+ 2	*3*
Asia and Oceania (30)	*+ 23*	*+ 11*	*+ 10*	+ 24	+ 12	+ 12	*17*
Central Asia (5)	. .	. .	. .	. .	. .	. .	*–*
East Asia (16)	*+ 19*	*+ 11*	*+ 8*	+ 16	+ 9	+ 7	*13*
South Asia (5)	*+ 54*	*+ 22*	*+ 26*	+ 6	+ 2	+ 4	*2*
Oceania (4)	*± 0*	*+ 4*	*– 4*	± 0	± 0	± 0	*1*
Europe (41)	*– 18*	*– 23*	*+ 7*	– 54	– 69	+ 15	*31*
Central & Eastern (21)	*– 37*	*– 50*	*+ 28*	– 35	– 48	+ 13	*8*
Western Europe (20)	*– 10*	*– 11*	*+ 1*	– 20	– 22	+ 2	*23*
Middle East (13)	*[+ 38]*	*[+ 11]*	*+ 25*	[+ 20]	[+ 5]	+ 15	*9*
World total (149)	***– 9***	***– 15***	***+ 7***	**– 75**	**– 128**	**+ 53**	***100***
High income (32)	*– 15*	*– 16*	*+ 2*	– 93	– 102	+ 9	*70*
Upper middle income (23)	*+ 44*	*+ 25*	*+ 15*	+ 25	+ 14	+ 11	*11*
Lower middle income (43)	*– 21*	*– 39*	*+ 29*	– 24	– 44	+ 20	*11*
Low income (51)	*+ 44*	*+ 10*	*+ 31*	+ 18	+ 4	+ 14	*8*

[a] For the country coverage of the regional and income groups, see appendix 6A, table 6A.1. Some countries are excluded because of the lack of consistent time-series data. Africa excludes Angola, Benin, Congo (Republic of), Congo (Democratic Republic of the), Libya and Somalia; Asia excludes Afghanistan; Europe excludes Yugoslavia; and the Middle East excludes Iraq. The world total excludes all these countries.

Source: Calculated on the basis of data in appendix 6A, table 6A.1.

ture, Russia for 71 per cent of Central and East European (CEE), Brazil for 44 per cent of South American, Japan for 39 per cent and China for 24 per cent of East Asian, and Saudi Arabia for 33 per cent of Middle Eastern military expenditure.

Economic burden

World military expenditure of $839 billion (in current dollars) in 2001 corresponds to an average of $137 per capita[3] and 2.6 per cent of world

[3] The estimate of world military expenditure per capita is based on a world population of 6.134 billion in 2001. UN Department of Economic and Social Affairs, Population Division, *World Urbanization Prospects: The 2001 Revision* (United Nations: New York, 2002), table A1: 'Population of urban and

Table 6.2. The 15 major spenders, military expenditure in 2001[a]

Figures are in US $b., at constant (1998) prices and exchange rates. Figures in italics are percentages.

Rank[a]	Country	Size ($b.)	World share (%)
1	USA	281.4	*36*
2	Russia (PPP)[b]	[43.9]	[*6*]
3	France	40.0	*5*
4	Japan	38.5	*5*
5	UK	37.0	*5*
Sub-total top 5		**440.8**	***57***
6	Germany	32.4	*4*
7	China	[27.0]	[*3*]
8	Saudi Arabia	26.6	*3*
9	Italy	24.7	*3*
10	Brazil	14.1	*2*
Sub-total top 10		**565.6**	***72***
11	India	12.9	*2*
12	South Korea	10.2	*1*
13	Israel	9.1	*1*
14	Turkey	8.9	*1*
15	Spain	8.0	*1*
Sub-total top 15		**614.7**	***78***
World total		**772**	***100***

[a] The rank order of countries differs with the base year and the method of conversion to dollars. The base year should ideally be the same as the year of comparison, while this table is based on military expenditure figures in constant (1998) prices and exchange rates because of the lack of PPP data for Russia for 2001.

[b] Conversion to dollars is made by use of the market exchange rate for most countries. The main exception in this table is Russian military expenditure, which is converted by use of the PPP conversion factor (see appendix 6C). If the market exchange rate is used for Russia, its military expenditure in 2001 amounts to $12.7 billion at constant (1998) prices and exchange rates.

Sources: Appendix 6A (tables 6A.1 and 6A.3) and the SIPRI database on military expenditure.

GDP.[4] This is a substantial level of resource consumption for military purposes and thus an economic burden on the global economy. However, the burden varies significantly between regions.

While the major part of military expenditure is spent by the Western industrial countries, the heaviest economic burden—the defence burden—is in developing countries with a high level of poverty. Around 1.2 billion people—one-sixth of the world population and one-fourth of the population of the

rural areas at mid-year and percentage urban, 2001', 20 Mar. 2002, URL <http://www.un.org/esa/population/publications/wup2001/wup2001dh.pdf>.

[4] This share is based on an estimate for world GDP in 2001 of $32 150 billion, calculated by applying the 2.6% annual growth rate during the 1990s to the GDP figure for 2000 of $31 337 billion. World Bank, *World Development Report 2002: Building Institutions for Markets* (Oxford University Press: New York, 2002), table 3, p. 237.

Table 6.3. Global pattern of military expenditure, population and gross national income, 2000

Figures are percentages. They may not add up to totals due to the conventions of rounding.

Country groups[a]	Shares of world total		
	Mil. expenditure[b]	Population	Gross national income[c]
World total	**100**	**100**	**100**
High income	75	15	80
Upper middle income	10	11	10
Lower middle income	8	34	7
Low income	7	41	3
Low- and middle-income countries			
Africa, Sub-Saharan	1	11	1
America, Latin	4	9	6
Asia, East	6	31	6
Asia, South	2	22	2
CEE[d] and Central Asia	4	8	3
Middle East and North Africa	7	5	2
Total low and middle income	**25**	**85**	**20**

[a] The income and regional groups in this table differ from those of the SIPRI tables on military expenditure in appendix 6A. In order to enable a comparison between SIPRI and World Bank data, this table is based on the World Bank country classification. For the coverage of country groups for SIPRI tables, see appendix 6A. The main difference in this table is that the geographical regions exclude high-income countries: East Asia excludes Brunei, Japan, Singapore and Taiwan; and the Middle East excludes Israel, Kuwait and the United Arab Emirates.

[b] The shares are calculated on military expenditure figures at constant (1998) prices and exchange rates.

[c] The shares are calculated on GNI figures at current prices and exchange rates. Gross national income (GNI)—a measure of the income side of the national economy—is replacing gross national product (GNP)—a measure of the output of the national economy—as the standard measure in national accounts. They are different ways of measuring national economic activity.

[d] CEE = Central and Eastern Europe.

Sources: Military expenditure: appendix 6A; Population and GDP: World Bank, 'Key indicators of development', *World Development Report 2002: Building Institutions for Markets* (Oxford University Press: New York, 2002), table 1, pp. 232–33.

developing world—subsist on less than $1 per day.[5] Under these circumstances, even a world average defence burden of 2.6 per cent constitutes a serious diversion of resources from the fulfilment of basic needs. The burden is even higher in many of these countries.

[5] United Nations Development Programme, *Human Development Report 2001: Making New Technologies Work for Human Development* (Oxford University Press: New York, 2001), p. 9.

Table 6.3 shows the global distribution of military expenditure, population and gross national income (GNI).[6] The global pattern of military expenditure is fairly similar to the distribution of national income but very different from the global pattern of population. High-income countries account for only 15 per cent of the world population but for as much as 75 per cent of world military expenditure, which means that average per capita military expenditure in these countries is much higher than the world average. The countries with the highest per capita spending are located in the Middle East, followed closely by high-income countries in North America and Western Europe. In some of these countries, per capita military expenditure is between $400 and $1500. Among the low- and middle-income countries (a group which corresponds roughly to the 'developing countries'), the African and Asian countries account for a much larger share of world population than of world military spending. This means that per capita military expenditure is very low in these regions, although many countries of the regions have a high defence burden because of their relatively lower national incomes.

On a regional basis, the share of national income devoted to military expenditure is relatively even. However, this does not apply to the low-income countries, which account for a larger share of military expenditure (7 per cent) than of world income (3 per cent). This indicates that military expenditure imposes a much greater burden on the economies of low-income countries than those of countries in the other groups. The burden is more than twice as high as the world average, even on the basis of official data. In reality, the burden is even higher because official data often understate the actual military expenditure levels of these countries. Furthermore, the fact that these countries are poor means that the surplus available for resource allocation is very small after basic needs are provided for. Thus, in low-income countries, military expenditure imposes a severe burden on the economy.

Among the low- and middle-income regions, those with the highest defence burden are the Middle East and North Africa, as shown by their much higher share of global military expenditure than their share of world GNI. In contrast, Latin America has a lower defence burden than the world average.

Countries with the highest defence burden

Among the countries with the highest defence burden—where military expenditure is higher than 4 per cent of GDP—seven are low-income countries that are or have recently been involved in armed conflict: Burundi, Eritrea, Ethiopia and Rwanda in Africa; and Bosnia and Herzegovina, Croatia and Yugoslavia in Europe (table 6.4). In reality, the number of countries in this group is probably much higher because official expenditure data are severely under-reported in most of the countries involved in armed conflict.

In poor countries, a high defence burden can be expected to seriously impinge on public expenditure for education and health. The official data pre-

[6] The World Bank used GNI instead of GNP for the first time in the 'Selected world development indicators', *World Development Report 2002* (note 4), p. 231.

Table 6.4. Countries with the highest defence burden in 1999[a]: social and military expenditure as a share of gross domestic product, 1995–2000

Figures are percentages.

Country[b]	Public expenditure on		Military expenditure					
	Education 1995–97	Health 1998	1995	1996	1997	1998	1999	2000
Eritrea	1.8	. .	19.9	22.8	13.5	29.0	22.9	. .
Saudi Arabia	7.5	. .	10.3	9.5	12.0	16.2	12.3	11.6
Oman	4.5	2.9	14.6	12.5	11.5	[11.4]	[10.4]	[9.7]
Ethiopia	4.0	1.7	2.0	1.9	3.2	5.1	9.4	. .
Jordan	7.9	5.3	[9.4]	8.6	8.8	8.9	9.2	9.5
Kuwait	5.0	. .	13.9	10.4	8.2	9.0	8.1	8.2
Israel	7.6	6.0	8.3	8.6	8.4	8.4	8.0	8.0
Burundi	4.0	1.6	4.2	5.8	6.0	6.5	6.2	5.4
Syria	4.2	0.8	7.1	5.9	5.7	5.8	[5.6]	[5.5]
Yemen	7.0	. .	7.3	6.4	6.5	6.7	5.6	[5.2]
Singapore	3.0	1.2	4.4	4.5	4.7	5.4	5.4	4.8
Turkey	2.2	. .	3.9	4.1	4.1	4.3	5.0	4.9
Bahrain	4.4	2.6	4.7	4.7	4.6	4.8	4.9	4.0
Greece	3.1	4.7	4.3	4.5	4.6	4.8	4.8	4.9
Bosnia and Herzegovina	. .	. .	[14.3]	[3.8]	5.3	4.7	4.6	4.2
Pakistan	2.7	0.9	5.3	5.1	4.9	4.8	4.6	4.5
Rwanda	. .	2.0	4.4	5.3	4.1	4.4	4.6	[3.0]
Yugoslavia	. .	. .	. .	. .	[4.8]	4.4	4.4	5.9
Croatia	5.3	. .	9.4	7.2	5.7	5.5	4.1	3.0
Morocco	5.3	1.2	4.6	4.0	3.9	3.7	4.1	4.2

[a] Countries with a known military expenditure share of GDP of 4% or more in 1999.

[b] Countries are ranked by their share of military expenditure in GDP in 1999.

Sources: Military expenditure as a share of GDP: appendix 6A, table 6A.4; Public expenditure on education and health: United Nations Development Programme (UNDP), *Human Development Report 2001: Making New Technologies Work for Human Development* (Oxford University Press: Oxford, 2001), appendix table 16, 'Priorities in public spending', pp. 195–97.

sented in table 6.4 verify this to some extent. However some poor countries with a high defence burden do not fit this pattern. Burundi, Ethiopia and Yemen are all low-income countries with a high defence burden that are still able to spend a relatively high share of their GDP on public education. Jordan, Morocco and Syria are lower–middle-income countries that also have relatively high budgetary allocations for education. This could be due to their high prioritization of public-sector spending in general, but it could also be the result of other factors, such as high volumes of foreign economic assistance.

Many of the countries with a high defence burden are, however, among the more wealthy Middle Eastern countries, classified by the World Bank as high-income and upper–middle-income economies—Bahrain, Israel, Kuwait, Oman

and Saudi Arabia. These countries are less seriously affected by their high defence burden and can therefore afford rather high allocations for social expenditure.

III. The war on terrorism

The war on terrorism launched by the USA after the terrorist attacks of 11 September 2001 is likely to have a significant impact on international relations and security for at least a decade. The extent to which and the way in which the war will also have an impact on military expenditure were not clear by the end of 2001. Before 11 September, there were few examples of military operations against terrorism. Anti-terrorist operations were largely regarded as an internal security matter, conducted by governments within their own territories. With few exceptions, international terrorism was combated through reliance on international law enforcement and international cooperation between national intelligence agencies. The US-led war in Afghanistan, initiated on 7 October 2001, opened a new era for combating terrorism because of its heavy reliance on military force. This will have an impact not only on budgets for internal security, including police forces, intelligence, customs and other non-military counter-terrorist measures, but also on allocations for military forces and military intelligence.

The actual and potential costs of the war on terrorism can be divided into two main components: the costs of the war in Afghanistan, including those for the conduct of the war and the reconstruction of Afghanistan; and the longer-term costs of future military and internal security measures associated with the threat of terrorism.

The costs of the war in Afghanistan

Expenditures to cover the costs of the war in Afghanistan are significant. The costs include not only those for the war itself but also for buying support from neighbouring countries and for reconstruction after the war. Seen from an economic perspective, there are losers and, ironically, also winners of wars. While the USA and Afghanistan can be seen as the major losers in economic terms, some of the countries bordering on Afghanistan have made economic gains, in particular Pakistan. The losses for the USA include: (*a*) lives and property, from the terrorist attacks of 11 September; (*b*) the economic consequences of the attacks; and (*c*) the direct and the indirect costs of the war in Afghanistan. The size of these costs is indicated both by figures on funding (approved appropriations) and by calculated cost estimates. Immediately after the 11 September attacks, the US Congress authorized an emergency appropriation of $40 billion for anti-terrorism activities, about half of which was for the Department of Defense (DOD) and the rest for other departments involved in these activities (see appendix 6E). The actual amount appropriated by the

DOD based on these authorizations was $17.2 billion.[7] In March 2002 the Administration of President George W. Bush requested an additional $14 billion in emergency appropriations for FY 2002 (1 October 2001–30 September 2002) to continue the 'global war on terrorism'.[8] Thus, the total additional allocations for the war on terrorism for the period from 11 September 2001 to 30 September 2002 was $31 billion for the DOD and about $20 billion for non-DOD activities. These allocations have been made as emergency appropriations outside the ordinary budget, but they are likely to have an impact on other spending categories in future budgets. A trade-off between military and social expenditures can be expected.

The US Congressional Budget Office (CBO) has estimated the cost of the war in Afghanistan as $10.2 billion for FY 2002.[9] This estimate is limited to the incremental direct costs to the DOD of conducting military operations in and around Afghanistan. It does not include the costs of humanitarian and economic assistance to Afghanistan and neighbouring states, the costs of homeland defence, the costs of support to federal, state and local agencies in the USA or counter-terrorism operations in other parts of the world.

Other NATO countries with a smaller involvement in the war in Afghanistan have also incurred significant expenditures. The cost to the UK for the British forces involved in the war will be covered by an extra allocation of £100 million ($150 million) to the ministry of defence from treasury contingency funds.

Australia's additional military expenditure for domestic anti-terrorist measures, primarily for border protection, in or near Afghanistan was estimated at A$362 million (US$186 million) in early 2002. To cover these additional costs, the Australian Government decided to generate savings by cancelling or curtailing a number of training and maintenance programmes.[10] Japan, which has a constitutional barrier to the external use of military force, has contributed financial and other support to the US troops in Afghanistan. In October 2001 the Japanese Parliament (Diet) passed a new anti-terrorism bill that would allow the Japanese Self Defense Forces to perform a range of military support functions for the USA in the war in Afghanistan, including the delivery of fuel and supplies, repair work, communications and surveillance.[11]

Afghanistan has suffered major physical destruction in the war. At a donor conference held in Tokyo in January 2002, about $4 billion in aid was pledged for reconstruction of the country over the next five years. In addition to about

[7] US Department of Defense, *DOD FY2002 Supplemental to Continue the Global War on Terrorism* (DOD: Washington, DC, Mar. 2002), URL <http://www.dtic.mil/comptroller/fy2003budget/fy2002_supp.pdf>.

[8] US Department of Defense (note 7). For the general background see 'DoD seeks extra $10–20B: request comes on top of $379B defense budget proposal for 2003', *Defense News*, 4–10 Feb. 2002, pp. 1, 4.

[9] 'CBO estimates war costs', *Forecast International/DMS,* 10 Apr. 2002, URL <http://www.forecast1.com>.

[10] 'War on terror forces budget cuts', *Defense News*, 4–10 Mar. 2002.

[11] 'The Japanese military: new rules of defence', *Far Eastern Economic Review*, 1 Nov. 2001, pp. 20–21; and 'Chinese advice has Japan up in arms', Stratfor.com, 17 Dec. 2001, URL <http://www.stratfor.com/premium/analysis_print.php?ID=201315>.

$1.3 billion pledged by Western donors, several countries in the region pledged major amounts, including Iran ($560 million), Saudi Arabia ($220 million), and India and Pakistan ($100 million each).[12] The total cost of the reconstruction of Afghanistan, however, is likely to be much higher than these pledged contributions.[13]

The costs for maintaining stability in Afghanistan cannot be estimated. According to the 2001 Bonn Agreement,[14] an International Security Assistance Force (ISAF) was established to help the Afghan Interim Authority to establish and train new Afghan security and armed forces. By March 2002, 18 countries were contributing personnel, equipment and other resources to this force.[15]

The Pakistani economy has improved as a result of the war, after having deteriorated for 10 years, aggravated by the sanctions imposed after the 1998 nuclear tests and a heavy debt burden (debt servicing accounted for more than half of public expenditure). As a result, the number of people living in absolute poverty doubled during the decade.[16] By February 2002 the economic situation in Pakistan was much brighter: exports of textiles, garments and leather had risen, and both manufacturing growth and aid inflows had increased.[17] A number of political decisions related to the war in Afghanistan contributed to this growth. The USA lifted its economic sanctions on Pakistan on 22 September and its ban on military aid on 4 October.[18] It also made trade concessions for textile imports from Pakistan. The Pakistani economy benefited from a total of about $1 billion in economic aid, primarily from the USA but also from Japan and the European Union (EU). There was a new loan from the International Monetary Fund (IMF), a loan extension from China, and other debt rescheduling and write-offs from *inter alia* the Paris Club of government creditors, the USA and Canada.[19]

Other countries in the area, notably Georgia and Uzbekistan, have also received increased or new economic or military assistance in return for their contributions to the war. Some of them, including Indonesia and the Philip-

[12] 'Donor nations vow billions for Kabul', *International Herald Tribune*, 22 Jan. 2002, p. 1.

[13] Recovery efforts will cost $10–15 billion over the next decade. URL <http://www.cfrterrorism.org/policy/refugees.html>.

[14] The Agreement on Provisional Arrangements in Afghanistan Pending the Re-establishment of Permanent Government Institutions, Bonn, 5 Dec. 2001, URL <http://www.uno.de/frieden/afghanistan/talks/agreement.htm>. See also 'Stability in view', *Jane's Defence Weekly,* 19 Dec. 2001.

[15] UN Security Council Resolution 1386, 20 Dec. 2001, URL <http://www.un.org/Docs/scres/2001/res1386e.pdf>. On 10 Jan. 2002, 14 European countries, New Zealand and Turkey signed a joint Memorandum of Understanding (MOU), formalizing their contributions to the force. Subsequently, Belgium and the Czech Republic signed the MOU, and Bulgaria is contributing personnel. British Ministry of Defence, 'International Security Assistance Force (Operation Fingal)', URL <http://www.operations.mod.uk/fingal/index.hytm>. See also the introduction in this volume.

[16] 'War good for economy—even in Pakistan', Stratfor.com, 12 Oct. 2001, URL <http://www.stratfor.com/standard/analysis_print.php?ID=200953>.

[17] 'Shaukat expects growth rate at 3.5 pc', *The News* (Islamabad), (Internet edn, in English), 19 Feb. 2002, in 'Pakistani Finance Minister foresees better economic growth in 2002–2003', Foreign Broadcast Information Service, *Daily Report–Near East and South Asia (FBIS-NES),* FBIS-NES-2002-0219, 20 Feb. 2002.

[18] 'Pakistan emphasizes financial over military ties', *Defense News*, 8–14 Oct. 2001, p. 8.

[19] *The News* (note 17).

pines,[20] have also received or been promised military assistance to fight terrorism on their own territories.

The impact on future budgets

After the 11 September attacks, most Western countries initiated some form of review of their long-term requirements to counter the threat of terrorism. Measures to build preparedness against threats in the areas of both military defence and internal security, cooperation between these two sectors and international cooperation were considered. However, other than the United States, only a small number of countries announced such measures in 2001. Nevertheless, it is very likely that measures will be implemented in more countries and will have a gradual impact on future military expenditure.

In the United States, the attacks had a strong impact on future military expenditure. The defence budget for FY 2003 was proposed to increase by $48 billion, or 14 per cent (appendix 6E). The bulk of the increase in US military expenditure is not devoted to new activities directly related to the threat of terrorism but to general improvements for military personnel and in weapon programmes developed for the cold war security environment. However, this sharp increase in US military expenditure would not have been politically feasible if the attacks had not occurred. It can therefore be argued that the main determinant of the change in trend in US military expenditure is the change in US public opinion in favour of a stronger defence.

The part of the US budget specifically dedicated to counter-terrorism is the Defense Emergency Reserve Fund (DERF), for which $20.1 billion was requested for FY 2003. This includes $9.4 billion to cover known costs for the war on terrorism and $10 billion as a contingency reserve fund for future wars on terrorism in other countries. The $9.4 billion allocation was for force protection ($2.7 billion), air patrols over the continental USA ($1.2 billion), and procurement of precision-guided and other munitions ($812 million), tanker and transport aircraft (*c.* $800 million) and unmanned aerial vehicles (UAVs) ($189 million), while $2.6 billion was for classified programmes.[21]

In addition to the defence budget, the FY 2003 budget request included a large allocation ($37.7 billion) under the heading 'homeland security', of which only 22 per cent was for the DOD and the rest divided between a number of government agencies within the departments of justice and transportation. A large part of this allocation was devoted to counter-terrorism activities (appendix 6E).

The war will also have an impact on the US research and development (R&D) budget, with a shift in priorities from civil to military R&D. While under the previous administration the goal was to reduce military R&D to less

[20] 'Aid for Jakarta's war on terrorism', *Financial Times*, 29 Jan. 2002, p. 3; and 'Philippines to see boost in US military financing', *Defense News*, 5–11 Nov. 2001, p. 16.

[21] 'Pentagon details extra money for war on terror', *Defense News*, 25 Feb.–3 Mar. 2002, p. 4.

than half of the total R&D budget,[22] in the budget for FY 2003 there is a disproportionate increase in military R&D. Of the total R&D increase of 8 per cent, military R&D is proposed to increase by 11 per cent, to $54.5 billion, while civilian R&D will increase by only 6 per cent, to $57.2 billion.[23] The greatest increases, and those most closely related to the threat of terrorism, were the 700 per cent increase for R&D on measures to combat bio-terrorism ($2.4 billion), 19 per cent for space technology ($3.4 billion) and 17 per cent for nanotechnology ($679 million),[24] while reductions were proposed for some environment and energy research programmes.

Two other countries decided in 2001 to reorient their future budgets in response to the threat of terrorism. Canada announced on 10 December that its budget for 2002 would include a major allocation for counter-terrorism activities, although most of the increase was for internal security. Of the total increase of C$7.7 billion ($4.8 billion) in security expenditure, C$6.5 billion was allocated to homeland defence against terrorist activities—border guards, police, customs, airport security and security intelligence services—while C$1.2 billion was to cover costs for the deployment of two ships in the Indian Ocean and the Persian Gulf as part of the war effort.[25] The German Government decided in September 2001 to raise taxes in order to generate an annual surplus of DM 3 billion ($1.4 billion) to spend on institutions dealing with domestic and foreign security. Of the total, the Bundeswehr will receive DM 1.5 billion, the ministry of interior affairs DM 500 million for increasing the readiness of border patrols, the ministry for foreign affairs DM 200 million for increased security at German embassies, and the ministry of development DM 200 million to support crisis management overseas. About DM 500 million will be kept in reserve.[26] The exact content of the DM 1.5 billion allocation to the Bundeswehr was not announced, but it reportedly includes DM 1.2 billion for the procurement of new equipment required for closing capability gaps in critical areas, such as mobility, protection, and reconnaissance and surveillance.[27] The German defence expenditure plan for the period 2003–2006 was also revised upwards by DM 1.5 billion, to DM 47.7 billion.[28]

[22] Sköns, E. *et al.,* 'Military expenditure and arms production', *SIPRI Yearbook 2001: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2001), p. 231.

[23] 'War effort shapes US budget, with some program casualties', *Science*, 8 Feb. 2002, pp. 952–54.

[24] R&D in nanotechnology—nano-scale science, engineering and technology—deals with the manipulation of matter at the molecular level. Priority funding includes innovative nanotechnology solutions to biological–chemical–radiological–explosive detection and protection. Roco, M. C., 'National nanotechnology investment in the fy 2003 budget request', *AAAS Report XXVII: Research & Development FY 2003*, American Association for the Advancement of Science, 25 Mar. 2002, URL <http://www.aaas.org/spp/dspp/rd/03pch24.htm>.

[25] 'Security needs shape Ottawa's plans', *Financial Times,* 12 Dec. 2001, p. 4; 'Canada boosts budget for counterterrorism', *Defense News*, 17–23 Dec. 2002, p. 20; and 'Canadian defence budget gets short shrift', *Jane's Defence Weekly*, 19 Dec. 2001, p. 5.

[26] 'In Germany, more money for counterterrorism' *Defense News*, 15–21 Oct. 2001, p. 76.

[27] 'Terrorism, threats drive spending for Bundeswehr', *Defense News*, 3–9 Dec. 2001, pp. 32, 36.

[28] 'Interview: Rudolf Scharping, Minister of Defence', Germany, *Defense News,* 17–23 Dec. 2001, p. 54.

In its defence budget for FY 2003/2004 the United Kingdom made smaller extra allocations of £20 million ($28 million) for anti-terrorism measures, in addition to a supplement of £30 million ($42 million) for policing.[29] Longer-term planning is under way for new roles for the British armed forces in the light of 11 September. Work was initiated in 2001 on a new chapter to supplement the 1998 Strategic Defence Review, the blueprint for current British military strategy. It is expected to result in substantial additional future funding for anti-terrorism activities.[30]

Other countries may have made similar budget allocations for counter-terrorism but not in the form of separate allocations. Allocations may reflect different perceptions of the threat of terrorism—whether it requires primarily a military or a non-military response. France has taken a negative stand on the use of military means for combating terrorism, as illustrated by the statement of Defence Minister Alain Richard. He argued that the tools to fight terrorism were in the hands of the courts and the police rather than the military.[31] However, France has urged the defence ministers of the European Union to increase spending on the European Security and Defence Policy, with reference to the war on terrorism. While this proposal was rejected at an informal meeting of the EU defence ministers on 12 October 2001, the ministers declared their intention to review preparations for defence against terrorist threats to EU forces deployed in the future.[32]

The 18 December meeting of NATO defence ministers reiterated the alliance's resolve for zero tolerance of terrorism.[33] The NATO defence plan review manifested a consensus to increase the proportion of forces that can be deployed and sustained in operations beyond alliance territory. According to NATO Secretary General Lord Robertson, additional resources were required: 'The simple message from NATO defence ministers is this—you can't get defence on the cheap'.[34] In early 2002 he again criticized the low level of European spending in comparison with that of the USA: 'Too many governments spend too little on defence. And too many governments waste what they spend on capabilities that contribute nothing to their own security, the security of Europe or our wider collective interests. Smart investment is the only way to share the transatlantic burden'. He called for better homeland defence, better intelligence, more deployable civil police and more effective monitoring of money laundering.[35] The NATO stance on combating terrorism is likely to have a great impact on the defence debate in the NATO countries during 2002.

[29] 'Chancellor: pre-budget statement', *Defense News Analysis*, 3 Dec. 2001.

[30] British Ministry of Defence, '11 September—a new chapter for the Strategic Defence Review', 14 Feb. 2002, URL <http://moddev.dera.gov.uk/news/press/news_press_notice.asp?newsitem_id=1247>.

[31] 'Across Europe, defense spending falls', *Defense News*, 17–23 Dec. 2001, p. 44.

[32] 'EU rejects proposal for more spending on security, defence', *Jane's Defence Weekly*, 24 Oct. 2001, p. 3.

[33] NATO, 'Statement on combating terrorism: adapting the alliance's defence capabilities', Press release (2001) 173, 18 Dec. 2001, URL <http://www.nato.int/docu/pr/2001/p01-173e.htm>.

[34] 'NATO/bi-annual meeting: response to terrorism', *Atlantic News*, 20 Dec. 2001, p. 1.

[35] 'The transatlantic link', Speech by the NATO Secretary General at the Annual Conference of Defence and Society, Sälen, Sweden, 21 Jan. 2002, URL <http://www.nato.int/docu/speech/2002/s020121a.htm>.

IV. Regional trends in military expenditure[36]

Africa

Military expenditure in Africa has been rising steadily since 1996, after a period of fluctuation. The rise can be attributed almost entirely to domestic factors—internal armed conflicts, threats of new conflicts and continuing modernization programmes. However, some countries deviate from this pattern. In Ghana, the 40 per cent rise in military expenditure in 2000 was due primarily to salary increases for the members of the armed forces, which follows the trend of a general increase in public sector wages. In 2001, however, Ghana's defence allocation dropped by 37 per cent, in real terms, owing to a cut in the investment and administration budget of the military.[37]

Conflicts still account for the high and rapidly rising military expenditure in Burundi, the Democratic Republic of the Congo (DRC), Sierra Leone, Sudan and other states that are directly or indirectly involved in the conflicts, including Guinea, Rwanda and Uganda.

The economic and human burden of military activities in Africa is very high. The greatest burden is due to the armed conflicts in the region but is not fully reflected in official figures on military expenditure. Official figures tend to underestimate the level of military activities in the region for several reasons.

First, they reflect only those activities that are conducted and financed by states. They do not include the military activities of non-state actors, foreign military assistance from other states or foreign military presence in the form of peacekeeping forces. Thus, for example, the moderate rise in Sierra Leone, seen against the intensity of the war and rebel activities there, is due to the massive external assistance to its security sector from the UK and to the presence of UN peacekeepers.

Second, in several African states there is both non-deliberate and deliberate under-reporting of real spending on military activities. With the exception of flagrant cases, it is difficult to investigate or even estimate real spending in these countries, but a UN panel found that the official figures of Rwanda and Uganda have greatly under-reported their actual military expenditure.[38]

Third, many African countries have significant extra-budgetary revenues and expenditures.

Countries providing development assistance to African states involved in conflict try to impose ceilings on their military expenditure levels. Some recipient countries try to avoid the imposition of ceilings. Thus, in a letter to the British Government in 2001, Ugandan President Yoweri Museveni asked for

[36] For the countries included in the data for each region, see the notes to table 6A.1 in appendix 6A. For the armed conflicts mentioned in this section, see chapter 1 and appendix 1A in this volume.

[37] Republic of Ghana, 'Consideration of annual estimates', in *Parliamentary Debates: Official Report* (Accra), Fourth Series, vol. 28, no. 41 (28 Mar. 2001), pp. 2949–52.

[38] United Nations, Report of the Panel of Experts on the Illegal Exploitation of Natural Resources and Other Forms of Wealth in the Democratic Republic of the Congo, Press conference, United Nations, 16 Apr. 2001, URL <http://www.un.org/News/briefings/docs/2001/DRCPressCfc.doc.htm>.

its support to convince other donor countries to allow Uganda to raise its military expenditure above the officially agreed level of less than 2 per cent of GDP.[39]

A few countries—for example, Namibia and Zimbabwe—have reduced their defence budgets for 2001. This probably reflects their intention to end or reduce their military presence in the DRC. However, supplementary allocations, primarily to cover the costs of withdrawing their forces, especially in the case of Namibia, may result in a continued increase in these countries.[40]

In other countries—Botswana, Nigeria, Senegal and South Africa—high and rising military expenditure reflects large arms procurement programmes for the modernization of their armed forces. In Botswana, the arms procurement programme has resulted in a rising trend in military expenditure over the past decade and a 14.6 per cent increase in FY 2000/2001. The Nigerian Government continues to modernize its armed forces through training, arms purchases and refurbishment of plants for the production of small arms. The armed forces have also requested additional resources to finance the deployment of military forces for the prevention of internal violence, which has become increasingly rampant in 2000–2001. In this respect, the 42 per cent increase in the FY 2001 defence budget over the previous year reflects some of the challenges faced by the military. The explosion in 2001 in an ammunition dump in Lagos became a catalyst for increased military expenditure in Nigeria to finance the reconstruction of a large number of similar military facilities and general repair of military installations throughout the country. The Senate Committee on Defence has indicated its willingness to provide funding for this purpose in addition to other funds for the general repair of military installations. Senegal, under the government of President Abdoulaye Wade, is restructuring and increasing the salaries of its armed forces, reflected in its 14 per cent increase in military spending for 2001. The 15 per cent increase in South Africa's defence budget for FY 2001/2002 reflects its large arms procurement programme, which is expected to continue for the next 10–15 years.

In North Africa, there was a strong increase in military spending by Algeria and Morocco.[41] The major reasons for this rise are the civil war in Algeria and, in the case of Morocco, the Western Sahara crisis. The programme for modernization of the Algerian armed forces is also a factor in the rise of Algerian military expenditure over the decade.

The Middle East

Military expenditure in the Middle East has been rising since 1996, after reaching a low point in 1995.[42] The gradual but steady rise was maintained

[39] 'UK moves to prevent Uganda, Rwanda clash', *East African*, 22 Oct. 2001, URL <http://www.nationaudio.com/news/eastAfrican/29102001/Regional/Regional19.html>.

[40] Bank of Namibia, *Quarterly Bulletin,* Dec. 2001, p. 16, URL <http://www.bon.com.na>.

[41] Libya, one of the major spenders in North Africa, does not release figures on its military expenditure.

[42] Iraq, one of the major spenders in the Middle East, does not release figures on its military expenditure.

until 2000 and then accelerated in 2001, according to preliminary estimates for the year. The increase can be interpreted as the result of several factors. First, the Arab–Israeli conflict has motivated continued increases in the military expenditure of Israel and other states involved in the conflict, particularly Egypt and Syria. Second, Iran continues its armaments programme, which is reflected in rapidly rising military expenditure since 2000. Third, in 2001 the defence budgets of most of the Persian Gulf states have also begun to increase, after having been more or less stagnant since 1997. The rise in 2001 coincided with high oil prices throughout 2000 and the first three quarters of 2001. High oil revenue has facilitated increases in government spending, since it constitutes the major source of income for most of these states.

For the second consecutive year, in 2001 the Government of Israel introduced a supplementary budget for defence because of the increase in violence in the conflict with the Palestinians. The initial defence budget was increased to meet the rising military requirements brought about by the conflict. The 2001 allocation is 7 per cent above expenditure in 1999, the last year in which the country kept within the originally budgeted allocation to defence. Israel has one of the world's highest ratios of military expenditure to GDP. The defence budget for 2002, endorsed by the government in November 2001, shows an increase to 41.4 billion shekels ($9.8 billion). More than 20 per cent of the defence budget is financed by annual US military grant assistance of about $2.06 billion.[43]

All of the major oil-producing states in the Middle East have planned significant increases in their military expenditure for 2001, including Iran, Kuwait, Oman, Saudi Arabia and the United Arab Emirates (UAE).

Iran continued the steep rise in military expenditure that began in 2000 and in 2001 increased its military expenditure by about 26 per cent in real terms within the larger total government budget made possible by increased oil revenue. Iran continues to build an indigenous capacity for arms production and is forging stronger ties with Russia for the supply of conventional weapons.[44]

Although the defence minister of Kuwait, appointed in 2001, promised a reduction in Kuwait's arms procurement—and more transparency in military spending—the country still renewed its long-term agreement for security and military supplies with the United States in February 2001.[45] The implication of this is a continuous rise in military spending.

Oman increased its military spending in 2001 by 39 per cent in real terms, well above the increase in overall government expenditure of 15 per cent. It has resumed the previously suspended programme to modernize its armed forces. The air force is the greatest beneficiary of the new programme.[46]

[43] 'Limited war forces Israel to boost defense budget: extra funds earmarked for readiness, modernization', *Defense News*, 26 Nov.–5 Dec. 2001, p. 6, available at URL <http://www.defensenews.com>.

[44] See chapter 8 in this volume for information on transfers of major conventional weapons.

[45] Economist Intelligence Unit, *Country Report*: *Kuwait*, Mar. 2001.

[46] Deen, T., 'War threatens to trigger arms race', *Dawn* (Internet edn), 14 Oct. 2001, URL <http://www.dawn.com/2001/10/14/int12.htm>; and 'US DOD approves Omani F-16 sale', *Jane's Defence Weekly,* 17 Oct. 2001, p. 15.

The exact size of the increase in Saudi Arabia's military expenditure is not known because figures for defence are not provided in the government budget. However, judging on the basis of the category 'other expenditure', which includes military allocations,[47] the increase is likely to have been almost 30 per cent in real terms. This steep rise reflects the major rise in oil revenue, which accounts for about 70 per cent of total government revenue. Although Saudi Arabia is believed to prioritize the settling of its domestic debt and providing jobs for its increasing number of unemployed,[48] talks have also resumed on the replacement of its ageing fleet of F-5 military aircraft and increasing its fleet of F-15s.[49]

In 2001 the UAE continued its practice of presenting a constant figure for military expenditure: the figure for 2001 is identical to the figure it has presented for the past seven years. In reality, however, Abu Dhabi, the richest emirate in the union, has a large arms procurement programme that has not been included in the figure for total union expenditure.[50] The UAE has ordered new military aircraft estimated at a value of $11 billion, including an order for 80 F-16 combat aircraft from the USA due for delivery from 2004.

Central Asia

Official figures for the Central Asian states indicate a significant increase in the military expenditure of the region over the period 1998–2001. It is difficult to obtain precise information on the rate of increase and overall level of their military spending because it is not known what is included or how reliable the official figures are. While there has been a clear improvement in the availability of official data from some of the states,[51] transparency is still low, which makes it difficult to assess the extent to which the official figures reflect the real cost of military activities in these countries.

Except in Turkmenistan, official military expenditure accounts for about 1 per cent of GDP in the Central Asian states, which is a comparatively low defence burden. This could be explained by two factors: (*a*) the reliance in several of these countries on paramilitary forces, the cost of which is not included in official military expenditure (e.g., Kazakhstan and Uzbekistan); and (*b*) their cooperation with and military assistance from Russia and to a lesser extent from some Western countries, including France, Germany, Turkey and the USA. Against the background that at least the two major powers in the region—Kazakhstan and Uzbekistan—are engaged in major military reform programmes to build up modern and professional armed

[47] Economist Intelligence Unit, *Country Report: Saudi Arabia*, Feb. 2001, p. 16.
[48] 'Surge in Saudi oil revenue will not flow to arms buys', *Defense News,* 7 May 2001, pp. 1, 28.
[49] Economist Intelligence Unit, *Country Profile 2001: Saudi Arabia*, p. 13.
[50] Economist Intelligence Unit, *Country Profile 2001: United Arab Emirates*, p. 14.
[51] Kazakhstan and Kyrgyzstan responded to the SIPRI request for data in 2001 with completed questionnaires on their disaggregated military expenditure. Uzbekistan reported to the United Nations in 2000. See appendix 6D.

forces, the defence burden is probably significantly greater than official figures indicate.[52]

Military expenditure figures for 2001 are available for only two states, Kazakhstan and Kyrgyzstan. The extraordinary rise of 42 per cent in Kazakh military spending reflects a shift in its threat perceptions, military doctrine and procurement pattern since 2000. The focus of its threat perceptions has changed from a large-scale war with China to low-intensity conflict with non-state Islamic groups operating in Afghanistan, Kyrgyzstan and Uzbekistan. Therefore, under the Kazakh military doctrine adopted in February 2000, emphasis is placed on force mobility, border protection, and command, control, communications and intelligence (C^3I) equipment. The structure of the defence budget has changed accordingly: a significantly increasing share of Kazakh expenditure is for arms acquisitions, both in the adopted defence budget for 2001 and even more so in the planned budget for 2002.[53]

South Asia

Military expenditure in South Asia, with some of the poorest countries of the world, continued to rise in 2001. With a 54 per cent increase in real terms over 10 years and a 26 per cent increase over the period 1998–2001, South Asia is one of the regions with the most rapidly increasing military expenditure. This can be interpreted as the effect of conflicts and the tense security situation in the region, including the conflicts between India and Pakistan over Kashmir and Jammu, the civil war in Sri Lanka, and border problems between Bangladesh and neighbouring India and Myanmar.

The defence budgets for 2001, adopted in late 2000, increased in India and Nepal, while the budgets of Bangladesh and Pakistan were comparatively flat in real terms. India's adopted defence budget for FY 2001/2002 was 14 per cent higher than actual expenditure for FY 2000/2001. The Nepalese defence budget for 2001 shows an increase of 10 per cent in real terms over 2000.

East Asia

Military expenditure in East Asia increased by 19 per cent over the 10-year period 1992–2001. The adopted defence budgets for 2001 show a combined increase of 5 per cent in real terms for the region. The major spenders in the region are China and Japan, with 38 and 27 per cent, respectively, of the regional total in 2001, followed by South Korea and Taiwan, with 10 and 7 per cent, respectively.

[52] For more detail on the coverage and reliability of official military expenditure for each of the Central Asian states see Eaton, M., 'Major trends in military expenditure and arms acquisitions by the states of the Caspian region', ed. G. Chufrin, SIPRI, *The Security of the Caspian Sea Region* (Oxford University Press: Oxford, 2001), chapter 5.

[53] Pukhov, R., 'Transfers of Russian arms into Central Asia and the regional military balance', Unpublished paper presented at a SIPRI/Partnership for Peace workshop, 29–30 Nov. 2001.

The level of Japan's military expenditure continued to remain virtually flat—the defence budget for FY 2001/2002 represented a growth of less than 1 per cent in real terms—at less than 1 per cent of GDP. It nonetheless funds a major arms procurement programme, as outlined in the Mid-Term Defense Program for FYs 2001–2005, adopted in December 2000.[54]

In South Korea the military build-up continues. The proposed defence budget for 2002 was set to increase by 6.3 per cent to 16.4 trillion won ($12.5 billion).[55] The mid-term defence plan for 2002–2006 includes 91.9 trillion won ($70 billion) in combined military expenditure over the five-year period, of which 34.5 trillion won ($26.5 billion) is for modernization projects.[56] The planned acquisitions include an airborne warning and control system (AWACS), Aegis Class destroyers and indigenous combat aircraft. The share of 'force improvement programmes'—the official South Korean term for arms procurement—in total military expenditure is scheduled to grow from 34 per cent in 2001 to 40 per cent in 2006.

China

The rate of increase in China's official military expenditure has been sustained at a high level since 1995. Over the period 1995–2000 it increased at an annual average rate of almost 11 per cent in real terms. In 2001 the increase was 16.2 per cent (to 141.04 billion yuan, or renminbi). The defence budget for 2002 involves an increase of 17.6 per cent (to 166 billion yuan/renminbi).[57] Since the inflation rate is less than 1 per cent, the real increase is virtually the same. Since 1998, when the government banned the business activities of the People's Liberation Army (PLA), part of the increase has been in compensation for lost revenues from these activities. Thus, the actual increase in China's military resource consumption is somewhat lower than these figures suggest. The revenues that the PLA previously obtained from its commercial activities have been estimated as roughly 10 per cent of the official defence budget, or about 11 billion yuan in 1998.[58] Thus, if the shift from commercial revenues to state financing was completed by 2002, as reported,[59] the PLA lost 11 billion yuan in revenues over the four years 1999–2002.

The official reason for the increase in the 2002 national defence budget, announced on 6 March 2002, was four-fold: (*a*) to safeguard national sov-

[54] Japan Defense Agency, *Defense of Japan 2001* (Japan Defense Agency: Tokyo, 2001), described in Sköns *et al.* (note 22), pp. 254–55.

[55] *Yonhap* (Seoul), (in English), 25 Sep. 2001, in 'ROK's Yonhap: S. Korea to kick off AWACS project next year', in Foreign Broadcast Information Service, *Daily Report–East Asia (FBIS-EAS),* FBIS-EAS-2001-0925, 26 Sep. 2001.

[56] *Korea Herald* (Seoul), (Internet edn, in English), 29 June 2001, in 'Further on ROKG defense budget for next 5 years', in FBIS-EAS-2001-0628, 29 June 2001.

[57] 'Military & armed forces', *China Today* (Internet edn), URL <http://www.chinatoday.com/arm/>.

[58] Wang, S., 'The military expenditure of China, 1989–98', *SIPRI Yearbook 1999: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1999), pp. 334–49.

[59] 'China threat theory collapses of itself, as military spending of both US and Japan has far exceeded that of China', *Wen Wei Po* (Hong Kong), (in Chinese), 6 Mar. 2002, p. A6, in Foreign Broadcast Information Service, *Daily Report–China (FBIS-CHI),* FBIS-CHI-2002-0306, 11 Mar. 2002.

ereignty; (*b*) to adapt to changes in the international situation; (*c*) to raise the technological level of the armed forces; and (*d*) to increase military pay, allowances and pensions.[60] Reference was also made to the increase in the US military budget and in particular to the US national missile defence system.[61] There is a continued effort to address the problem of the salaries of Chinese military personnel, which have been lagging behind the general salary level.[62] The effort to raise the technological level of military equipment for the Chinese armed forces is a long-term programme, part of the 'four modernizations' launched in 1988, but in the 2001 and 2002 defence budgets the emphasis was on the need to enhance combat capability in the 'context of high technology'. An additional factor influencing the growth in Chinese military expenditure is affordability—military expenditure takes a low share of GDP, both officially (1.4 per cent in 2001) and according to most Western estimates (2.1 per cent according to SIPRI).

Western estimates of Chinese military expenditure are higher than the official Chinese figures, partly because they include estimates of a number of military-related expenditure items that are known or believed not to be included in the official figures. The major items usually added in Western estimates of the official Chinese defence budget are arms imports, additional military R&D, and extra-budgetary expenditures financed by revenues from the commercial activities of the PLA.

Some of the lack of detail and transparency in the Chinese defence budget may be the result of a weak budgeting system. Efforts are under way to improve this system. In 2001 the Central Military Commission adopted a new budgeting system, introducing a 'zero-base' budgeting system for the defence budget, which centralizes the allocations of funds and revenues.[63] The purpose of the new 'Scheme for Reforming the Drawing up of the Armed Forces Budget' is to modernize the budgeting process and the management of military expenditure by introducing more transparency and control or, as expressed by the director of the PLA finance department, to 'gradually build a new military budget model with concentrated finance and financial powers, scientific allocation of military funds, specifically transparent budget items, and tight supervision and constraint, and make efforts to explore a new road of relatively high returns for relatively low input'.[64]

[60] 'Increasing military expenditure is normal and necessary', *Ta Kung Pao* (Hong Kong), (Internet edn, in Chinese), 7 Mar. 2002, in 'PLA NPC deputies explain defense budget increase', FBIS-CHI-2002-0307, 8 Mar. 2002.

[61] *Wen Wei Po* (note 59).

[62] 'Sun Zhiqiang discloses most of China's added defense budget to be used mainly to increase soldiers' wages, benefits', *Zhongguo Xinwen She* (Beijing), (in Chinese), 7 Mar. 2002, in 'PLA senior official says added defense budget to be used on soldier's welfare', FBIS-CHI-2002-0307, 8 Mar. 2002.

[63] 'China reforms budget system', *Jane's Defence Weekly*, 3 Oct. 2001, p. 17; 'PRC plans reform of army's purchasing system', Xinhua Domestic Service (Beijing), (in Chinese), 9 Jan. 2002, in FBIS-CHI-2002-0109, 11 Jan. 2002; and 'Bearing overall situation in mind, making concerted efforts to promote reform', *Jiefangjun Bao* (Beijing), (Internet edn, in Chinese), 10 Jan. 2002, in 'Jiefangjun Bao commentator on reform of PLA procurement system', FBIS-CHI-2002-0110, 11 Jan. 2002.

[64] Interview with Ding Jiye, Director of the Finance Department of the General Logistics Department in 'PLA logistics officer on reform of drawing up military budget', *Jiefangjun Bao* (Beijing), (Internet edn, in Chinese), 30 Apr. 2001, in FBIS-CHI-2001-0430, 2 May 2001.

South America

Data on military expenditure in South America are difficult to interpret and analyse for several reasons. Some countries are relatively transparent and report detailed expenditure data in the SIPRI questionnaire, while others do not respond, and official data are impossible to obtain (see appendix 6D). With these reservations, the level of military expenditure in this region can be described as relatively flat and comparatively low in terms of the share of GDP over the period 1997–2001. Only Chile's share of GDP is higher than the world average of 2.6 per cent (appendix 6A, table 6A.4).

Brazil's defence budget for 2001, which accounts for roughly half of the regional total at 19.5 billion reais ($14 billion), shows a considerable increase over actual expenditure of 14 billion reais ($11 billion) in 2000. However, this increase is most likely to be revised into a roughly constant trend in actual military expenditure, as was the case in 1999 and 2000.

Countries in the region increasingly face common threats, particularly internal unrest, drug trafficking and organized crime, while the risk of conflict between them is low. This is also reflected in the composition of US military aid to the region. Of a total of $2130 million in US military aid over the period FY 2000–2002, aid for International Narcotics Control (INC) amounted to $2.1 billion, primarily for Bolivia, Colombia, Ecuador, Mexico and Peru. The purpose of INC aid is to prevent drugs from entering the USA, dismantle drug cartels, and reduce and ultimately eliminate drug crop cultivation.

Brazil and Chile are embarking on programmes for the acquisition of major conventional weapons. To the extent that payments will be reflected in the official military budgets, they will result in increased military expenditure in the future. Chile decided in February 2002 to purchase 10 F-16 combat aircraft from the USA in a deal worth $660 million. This is the first major US sale to South America since the 1970s, when the USA initiated a restrictive policy on arms sales to the region. There is a risk that this will have an impact on military expenditure in neighbouring countries, setting off a regional arms race.[65] Chile's expenditure on arms procurement is not included in its official military expenditure. According to the 'reserved copper law' of 1958, the state-owned copper company CODELCO sets aside 10 per cent of its annual sales revenues for the financing of military purchases for the armed forces. When President Ricardo Lagos assumed office in March 2000, he promised to review this arrangement of off-budget allocations for military purchases. With the purchase of combat aircraft, the government may have locked this arrangement in place until 2009, when the payment schedule ends for these aircraft.[66]

[65] 'Chile says will buy US fighters, denies arms race', *Air Letter*, 1 Feb. 2002, p. 5.

[66] For a brief description of this method of financing see 'Chile's defence policy copper-bottomed; a very strange way to pay for an army, a navy or an air force', *The Economist,* 8 Feb. 2002, p. 47. See also Rojas Aravena, F., 'Chile', ed. Singh, R. P., SIPRI, *Arms Procurement Decision Making, Volume II: Chile, Greece, Malaysia, Poland, South Africa and Taiwan* (Oxford University Press: Oxford, 2000), pp. 9–38.

Western Europe

Military expenditure in Western Europe has been roughly flat since the mid-1990s, when the post-war decline in spending ended. In 2001 there was a small reduction again, after two years of slight real growth (table 6.5). The reduction in 2001 is due primarily to the declining defence budgets of Germany and Italy, while those of France and the UK were flat. However, actual expenditure for 2001, in contrast to budgeted spending, may show an increase in real terms—as was the case in 2000, when military budgets were reduced[67] but actual spending increased in real terms. Furthermore, the terrorist attacks of 11 September and the subsequent war on terrorism have led to supplemental allocations in some European countries, which will also result in an upward shift in actual military expenditure. However, neither of these factors is sufficiently strong to involve a significant increase in actual West European military expenditure in 2001.

West European governments are under great pressure to raise their military expenditure, but there is strong public resistance to tax increases in these countries. While the terrorist attacks on the United States brought a major change in US public opinion on military defence, this has not been the case in Europe.

The dynamics of the restructuring of military forces in many European countries are changing. During the early post-cold war years, restructuring was driven by the need to downsize and adapt to the more benign security environment and by the emergence of new tasks associated with peace operations. While adaptation to new tasks, in particular those of peace operations, continues to be an important objective, the rationale and aim of current restructuring programmes for European military forces are increasingly framed in terms of shortfalls in their military capabilities, experienced in the operations in the Balkans. To a great extent they involve the same issues that were previously on the NATO agenda—harmonization of forces and standardization of military equipment. Current restructuring programmes are focused on three areas: (*a*) restructuring of the armed forces to increase their mobility; (*b*) a change in recruitment system, from conscript to professional forces; and (*c*) modernization of military equipment. The key word is interoperability, which to a great extent means adaptation of European forces to US military technology and equipment.

While the transatlantic capability gap is often illustrated by the gap in military expenditures, in particular spending on equipment and military R&D, the major issue concerns the lack of interoperability, in particular in advanced C^3I technology. This has been the conclusion primarily from experience in joint operations in the Balkans.[68] In the US-led war in Afghanistan, 'Operation Enduring Freedom', the USA therefore had less interest in joint operations

[67] Sköns *et al.* (note 22), table 4.7, p. 244.

[68] As described in a number of reports, including US General Accounting Office (GAO), *European Security: US and European Contributions to Foster Stability and Security in Europe*, GAO-02-174 (GAO: Washington, DC, Nov. 2001).

Table 6.5. West European and NATO military expenditure, 1992–2001[a]

Figures are in US $b., at constant (1998) prices and exchange rates. Figures may not add up to totals because of the conventions of rounding.

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Total W. Europe	**201**	**194**	**189**	**179**	**180**	**179**	**179**	**182**	**183**	**181**
NATO Europe	**187**	**180**	**175**	**167**	**168**	**166**	**166**	**174**	**175**	**174**
NATO W. Europe	**187**	**180**	**175**	**167**	**168**	**166**	**166**	**169**	**170**	**168**
New members	–	–	–	–	–	–	–	5	5	6
Non-NATO W. Europe	14	13	13	12	12	13	13	13	13	13
European Union	184	178	172	172	173	172	173	175	177	175
France	44	44	44	42	41	41	40	40	40	40
Germany	42	38	35	35	34	33	33	34	33	32
Italy	22	22	22	20	22	23	23	24	26	25
UK	45	44	42	39	39	37	37	37	37	37
Total NATO	557	533	508	481	466	462	457	467	478	472
USA	355	336	317	298	282	291	274	275	286	281

[a] There are 2 breaks in the NATO series. The first break is in 1999, when 3 states joined NATO. Therefore, a separate series is shown for the new members: the Czech Republic, Hungary and Poland. The second break is in 2001, when the UK changed its accounting system for military expenditure from 'cash basis' to 'resource basis', but this is not likely to have a significant impact on the data.

Source: Appendix 6A, tables 6A.1 and 6A.3. SIPRI data for NATO member states are based on NATO data. Military expenditure, as defined by NATO, may diverge significantly from nationally defined defence budgets.

with its NATO allies. This has evoked two types of reaction among European states: (*a*) a fear of US unilateralism; and, as emphasized by the arms industry, (*b*) concern about the gap in military industrial capability.

It has been argued that one reason for the lack of resolve on the issue of the transatlantic capability gap is that both sides also benefit from the status quo.[69] It provides the USA with an argument for taking the lead without strong European interference in decision making, and it allows European states to set other budget priorities because the extra expenditure required to match the US effort would be enormous and thus seriously jeopardize their commitments. On the other hand, if Europe is to be able to conduct military operations without US commitments, it must have an autonomous technological capability.

The defence debate in Western Europe during 2001 continued to focus on the question of the appropriate level of military expenditure. The answers differed widely, primarily depending on two basic and sometimes interrelated views on: (*a*) the extent to which European security and defence policy should rest on military strength; and (*b*) the extent to which Europe should have an autonomous military capability. The pressure for increased military expendi-

[69] 'Nato's welcome imbalance in military might', *Financial Times*, 7 Feb. 2002, p. 11.

ture in West European countries originates in these questions and is expressed primarily in terms of: (*a*) the sharing of the defence burden within NATO; (*b*) the interoperability of US and European forces in joint NATO military activities; and (*c*) the build-up of a European rapid reaction force. In response to these requirements, European governments have made commitments in terms of future military capabilities which in some countries go beyond what can realistically be expected to be funded by future defence budgets. As a result, many European governments are trying to introduce new and innovative financing mechanisms for military activities.

The transatlantic gap in military capability

Burden sharing within NATO has been an issue since the foundation of the alliance. While the context of the debate changed after the cold war, the issue of burden sharing came into focus again after the NATO involvement in the wars in the former Yugoslavia and the adoption of the NATO Defence Capabilities Initiative (DCI) in April 1999. The 11 September terrorist attacks in the United States raised the issue of NATO burden sharing to a level of urgency.

The distribution of the defence burden can be perceived and measured in several ways, depending on the weight assigned to military capability in the defence concept. Six different measures were used by the US Congressional Budget Office in a 2001 report on NATO burden sharing.[70] They included three standard measures of military expenditure—as a share of GDP, per capita spending and the proportion of the workforce in the military—and three new measures that were meant to be more applicable to the post-cold war environment—contributions to NATO's rapid reaction forces, contributions to the peacekeeping forces in Bosnia and Herzegovina and Kosovo, and economic assistance to Central and Eastern Europe. The results of the CBO study are summarized in table 6.6. While US military expenditure is higher in terms of the ratios of GDP and population, the gap has narrowed. Moreover, the gap reflects the United States' global security interests in addition to its contributions to NATO. As regards specific contributions to NATO peacekeeping operations and to economic aid, the European allies are taking on more than a proportional share of the burden.

Another study, conducted by the US General Accounting Office (GAO) in 2001, concluded that the post-cold war security environment has brought new requirements for fostering security—smaller military forces, heavier reliance on non-military contributions such as development assistance, and increased reliance on multilateral organizations for the provision of security. In these areas, the study concluded that the European countries had made significant contributions. In spite of the reductions in their forces, they have been actively engaged in peacekeeping and other security-enhancing activities in Europe,

[70] US Congressional Budget Office (CBO), *NATO Burden Sharing After Enlargement* (CBO: Washington, DC, Aug. 2001), available at URL <http://www.cbo.gov/showdoc.cfm?index=2976&sequence=1>.

Table 6.6. Burden sharing within NATO

Measure	Result
Military expenditure as a share of GDP	With the exception of Greece and Turkey, the USA spends a larger share of its GDP on defence than its European allies, but the gap has narrowed significantly since 1985.
Military expenditure per capita	The USA spends more per capita than any of its allies. This gap reflects the global nature of US security interests.
Proportion of the labour force in the military	Several European allies make a larger contribution to the common defence than the USA does. In 1999, 1.6% of the US workforce was employed in the military sector, compared with 1.7% for the European allies.
Contributions to NATO's reaction forces	The UK has been in the forefront of these efforts. France has also developed forces that augment NATO's capability. Germany plans to develop a significant force.
Peacekeeping missions	Many of the European allies bear more than their proportional share of the burden in Bosnia and Herzegovina and Kosovo. They also took on a larger share of the burden of the Kosovo Force (KFOR) peacekeeping mission. The USA maintained (in June 2000) the largest national presence in Kosovo, but the majority of the ground troops were European.
Economic aid to Central and East European countries	Many of the European allies shoulder at least a proportional share of these costs. Germany has provided more aid to the region than any other country.

Source: US Congressional Budget Office (CBO), *NATO Burden Sharing After Enlargement* (CBO: Washington, DC, 2001), Summary, URL <http://www.cbo.gov/showdoc.cfm?index=2976&sequence=1>.

and they have provided about $47 billion of a total of $71 billion in disbursed assistance to CEE countries over the period 1990–99.[71] While total US military expenditure is higher than European expenditure, the US cost of supporting its military presence in European NATO countries in 2000 was estimated at $11.2 billion, a 50 per cent reduction since 1990. The shortcomings of European countries were in specific military capabilities, such as mobility of forces and the technological level of their equipment.

These two studies show the difference in the emphasis of the role of military strength in security building between Europe and the USA.

The European rapid reaction force

The creation of a European rapid reaction force (ERRF) within the development of the EU European Security and Defence Policy will require additional economic resources. Some progress was made in 2001 in efforts to allocate the required resources, as stipulated in the Headline Goal set in Helsinki in

[71] US General Accounting Office (note 68), p. 5.

December 1999. At the EU Capabilities Improvement Conference (CIC) in November 2001, it became clear that about two-thirds of the required capabilities for the ERRF were secured. They include a pool of more than 100 000 troops, around 400 combat aircraft and 100 ships ready to be deployed for the ERRF.[72] Out of the remaining 20 shortfalls, 15 are reportedly addressed also in the NATO Defence Capabilities Initiative. This was subsequently confirmed at the European Council summit meeting in Laeken, Belgium, on 14–15 December, when the ERRF was declared operational.[73]

While the DCI and ERRF capabilities have been seen as overlapping, a perception seems to be increasing that Europe needs to have the necessary autonomous capacity in the event the USA is not involved. This also requires greater financial commitments. The purpose of the European Capability Action Plan (ECAP), adopted at the November CIC meeting, was to optimize the use of available resources by way of cooperation. Its first option for improving existing resources for the development of European military capabilities is to make available more national forces and capabilities to the ERRF. Its second option is to employ multinational solutions for the production, financing, acquisition and management of military capabilities.

The cooperative procurement of A400M military transport aircraft

The main multilateral European procurement project is the A400M military transport aircraft, to be negotiated and managed by the joint procurement agency Organisme Conjoint de Coopération en Matière d'Armement (OCCAR). The project is seen as important to Europe's plans to create a rapid reaction force that can deploy without relying on US air-lift capacity. Furthermore, if agreed, this programme, at a total value of $16 billion, would be the most important joint European procurement programme administered by OCCAR.

Originally, eight countries—Belgium, France, Germany, Italy, Luxembourg, Spain, Turkey and the UK—agreed to procure a total of 212 A400M aircraft. However, in June 2001 Italy refrained from signing the first Memorandum of Understanding for 16 aircraft, and in November Germany announced that it had problems in financing its purchase of 73 aircraft.[74] The German defence budget for 2002, as approved by the Bundestag (parliament), included only DM 10 billion ($4.5 billion) for the A400M programme, which would finance the procurement of only 40–50 aircraft.

Germany's approval is decisive for the entire programme, because its order for 73 aircraft is the largest of those of the seven nations involved, and Airbus

[72] European Union, *Statement on Improving European Capabilities*, EU's General Affairs Council with the participation of the ministers for defence of the EU, Brussels, 19 Nov. 2001, URL <http://www.defense-aerospace.com/data/verbatim/data/ve236/index.htm>. See also 'EU resolves two-thirds of gap in capabilities', *Defense News,* 26 Nov.–2 Dec. 2001, p. 8; and 'EU goals mean increased defense spending', *Defense News*, 17–23 Dec. 2001.

[73] Declaration of the Operational Capability of the Common European Security and Defence Policy, Laeken, Belgium, 14–15 Dec. 2001, available at URL <http://europa.eu.int/futurum/documents/offtext/doc151201_en.htm>. See also chapter 3 in this volume.

[74] 'Germany, European allies compromise on A400M', *Defense News,* 17–23 Dec. 2002, p. 10.

has declared that the minimum total order is 180 aircraft. Thus, there is a risk that the project could fail if Germany procures only 40–50 aircraft.

Pressured by the governments of France and the UK, the German Government was able to reach an agreement with leaders of parliament that Germany would sign the contract for 73 aircraft, under the condition that parliament would approve additional funding in the future.[75] On 18 December German Defence Minister Rudolf Scharping signed the order for 73 aircraft with this reservation. On the same day OCCAR signed an order for 196 A400M military transport aircraft to be built by the EADS subsidiary Airbus Military Company, but with the reservation that the start of production is contingent on approval by the Bundestag. With the German defence budget frozen until 2006, Scharping has been requested by the parliamentary opposition to explain how he would cover preliminary costs through private funding mechanisms. This is likely to be a focus of the German and European defence debate in 2002.

Private financing of military capabilities

Other ways to resolve the current mismatch in Europe between planned military capabilities and planned funding for defence include various forms of partnerships between government and private industry. The concept of private financing of military activities originates in the UK as an arms procurement technique under the heading of Smart Acquisition. Currently, Private Finance Initiative (PFI) techniques are being explored and employed in other European countries. In PFI arrangements, a private company is contracted to fund and supply equipment for the defence ministry, while the defence ministry buys only the associated services, not the equipment itself. The idea behind the concept is that the private partner company is driven by its commercial need to service the capital it has raised privately, and at the same time the company can benefit from the ability to create and exploit non-military capacity as part of the project.[76] The perceived benefit for the defence ministry is that the cost is shifted from the design, development and production phase, as in ordinary arms procurement programmes, to a later stage, when the service is provided.

The British PFI programme includes contracts for accommodation, housing, information systems, utilities, training facilities and equipment. By October 2001, a total of 37 PFI deals had been signed, resulting in some £32 billion in private sector investment in military projects.[77]

A major project due for a PFI contract decision in 2002 is the Future Strategic Tanker Aircraft (FSTA) for the British Royal Air Force, planned to be operational from 2006. With a contract value of £13 billion over a 25-year life

[75] Nicholl, A., 'Private funding's biggest test is to come', *Financial Times,* 13 Dec. 2001.

[76] British Ministry of Defence, 'Public private partnerships in the MoD: MoD's approach to the Private Finance Initiative', 20 Dec. 2001, URL <http://www.mod.uk/business/pfi/intro.htm>.

[77] Nicholl (note 75).

cycle, this programme will become the first major aerospace procurement programme to be run under PFI auspices. The RAF will not own the aircraft it operates; they will be owned and managed by the 'service provider', that is, the contracted private company. Under the arrangement, the contractor will provide the aircraft, fully maintained and 'fuelled ready to fly', and on completion of a mission the RAF will hand it back to the company. At the same time, it allows the service provider to use the spare capacity of the aircraft to generate revenue by leasing it to third parties, thus offsetting the cost of the capability to the British Ministry of Defence.[78]

The arms industry sees PFI contracts with the defence ministry as an important emerging area of future business. This is reflected in their creation of specialized divisions and even companies for the management of PFI contracts. In early January 2002, BAE Systems announced the establishment of a new subsidiary, BAE Systems Capital Limited, to provide 'innovative financing options'. The company will concentrate on military contracts for the procurement of services under privately financed long-term supply contracts. According to company estimates, the annual value of such contracts may amount to £4 billion in the UK alone.[79]

Russia

Russian military expenditure fell sharply in 1992 and continued to decline until 1998. With the improvement of the national economy and fiscal discipline and with the reorientation of defence and defence industrial policy, Russian military expenditure has been increasing in real terms since 1998. The sharpest increase was in 1999, the first year in which the adopted budget for national defence was nearly fully implemented. Since then, the growth in spending has slowed down somewhat and the budget for 2002 shows negligible growth.

Over the period 1998–2001, official Russian expenditure on national defence, excluding pensions, increased from 56.7 billion roubles to 246.7 billion roubles (table 6.7), an increase of about 60 per cent in real terms. In reality, the increase may have been smaller, about 52 per cent, because of the change in the definition of 'national defence' in 2001. The federal budget for 2002, as signed into law by President Vladimir Putin on 31 December 2001, allocated 284.158 billion roubles for national defence, an increase of less than 1 per cent in real terms compared with actual expenditure of 246.7 billion roubles in 2001.[80]

[78] British Ministry of Defence, 'MOD celebrates smart acquisition successes', 1 May 2001, URL <http://www.defense-aerospace.com/data/communiques/data/2001May5486/index.htm>.

[79] BAE Systems, 'Establishment of BAE Systems Capital announced', Press release, 9 Jan. 2002, URL <http://www.defense-aerospace.com/data/communiques/archives/2002Jan/data/2002Jan8465/index.htm>.

[80] Its nominal increase of 15.2% is only slightly greater than the forecast inflation of 14.5% (as measured by the GDP deflator).

Table 6.7. The Russian Federation: military expenditure, 1992–2002[a]
Figures in italics are percentages.

	National defence[b] (m. current roubles)	Total military expenditure[c] (m. current roubles)	Total military expenditure[c] (constant 1998 US $b.)[d]	GDP (b. current roubles)	National defence as % of GDP	Total military expenditure as % of GDP
1992	855	1 049	80.4	19.1	*4.5*	*5.5*
1993	7 213	9 037	70.9	171.5	*4.2*	*5.3*
1994	28 500	35 890	68.6	610.7	*4.7*	*5.9*
1995	49 600	63 220	43.4	1 540.5	*3.2*	*4.1*
1996	63 891	82 485	39.5	2 145.7	*3.0*	*3.8*
1997	79 692	105 034	42.2	2 478.6	*3.2*	*4.2*
1998[e]	56 704	. .	. .	2 741.1	*2.1*	. .
1998[f]	68 004	85 574	30.6	2 741.1	*2.5*	*3.1*
1999[e]	115 594	. .	. .	4 766.8	*2.4*	. .
1999[f]	134 412	165 477	35.9	4 766.8	*2.8*	*3.5*
2000[e]	191 728	. .	. .	7 302.2	*2.6*	. .
2000[f]	213 488	[262 800]	[40.3]	7 302.2	*2.9*	[*3.6*]
2001[e]	246 700	. .	. .	9 040.8	*2.7*	. .
2001[f]	273 500	[335 600]	[43.9]	9 040.8	*3.0*	[*3.7*]
2002B[e]	[284 158]	. .	. .	10 950.0	[*2.6*]	. .
2002B[f]	[324 432]	[439 500]	[50.3]	10 950.0	[*3.0*]	[*4.0*]

[a] Figures show actual expenditure if not otherwise indicated. B = budget as first adopted and signed into law. There is a series break in 2001 because of the change in the definition of 'national defence' in that year. If the figure for 2001 is adjusted to the 2000 definition, the figure for 2001 is lower by about 22.6 billion roubles. This difference does not have an impact on the figure for military expenditure, since it covers all items.

[b] Military pensions were included in the budget chapter 'national defence' before 1998. From 1998 this table also provides a figure for national defence including pensions.

[c] Total military expenditure (the SIPRI figure) includes military pensions and military-related items under other budget chapters, such as expenditures for paramilitary forces and military research and development.

[d] Constant dollar figures are in PPP terms with 1998 as the base year.

[e] Excluding military pensions.

[f] Including military pensions.

Sources: Julian Cooper, Centre for Russian and East European Studies, University of Birmingham, using: **1992–96:** Cooper, J., 'The military expenditure of the USSR and the Russian Federation, 1987–97', *SIPRI Yearbook 1998: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1998), appendix 6D; **1997–1999:** 'On the execution of the Federal Budget to 1 January', Russian Ministry of Finance (URL <http://www.minfin.ru>); **2000:** 'On the execution of the Federal Budget to 1 January 2001', Russian Ministry of Finance (URL <www.minfin.ru>); actual expenditure on military pensions is calculated on the basis of the pensions share of the budget item 'Social policy'; **2001:** (URL <http://www.minfin.ru>); **2002B:** Table 6.8, and Federal Law 'On the Federal Budget for 2002' as adopted by the president on 1 Feb. 2002, Russian Ministry of Finance Internet site URL <http://www.minfin.ru>, also available on the Internet site of *Rossiyskaya Gazeta* URL <http://www.rg.ru>; and PPP rate for **1998:** World Bank, *World Development Indicators 2000* (World Bank: Washington, DC, 2000), pp. 280–82.

Table 6.8. The Russian defence budget for 2002, as adopted on 30 December 2001
Figures are in million roubles and current prices. Figures in italics are percentages.

Budget item	Allocation (m. roubles)
National defence	
Ministry of Defence	263 864
Current maintenance and training	164 605
Procurement, R&D construction	99 259
Minatom (nuclear weapons)	13 994
Mobilization and training (outside the forces)	3 270
Collective security/peacekeeping	2 728
National security provisions by branches of economy	303
Total national defence	**284 158**
Military pensions	40 274
National defence including pensions	**324 432**
Other military expenditure	
Fund for support of military reform	16 545
Paramilitary forces	
Interior troops	13 571
Border troops	17 558
Security services	31 813
Total paramilitary forces	62 943
Military 'science' (est. 40% of total)	12 127
Liquidation of weapons, including fulfilment of international arms agreements	10 315
Mobilization preparation of economy	500
Subsidies and subventions to closed cities	10 544
Baikonur	674
Total subsidies	11 218
Realization of international obligations in military–technical cooperation	1 418
Total other military expenditure	**115 066**
Total military expenditure	**439 498**
Total federal budget expenditure	1 947 386
National defence (excl. pensions) as % of total expenditure	*14.6*
Total military exp. as % of total expenditure	*22.6*
GDP	10 950 000
National defence as % of GDP	*2.6*
Total military exp. as % of GDP	*4.0*
Memoranda items	
Science: total	30 318

Sources: Julian Cooper, Centre for Russian and East European Studies, University of Birmingham, using: URL <http://www.rg.ru/official/doc> (the Internet site of *Rossiyskaya Gazeta*), 8 Jan. 2002 (as published in *Rossiyskaya Gazeta*, 31 Dec. 2001); and 'On the Federal Budget for 2002', as adopted by the president on 1 Feb. 2002, Russian Ministry of Finance Internet site URL <http://www.minfin.ru>, also available on the Internet site of *Rossiyskaya Gazeta*, URL <http://www.rg.ru>.

Total Russian military expenditure, as calculated for SIPRI,[81] is significantly higher. This includes not only expenditure for pensions, military reform and paramilitary forces, but also an estimate for a military share of the general science budget and for other military-related allocations outside the ministry of defence and national defence function (table 6.8). These figures for total military expenditure show a total increase over the period 1998–2001 of 43 per cent in real terms, from $30.6 billion in 1998 to $43.9 billion in 2001.[82] The adopted budget for 2002 includes allocations for total military expenditure of 439.5 billion roubles (table 6.8). This implies a much higher growth rate in total military expenditure than in 'national defence'. Military-related items outside the official defence budget that have shown above-average growth include the paramilitary forces, military pensions and the estimates for non-ministry of defence military R&D. Actual expenditure figures for these items were not available by the end of 2001, which means that the SIPRI estimates for Russian military expenditure in 2001 may be slightly lower than actual expenditure.

The Russian defence budget for 2002 has a strong focus on arms procurement, which includes both weapon acquisitions and military research and development (R&D). This was the result of a major change in the 10-year State Armaments Programme for 2001–2010. Until October 2001, the focus of the armaments programme was on R&D for future weapon systems and on the modernization of existing systems, while any significant acquisitions of new weapon systems were deferred for another seven to eight years. This programme was fundamentally revised, according to a new concept for the development of the Russian arms industry to 2010, approved by the Russian National Security Council on 30 October 2001.[83] The new concept involves a 'step-by-step' increase in expenditure on military equipment, with the first increase, of 27 billion roubles ($900 million at the market exchange rate), in 2002 for so-called 'state-of-the-art weapons'.[84] According to President Putin, this meant that from now on the arms industry would have top priority. He warned that the US-led anti-terrorist campaign in Afghanistan, with its 'significant military element', had forced Russia to upgrade its priorities.[85]

[81] The military expenditure estimates for Russia were calculated by Julian Cooper, Centre for Russian and East European Studies (CREES), University of Birmingham.

[82] This figure is calculated by use of the purchasing power parity (PPP) conversion factor rather than the market exchange rate, in order to reflect international differences in relative prices. If Russian military expenditure is converted into dollars at the market exchange rate, its military expenditure in 2001 is $12.7 billion (at constant 1998 prices and exchcange rates). One PPP dollar (PPP$) has the same purchasing power in Russia as it has in the USA, reflecting the fact that the rouble has a higher purchasing power on the domestic market than suggested by the market exchange rate.

[83] Pronina, L., Interview with Ilya Klebanov, Russian Deputy Prime Minister, in 'For Russian military, research spending rises', *Defense News*, 3–9 Dec. 2001, p. 40.

[84] 'Russia to increase defence procurement in 2002', ITAR-TASS (Moscow), 19 Oct. 2001, in Foreign Broadcast Information Service, *Daily Report–Central Eurasia (FBIS-SOV),* FBIS-SOV-2001-1020, 22 Oct. 2001.

[85] 'Putin orders increase in Russian military spending', *Air Letter*, 19 Oct. 2001, p. 5.

The state defence order for 2002, approved on 17 January 2002, incorporated the planned increase from 52 billion roubles in 2001 to 79 billion roubles ($2.5 billion at the market exchanage rate) in 2002 for R&D, new procurement, and modernization of military equipment for the military and paramilitary forces.[86] The new armaments programme was formalized by the approval of the Russian Federation Presidential Edict of 20 January 2002 of the State Ordnance Programme for the period to 2010.[87] While most of the 43 volumes of this document are classified, some information has become available. Priorities for new development of weapon systems include two new types of helicopters, a fifth-generation multi-role fighter aircraft, a new generation of submarines and surface ships, new combat vehicles and a tank.[88] Planned allocations for the strategic nuclear forces constitute 16 per cent of the armaments programme and 18 per cent of the state defence order for 2002.[89] A shift is planned in the composition of the procurement budget from research, development and engineering (RD&E) to new production. While the 2001 state defence order included 41 per cent for the development of new weapons, this share was reduced to 37 per cent in the 2002 order. The share for series production and purchase of new weapons increased from 48 per cent to 51 per cent. The potential for modernization of existing equipment is nevertheless emphasized, and the share for repair and servicing of existing equipment will remain stable at 11–12 per cent. According to Deputy Defence Minister and Chief of Procurement Colonel-General Aleksey Moskovskiy, the introduction of new computer technology will increase the efficiency of missile control systems by 20 per cent and increase the combat capability of the air force by 15 per cent and of navy ships by 30 per cent.

The impact of the Russian armaments programme on the arms industry is also emphasized by defence ministry officials.[90] The planned new development programmes are distributed among the major arms-producing companies to preserve capability. In the future, a gradual shift is planned from RD&E to the industry, with the aim of allocating 65–70 per cent of the total value of the state defence order to the production of new equipment, while the share of RD&E will decrease to 15 per cent.[91]

[86] 'State OKs $2.5 billion arms budget', *Moscow Times*, 18 Jan. 2002, p. 5.

[87] Talov, B., 'A military secret in rubles and missiles: RF Deputy Minister Of Defence Colonel-General Aleksey Moskovskiy has stated more precisely the details of the new state ordnance program', *Rossiyskaya Gazeta* (Moscow), (in Russian), 1 Feb. 2002, in FBIS-SOV-2002-0201, 11 Feb. 2002.

[88] 'Russian deputy PM outlines scope of the new arms program', Interfax (Moscow), (in English), 24 Jan. 2001, in FBIS-SOV-2002-0124, 25 Jan. 2002.

[89] 'Defence ministry official outlines Russia's arms program up to 2010', ITAR-TASS (Moscow), (in English), 29 Jan. 2002, in FBIS-SOV-2002-0129, 30 Jan. 2002.

[90] Litovkin, V., 'The defense order: the government has sent money to heal the VPK [military–industrial complex] and the army', *Obschaya Gazeta* (Moscow), (in Russian), 24 Jan. 2002, in 'Newly approved state defence order seen as inadequate', FBIS-SOV-2002-0124, 28 Jan. 2002; and 'Vasilchenko, Y., 'Military secret', *Rossiyskaya Gazeta* (Moscow), (in Russian), 18 Jan. 2002, in 'RF Government discusses 2002 state military order behind closed doors', FBIS-SOV-2002-0118, 22 Jan. 2002.

[91] Talov (note 87); and 'Russia puts money into research, development', *Jane's Defence Weekly,* 20 Feb. 2002, p. 20, URL <http://www.jdw.janes.com>.

V. Conclusions

The change from a decline in world military expenditure to an increase since 1998 is the result of several factors. On a geographical basis, the increase has taken place primarily in those countries that made the greatest reductions in military spending over the period 1987–98, that is, the states members of the two military alliances in the Euro-Atlantic area, NATO and the Warsaw Pact, foremost among them Russia. In the developing regions, with the exception of Sub-Saharan Africa, there was no corresponding trend of post-cold war reductions.

The increase in military spending since 1998 is the result primarily of the change in trend in Europe, North America and Africa, although there have also been higher rates of growth in Asia and the Middle East. The most marked change in trend has taken place in Russia, where the rapid reduction of military spending changed into growth in 1999 and stabilized in 2001 at a level comparable to that of some of the major West European countries. In Western Europe, military expenditure has increased only slightly. In the United States the increase has been greater—probably significantly higher than shown by the figures reported to NATO, which do not fully take into account supplementary expenditures after 11 September 2001.

There are different reasons for the change in trend. Military expenditure can be seen as a function of driving forces within prevailing economic and political constraints. Determinants of military expenditure are of four broad types: (*a*) security-related; (*b*) technological; (*c*) economic and industrial; and (*d*) more broadly political. One of the factors behind the change into growth in Europe and North America is the assumption of new military tasks in the form of peace support operations while at the same time the inertia in existing procurement programmes means that they continue to absorb large-scale funding. In Russia, the main explanation for the change in trend is economic: the earlier economic constraints that constituted the primary reason for the reduction in Russian military expenditure have eased since the late 1990s. In East Asia, economic feasibility also seems to be a determinant factor for the trend in military spending. In addition, there is a strong security-related element, in particular for the trend in military expenditure in China and the Korean peninsula. External security factors play a major role also in South Asia and the Middle East, while in Africa the acceleration in military expenditure is due primarily to domestic armed conflict and restructuring of armed forces.

The attacks of 11 September have already had a strong impact on US military expenditure, because of both the costs for the war in Afghanistan and the change in public opinion on military spending that they have brought about. The long-term impact is likely to be even greater as a result of the big boost in budget authority for future defence outlays. The attacks will also have an impact on the military expenditure trends of several other countries that have incurred costs for the war on terrorism and are planning to supplement their

military forces with capabilities for anti-terrorist activities. The US allies in Europe and elsewhere are being encouraged by the US Government to contribute more to defence, while a reactive pattern cannot be excluded in parts of Asia and the Middle East. Therefore, if the current approach of relying heavily on military capability to combat terrorism continues, it is most likely that there will be a strong rise in military expenditure in the coming years. At the same time, the new security environment after 11 September has reinforced the emerging trend of a blurred distinction between military security and other types of security. Budgets for internal security are also likely to be affected as countries reinforce domestic counter-terrorism measures.