Occasional Paper

n°54

September 2004

Edited by
Burkard Schmitt

EU enlargement and armaments

Defence industries and markets of the Visegrad countries

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published by
the European Union
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The European Union Institute for Security Studies
Paris

Director: Nicole Gnesotto

ISSN 1608-5000

Published by the EU Institute for Security Studies and printed in Condé-sur-Noireau, France, by Corlet Imprimeur, Graphic design by Claire Mabille (Paris)

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Timo Behr and Albane Siwiecki were interns at the EU Institute for Security Studies in the first half of 2004.

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Summary

Since the end of the Cold War, the armaments sector in the Visegrad countries has gone through an important downsizing process. Shrinking home markets and the disruption of the Warsaw Pact cooperation mechanisms have put defence industries in the region under enormous pressure. The situation has improved slightly since the Czech Republic, Hungary, Poland and Slovakia increased their military expenditure in preparation for NATO membership. However, their combined military spending still represents only five per cent of the EU total. Moreover, their industrial and technological capabilities are limited in both quantitative and qualitative terms.

Procurement funding remains modest and will be absorbed over the next 10 to 15 years by a few big acquisition projects. Given the limited technological capabilities of the Visegrad defence industries, most of these weapons systems are acquired off the shelf from abroad. However, local companies are often involved through offset arrangements, which have become economically crucial for the Visegrad defence industry.

Up until now, the overall value of arms transfers from both EU and US suppliers to the region has been balanced. The US industry has, however, dominated exports to the Polish market and has concluded more important offset agreements than European companies. Russia remains another significant provider of military equipment to the Visegrad countries, due to its continuing repayment of Soviet-era debt.

Although the Visegrad Four often face similar capability shortfalls, they have not translated common needs into common procurement projects. Industrial cooperation remains limited as well, with the exception of Slovak and Czech companies, which have maintained their historical ties.

Industrial consolidation has been slow and has followed different paths in each country. In Poland and Slovakia, the most important defence companies have been assembled under the umbrella of state-owned holding groups, and privatisation remains limited. In the Czech Republic and Hungary, industrial conglomerates have been broken up or have disintegrated. Consequently, the market is dominated by a large number of small and medium-sized enterprises that are predominantly privately owned.

In general, arms production of the Visegrad countries remains in line with their former Warsaw Pact specialisation. Only a few companies have succeeded in developing state-of-the-art technologies and selling their products to other NATO countries. In order to survive in the long run, local defence companies will probably have to specialise further on niche capabilities and

strengthen their role as suppliers for big international prime contractors. Offset arrangements can support this process if they are used as a means to foster modernisation rather than to maintain non-competitive facilities and structures.

To help their local companies integrate into a defence industrial base that is increasingly transnational, the Visegrad countries should participate actively in the development of ongoing EU initiatives. Both the creation of the European Defence Agency and the Commission's initiatives in security research and defence procurement law offer new opportunities to enhance the competitiveness of defence industries in those countries.

Introduction

Ever since its beginnings, the development of the European Security and Defence Policy (ESDP) has been intimately connected with the strengthening of military capabilities. While some progress has been achieved in this area, it has also become clear that a competitive defence industrial base and an effective armaments policy are crucial for the development of such capabilities and the EU's ability to act autonomously.

As ten new member states joined the European Union on 1 May 2004, it seems worthwhile to evaluate the contribution those countries can make to European policies in terms of both their military and industrial assets. While the impact of that enlargement on CFSP and ESDP in general has been a topic of frequent discussion, little attention has so far been paid to its armaments dimension. In order to address this gap, this paper provides an overview of the defence market and industrial base of the Visegrad countries (Czech Republic, Hungary, Poland and Slovakia), the four new member states with the greatest industrial potential.

During the Cold War, the Visegrad countries were among the major arms producers of the industrialised world. Thus, Czechoslovakia was the second largest armaments manufacturer of the Warsaw Treaty Organisation (WTO) and one of the ten largest exporters of military equipment in the world. Poland produced a complete range of military equipment and, at times, exported over 50 per cent of its production, while Hungary had developed special capabilities in the communications and electronics sector. The end of the Cold War and the breakdown of the WTO destroyed the foundations of the Visegrad's defence industrial base. After several years of decline, a certain stabilisation followed at the end of the 1990s. Nevertheless, the current situation and future potential of their defence industrial base remains ill understood.

The purpose of this *Occasional Paper* is therefore to take stock of the defence industrial base of the Visegrad countries and its difficult transition in the post-communist period, and to consider its possible future. As no comprehensive study of this subject exists, an analysis of existing capacities and potential seems to be a worthwhile contribution by itself.

However, this has turned out to be an extremely challenging task, since information on defence industries and markets in Central and Eastern Europe is fragmentary and incomplete. Translation problems, currency fluctuations and different methodologies used by various sources for the calculation of defence budgets, industrial turnover and exports have been additional hurdles.[1] These problems underline the necessity to develop a systematic analysis based on solid analytical instruments and standardised methodologies to obtain, finally, a comprehensive picture of the EU's defence industrial and technological base.

The first part of the paper provides an overview of the current situation in the region as a whole. The second part provides a more detailed analysis of the defence industrial capacities and armaments policies of each country. Based on their past policies and current capacities, the final part of the paper attempts to draw some conclusions about the interests and policy options of the new member states vis-à-vis current EU initiatives in the field of armaments.

[1] The editor and authors wish to thank in particular Mr David Hunt of King's College, London, for his invaluable help in trying to solve these problems.

Regional overview

2.1 Armaments policy

Defence budgets 2003

Country[2]	Czech Republic (CZ)	Hungary (HU)	Poland (PL)	Slovakia (LO)**	Total
Defence budget ($* million)	1,900	1,400	3,900	624	**7,824**
Defence budget (percentage of GDP)	2.2	1.8	2	1.9	
Procurement budget ($ million)	475	289	798	81	**1,643**

*Unless otherwise stated, in this paper $ indicates US dollars.
** NATO country abbreviations.

Defence expenditure

After they had been offered the prospect of NATO membership in 1997,[3] the so-called 'Visegrad countries' made significant efforts to boost their defence expenditure to an average of about 2 per cent of GDP. As a result their nominal spending has doubled over the last six years.

Their share of total EU expenditure, however, remains low. Thus, their combined defence spending in 2003 was roughly $7.8 billion, comparable to the defence budget of the Netherlands. Poland remains the biggest spender, accounting for about half of the region's total military expenditure.

EU-15	Defence expenditure in 2002 ($ m)
Austria	1,699
Belgium	3,435
Denmark	2,564
Finland	1,970
France	38,005
Germany	31,465
Greece	6,154
Ireland	718
Italy	24,210
Luxembourg	193
Netherlands	7,330
Portugal	2,945
Spain	8,253
Sweden	3,947
United Kingdom	35,249
Total	**168,137**

New member states	Defence expenditure in 2002 ($ m)
Cyprus	227
Czech Republic	1,401
Estonia	93
Hungary	1,083
Latvia	141
Lithuania	233
Malta	25
Poland	3,400
Slovakia	439
Slovenia	311
CZ, HU, PL, LO	*6323*
Total	**7,353**

Source: IISS, The Military Balance 2003

2 The data represented has been assembled from different sources and might not always be compatible. For a reference of the sources, see the country chapters.

3 Poland, Hungary and the Czech Republic received an invitation to join NATO in 1997, while Slovakia began formal accession negotiations in 2002.

All Visegrad countries plan to increase their defence budgets in real terms over the next decade. However, as they all prepare for membership of Economic and Monetary Union (EMU), the obligations of the Stability and Growth Pact will probably discourage any further increase in defence spending in the mid-term.[4] At the same time, the overall growth outlook for the region remains positive,[5] which may allow for higher spending levels in the long-term.

Defence procurement

Defence procurement in the Visegrad countries is largely determined by the requirement to meet NATO standards and, linked to that, the transition from large conscript armies to small, professional forces. This is a process that in general requires a large financial effort in the short term but holds the promise of lower personnel spending in the long term. For that reason, spending on personnel and training remains relatively high amongst the Visegrad countries, limiting the resources available for new equipment. A cheap – and therefore frequently used – way for the Visegrad countries to reconcile the need to modernise the armed forces with budgetary constraints has been to replace old Soviet weapons systems by surplus weaponry from the stocks of NATO countries (in particular from Germany). Still, the proportion of procurement spending varies considerably, from around 10 per cent of defence expenditure in Hungary to 25 per cent in the Czech Republic (see Annex). According to existing plans, procurement spending will remain at current levels until the end of the decade, when the professionalisation process will have been completed.

In their effort to upgrade their current equipment to NATO standards and in order to develop more flexible and deployable forces, the Visegrad countries have committed themselves to several similar procurement projects. Thus, Poland, the Czech Republic and Hungary have decided to procure modern multirole fighter aircraft (*Gripen*, F-16) to replace their existing fleets. In addition, Poland and the Czech Republic have decided to procure a new generation of armoured vehicles. These acquisitions will take up a large share of their procurement spending over the next 5-10 years and leave them relatively little room for other significant acquisitions. All remaining procurement funds have been earmarked for a variety of small-scale projects, ranging from the upgrading of air surveillance systems to NATO standards, the overhaul of Russian Mil transport and assault helicopters and the development of niche capabilities in line with the EU's European Capabilities Action Plan (ECAP) and NATO's Prague Capabilities Commitments (PCC).[6]

As the domestic industry of the Visegrad countries is unable to provide the sophisticated technology needed for the transformation of their armed forces, much of the new equipment is bought off the shelf from foreign companies. Here the largest beneficiaries have been EU and US companies and, to a lesser degree, Russian producers. Since the end of the Cold War the value of arms transfers from both the EU and the United States has been broadly similar. Thus, the cumulative value of all contracts signed with EU companies amounts to approximately $3.9 billion, while imports from the United States have a value of $3.7 billion.[7] Over 90 per cent of US arms exports ($3.5 billion) to the Visegrad countries are related to the sale of F-16 fighter jets to Poland. European sales, in contrast, have been more widespread, involving several small contracts for the lease of aircraft, and the acquisition of armoured vehicles and communications equipment. In addition, the

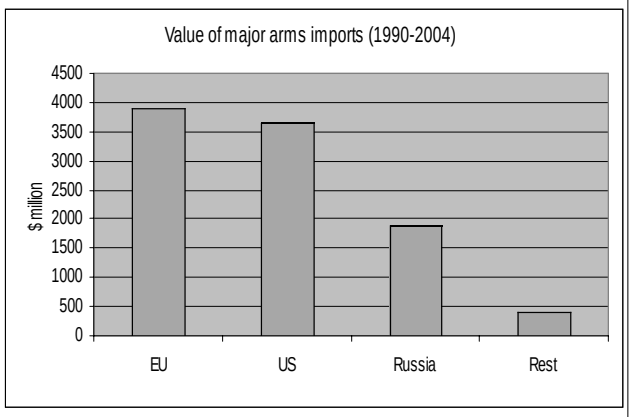
4 Currently, all of the Visegrad countries exceed the deficit criteria of the Stability and Growth Pact. Public deficits have been reported as: Poland 4.1%; Hungary 5.9%; Czech Republic 12.9%; Slovakia 3.6%. See 'Six new members to face spending rap', *EUobserver,* 4 May 2004; http://www.euobserver.com.

5 See EBRD Annual Meeting, 'Regional Overview: Central and Eastern Europe', April 2004; http://www.iif.com/verify/data/report_docs/EUoverview_0404.pdf.

6 The Visegrad countries have committed themselves to developing, *inter alia*, specialised capabilities in the areas of strategic lift, CBRN defence and air-to-air refuelling.

7 Own calculations on the basis of data provided by the SIPRI Arms Transfers Database.

Visegrad countries continue to receive some military equipment from Russia. Transfers since the end of the Cold War have amounted to approximately $2 billion and have mainly involved heavy weapons systems and upgrades. These arms transfers have usually been accepted as part of Russia's ongoing settlement of Soviet-era debt.



Regional cooperation

The armed forces of the Visegrad countries still deploy huge quantities of Soviet-era weapons systems. Much of this equipment is by now aging and needs replacement. As a consequence, Visegrad countries often face the same capability shortfalls and have plans for similar acquisitions and upgrades. Cooperating in common projects could therefore allow for economies of scale and free up additional investment. However, so far there have only been two attempts at regional coordination on defence procurement. In the early 1990s some Central and East European countries were considering joining forces for the upgrade of T-72 main battle tanks (MBTs). However, due to a disagreement over work-sharing, all countries decided to follow their own national strategies. A second attempt was made in the early 2000s for the upgrade of Mi-24 helicopters to NATO standards. This time cooperation failed not only because of disputes on work-shares, but also because of difficulties in coming to a common licence agreement with the Russian producer of the helicopters. Most recently, the Czech MOD proposed the creation of a Central European joint training centre for fighter pilots from the Czech Republic, Hungary and Poland. Since all these countries are in the transition to next-generation multirole fighter aircraft, such a centre seems self-evident and could indeed revitalise cooperation between the Visegrad Four.[8]

Privatisation and restructuring

Privatisation of the defence industrial sector has proceeded at varying paces. While the Czech Republic and Hungary in particular made early efforts to privatise large parts of their defence industry, most companies in Poland and Slovakia are still state-owned. Poland especially plans to retain control of the core of its defence industry, the so-called 'Defence Industrial Potentials', and has so far only privatised a limited number of companies. Leaving aside these wider differences, all Visegrad countries have maintained some form of state ownership in what they consider to be 'strategic enterprises'. In general those consist of state overhaul facilities for armoured vehicles, tanks and aircraft, as well as research facilities under MOD auspices. Both Poland and Hungary have plans for the privatisation of some minor defence companies. In general, however, privatisation remains piecemeal and a clear strategy is still missing.

Industrial consolidation has also progressed to different degrees and has in most cases been state-led. Usually a number of state-owned companies have been assembled under the roof of a holding in order to pool capital, technological and marketing resources. Slovakia was the first country to proceed along these lines when it established the DMD holding group in 1995. In 2002, Poland followed a similar strategy, assembling all of its major defence companies under the umbrella of two big state holdings. In the Czech Republic, one large holding group in the electronics sector, MESIT, was set up in the early 1990s. However, contrary to the holdings in other Visegrad countries, MESIT is privately owned. Apart from these regroupings, little additional consolidation has taken place

8 Grzegorz Holdanowicz, 'Czechs propose new flying training centre', *Jane's Defence Weekly*, 2 June 2004.

between the various small and medium-sized enterprises, and no cross-border mergers have occurred in the region.

Czechoslovakia was the only Visegrad country that encouraged the conversion of military enterprises to civilian production. At the beginning of the 1990s, the government of Vaclav Havel provided financial assistance to companies that were trying to diversify their activities away from military production. While this strategy was highly unpopular in the Slovak regions, it contributed to the creation of several mixed civil-military producers in what later became the Czech Republic. Although no conversion strategy existed in Hungary, the rapid privatisation of the defence sector, together with the cancellation of state subsidies, led to a rapid downsizing of the industry and forced companies to reorient large parts of their production towards the civilian market. In Slovakia and Poland the legacy of state ownership has hampered conversion and only few mixed civil-military companies exist.

2.2 Armaments industry

The legacy of the Warsaw Treaty Organisation

Any analysis of the present economic situation of the defence-related industries in Central and Eastern Europe has to take into consideration the long-term membership of those countries in the Warsaw Treaty Organisation (WTO) and the effect of its sudden dissolution in 1991. While some Visegrad countries had built their own defence industrial base after the Second World War, in the 1970s the Soviet Union began to exert strong pressure on WTO members to suspend their domestic armaments programmes and to accept a WTO-wide division of labour.

Under this centralised system, the Soviet Union had a monopoly on research and development of sophisticated weapons systems and rigidly controlled technology licences and production in other WTO member states. The latter were permitted to produce only weapon components and equipment of low technological standard and relied on Soviet supplies for most complex weapons systems, such as MBTs and fighter jets. Only Romania continued production of a comprehensive array of weaponry.

Nevertheless, with guaranteed WTO orders for their military equipment, the Visegrad countries were able to build a substantial defence industry around their specific specialisations. Most of their production was geared towards exports within the WTO and to some Third World countries. Industrial production in Central and Eastern Europe peaked in the late 1980s. At that time, the whole of the region employed around 750,000 workers in defence-related industries and had an industrial output of almost $14 billion at current prices.

The sudden dissolution of the WTO in March 1991 deprived the Central and East European countries of their traditional base of customers and suppliers. The cancellation of Warsaw Pact development programmes, radical cuts in national orders and a global decline in the

Defence industry

Country	CZ	HU	PL	LO	Total
Number of companies[9]	130 (2003)	61 (2003)	58 (2003)	40 (2002)	**~290**
Employment[10]	17,000 (2003)	2,000 (2003)	50,000 (2003)	6,000 (2003)	**~75,000**
Industrial output ($ million)	175 (2002)	70 (2003)	971 (1999)	29 (2000)	**?**
Armaments exports ($ million)	87 (2002)	6.6 (2002)	80 (2002)	31 (2002)	**~205**

9 The numbers provided here represent the numbers of companies listed by the Defence Industry Associations of each country and include all companies which are registered as suppliers of the armed forces.

10 The data for the Czech Republic, Poland and Slovakia include direct employment in the defence industry and indirect employment through the supply chain.

demand for armaments depressed military production in the early 1990s. Without clear domestic strategies and with no means to compete in a shrinking global market, industrial output continued to decline until the invitation of NATO membership in 1997 finally opened the path to a slight recovery.

Industry structure

Today there are approximately 290 defence-related companies in the Visegrad countries, most of which are small and medium-sized enterprises (SME) including a large number of defence trading companies with no production capacities of their own. About half of these are located in the Czech Republic, where the break-up of former state conglomerates gave rise to numerous small companies with some defence-related production.

Due to the lack of financial data, it is impossible the form a comprehensive and reliable picture of the current defence industrial output of the Visegrad countries. Figures range from $29 million for Slovakia (2002) to $971 million for Poland (1999). As a comparison, the largest European defence company, BAE Systems, in 2003 reported total sales of £12.5 billion (ca. $18.5 billion).[11]

To a large extent, the armaments production of the Visegrad countries remains in line with their former WTO specialisation. Thus, Slovakia and Poland have maintained industrial capacities in the heavy armaments and vehicles sector, Hungary and the Czech Republic have some capacities in defence electronics, and Poland and the Czech Republic generate substantial revenues from the aeronautics sector. Some companies have also developed specific know-how for upgrades of Soviet-era equipment and even succeeded in developing domestic derivates based on old Soviet technology. In general, however, low-tech products such as airframe components, non-armoured vehicles, small arms and light weapons form the backbone of industrial output and exports. Only a few companies have been able to develop capacities at the cutting edge of technology in areas such as electronic warfare and C3 (Command, Control and Communications).

International cooperation and offset agreements

All Visegrad countries try to encourage partnerships between their national companies and foreign defence firms, and some of them grant subsidies and special incentives to foreign investors.

Existing production capacities

Category	CZ	HU	PL	LO
Naval vessels			X	
Military airframes and engines	X		X	
Missiles and missile delivery systems			X	
Artillery and mortars			X	X
Armoured vehicles			X	X
Non-armoured vehicles	X	X	X	
C3	X	X	X	
Optronics, guidance and control systems	X	X	X	
Small arms and explosives	X	X	X	X
CBRN equipment	X	X	X	

[11] These figures, however, include BAE activities in the civil aviation sector. See BAE Systems Annual Report 2003; http://www.baesytsems.com.

At the same time, different laws and regulations exist concerning the control of foreign ownership of defence companies. Thus, Czech law limits foreign investment in national defence companies to 50 per cent. In Poland, foreign investment is mostly limited to minority shareholdings of around 15-20 per cent in a few privatised companies. Hungary remains the most open market again, with no laws regulating foreign ownership of the defence industry. However, in general direct foreign investment in the defence industry of Central and Eastern Europe remains limited.

Most international cooperation is centred on joint ventures and subcontracts that have been set up as part of offset agreements[12] for major military procurement. Overall, offsets are an essential part of the life-blood of the Central and Eastern European defence industry, and many companies have only been able to continue production due to the contracts received through such agreements. The most important offset agreements will together bring more than $10 billion to the region over the next decade. In general, one-third of these are made in the form of direct investment in and contracts for the domestic defence companies. Defence industries of the Visegrad countries will thus see offset-related investment of close to $330 million per year over the next decade.

Apart from some connections to Israeli, Indian and Taiwanese companies, defence producers in Central and Eastern Europe have established links mainly with counterparts in the United States and the EU. In this context, it is interesting to note that the number of transatlantic and intra-European cooperation agreements and joint ventures are roughly the same. In contrast, the United States accounts for around two-thirds of all offset-related investment in the region. This imbalance is mainly due to the deal for the licensed production of F-16 fighter jets in Poland, which will generate offsets worth $6 billion. The leasing contracts that Hungary and the Czech Republic have signed with European producers remain well below that level. This imbalance will give US companies at least indirectly preferred access in particular to the Polish defence market and limit the possibilities of industrial partnerships with West European producers.

Major offset agreements

Recipient country	Company	Project	Years	Estimated value ($ million)
Czech Republic	Saab/BAE	JAS-39 *Gripen*	until 2013	978
Hungary	Saab/BAE	JAS-39 *Gripen*	2001-2014	1,045
Hungary	Kongsberg	FM radio equipment	until 2010	210
Hungary	Matra Defence	*Mistral*-2 missiles	1997-2002	112
Poland	Lockheed Martin	F-16C/D Block	until 2013	6,000
Poland	Rafael	*Spike* anti-tank missiles	2004-2013	820
Poland	Patria	AMV armoured vehicles	until 2013	820
Poland	EADS-CASA	C-295M aircraft	until 2005	212
TOTAL				**10,290**

[12] Offsets are practices involving industrial compensation required as a condition of purchase in sales of defence articles and/or services. Offset activities include subcontracting, licensed production, technology transfer, marketing assistance, financial assistance, investment and joint ventures. These activities at times generate offset credits which themselves may be traded between suppliers and applied to particular programmes.

Exports

The Visegrad countries have recognised the EU Code of Conduct on Arms Exports since its inception in 1998. In a first step, they subscribed (like all candidate countries) to the principles of the Code, but did not apply its operational provisions. However, now that they have become full members, the Visegrad countries will participate actively in the Code's information and consultation mechanism on export licence denials and undercutting.[13]

Exports from the region were at a low of $205 million in 2002. While trade between Central and East European countries has fallen considerably in comparison with the WTO era, some producers, most notably in the Czech Republic and Slovakia, continue to cooperate. Exports to the Middle East, Africa and in particular Asia have experienced something of a revival in recent years and have become an important source of revenue for the defence industry of the Visegrad Four. The majority of these exports consist of military upgrades, decommissioned Soviet-era equipment and small arms and light weapons. Some Polish and Czech companies have recently succeeded in exporting domestically produced vehicles and radar systems, but also tanks developed on the basis of Soviet models. Moreover, Visegrad countries have gathered significant know-how in the modernisation of Soviet-based equipment to NATO-standards and are hoping to export this knowledge to other Partnership for Peace (PfP) member states in the future. According to some estimates, the 2004 NATO enlargement, has created an annual $4 billion demand for these kinds of upgrades, from which the Visegrad countries are hoping to benefit.[14] Exports to the EU-15 and the United States, in contrast, remain low and consist mainly of spare parts and components.

[13] See Burkard Schmitt, 'A common European export policy for defence and dual-use items?', *Occasional Paper* 25 (Paris: Institute for Security Studies of WEU), May 2001.

[14] Kamil Tchorek, 'Defense markets open up with NATO enlargement', *Warsaw Business Journal*, 13 April 2004; http://www.wbj.pl.

Czech Republic

3.1 Armaments policy[15]

Government profile 2003

Defence budget ($ million)	1,900[16]
Defence budget (% of GDP)	2.2%[17]
Procurement budget ($ million)	475[18]
FMA ($ million)	12.9[19]

Procurement policy

Since being invited to join NATO, the Czech Republic has made considerable efforts to augment its defence budget from 1.9 per cent of GDP ($920 million) in 1997, to 2.2 per cent of GDP ($1,900 million) in 2003 (see Annex).[20] Since the country became a member of NATO in 1999, the Czech government has set out to transform its armed forces from a conscript army to a professional and flexible fighting force, with niche capabilities in the areas of NBC protection, battlefield medical support and passive surveillance systems. In line with these goals, a Strategic Defence Review (SDR) was conducted in 2002, to provide a long-term vision for the further development of the armed forces. According to the SDR, defence spending would have to be fixed at a level of 2.2 per cent of GDP until 2010, in order to allow for the timely completion of the modernisation process.

However, a severe fiscal crisis in 2003[21] forced the Czech government to revise its previous 'resource framework' and lower the defence budget to 2.0 per cent of GDP in 2004 or CZK 50.7 billion ($1.7 billion).[22] According to this new 'resource framework', defence spending will be reduced in the short term but increase gradually to CZK 70.3 billion ($2.6 billion[23]) by 2010 (see Annex).

In the meantime, total procurement expenditure for the armed forces in 2003 amounted to CZK 13.2 billion ($475 million), or approximately 25 per cent of the defence budget.[24] an increase of some CZK 2 billion ($70 million) over the previous year.[25] Personnel-related expenditure remains high, at almost 50 per cent of the defence budget (see Annex), but is forecast

15 All monetary data in this part is given in Czech Koruna (CZK) current prices of the years specified. $ prices have been calculated on the basis of annual exchange rates provided by *The Military Balance 2003-2004*.

16 Ibid.

17 Ministry of Defence, Defence Budget 2003 ('Rozpocet 2003'); http://www.army.cz.

18 Ibid.

19 IISS, *The Military Balance 2003-2004*.

20 However, defence spending as a percentage of the state budget has actually decreased from 7.1 per cent in 2000 to 5.8 per cent in 2004 (See annex).

21 According to the *EUobserver*, the Czech Republic had a fiscal deficit of 12.9 per cent in 2003, See *EUobserver* 'Six new members to face spending rap', 4 May 2004; http://www.euobserver.com.

22 Jiri Kominek, 'Interview with Niroslav Kostelka, Minister of Defence of the Czech Republic', *Jane's Defence Weekly*, 10 September 2003. However, according to official figures from the Ministry of Defence, the defence budget in 2004 amounts to CZK 50,725 million, which at current exchange rates amounts to $1,899 million. See Ministry of Defence, 'Rozpocet 2004'; http://www.army.cz.

23 Expenditure in $ has been calculated on the basis of the exchange rate of May 2004 ($1=CZK 26.7).

24 These figures are from the official Ministry of Defence budget 2003 ('Rozpocet 2003'), available at: http://www.army.cz. However, according to NATO figures, equipment spending of the Czech Republic in 2003 amounted only to 21 per cent of the budget, equivalent to $399 million. See: NATO, 'Defence Expenditure of NATO countries'; http://www.nato.int.

25 Ministry of Defence, 'Rozpocet 2003'; http://www.army.cz.

to fall after completion of the professionalisation process. The major part of current procurement spending has been committed to several large multi-annual projects, including the lease of multirole fighter aircraft and the acquisition of a family of new armoured vehicles.

In the aeronautics sector, the Czech armed forces received the last batch of 72 L-159 Advanced Light Combat Aircraft (ALCA) from the Czech Aero Vodochody in 2003. However, due to the recent cuts in defence expenditure, the MOD has decided to keep only 25 of these aircraft operational and will try to sell the remaining 47. The lease of 14 JAS-39 *Gripen* fighter jets from Saab/BAE Systems to replace the Czech Air Force's obsolete MiG-21s has not been affected by the latest budget cuts. According to the contract signed in June 2004, 12 one-seater JAS-39C mutirole and 2 two-seater training JAS-39D aircraft will be leased for 10 years at a cost of CZK 19.6 billion (752 million), after which they will be returned to the Swedish Air Force. The lease includes a multi-purpose simulator, a mission planning system, equipment for the fighters, and training for pilots and ground personnel. Under the offset arrangement linked to the lease, the British-Swedish *Gripen* consortium is committed to bringing investments worth 130 per cent of the contract's value to the Czech Republic, in particular to regions with high levels of unemployment such as north Bohemia and north Moravia. According to the consortium, about 20 per cent of these investments will be of Swedish origin, 80 per cent will come from British investors and 20 per cent of offset investments are planned to target the local defence industry.[26]

In addition, the Government has recently approved the procurement of 240 8x8 wheeled armoured vehicles for a total value of CZK 25 billion ($920 million), since its existing fleet of OT-64 personnel carriers will reach the end of their service life sooner than anticipated.[27] There are currently three foreign manufacturers that have expressed interest in the tender, likely to be issued in the course of 2004.[28] Interested parties include MOWAG and Steyr, both part of the European branch of the American General Dynamics, as well as Finland's Patria .[29]

The remaining procurement budget is divided between several small-scale upgrades and investments. These projects include the acquisition of 11-17 Mi-24 combat helicopters and 18-24 Mi-17 medium transport helicopters from Russia worth $250 million in old Soviet-era debt.[30] Another project that has repeatedly been postponed and considerably reduced in size is the upgrade of 30 T-72 M4 tanks, which are now scheduled for delivery in 2005.[31] Further procurement priorities include the acquisition of additional passive surveillance systems, new command and control systems for all forces and special equipment in the areas of NBC defence and medical services.[32]

The Czech government is required by law to call for tenders for major procurements.[33] A technical committee or a multi-ministerial committee decides on all large procurement projects. No rules exist to govern the selection or conduct of these committees and the current

26 Chris Gaudet, 'Czechs Sign Lease for Gripens', *Defense News*, 21 June 2004; Frantisek Bouc, 'Gripen moves forward on promise', *The Prague Post*, 15 July 2004.

27 Jiri Kominek, 'Czech U-turn on armoured vehicles', *Jane's Defence Weekly*, 22 October 2003.

28 The Czech MOD first announced plans to issue the tender for over 400 vehicles in 2003. However, budget cuts and the results of an independent audit mean that a tender for 240 vehicles is unlikely to be issued before September 2004. See Jiri Kominek, 'Czech armoured vehicle tender delayed again', *Jane's Defence Weekly*, 5 May 2004.

29 Ibid.

30 Jiri Kominek, 'Czechs drop transport aircraft, helicopter plans', *Jane's Defence Weekly*, 3 March 2004.

31 The upgrading of the tanks will be conducted by the Czech repair depot VOP 025 in a contract worth $156 million. Formerly the armed forces planned to upgrade several hundred T-72. See Jiri Kominek, 'First upgraded T-72 tanks reach Czech Army', *Jane's Defence Weekly*, 15 January 2003.

32 For a more complete list of current modernisation projects see Planned MOD Acquisitions, in the Annex.

33 Central and Eastern Europe Business Information Center, 'Czech Republic Defense Trade Guide Update 2003'; http://www.mac.doc.gov/ceebic/.

public procurement law does not have accompanying regulations.[34] The result is a wide variance in the execution of procurements. In general, however, the MOD gives priority to projects involving the transfer of technological and production capacities to local joint ventures. Offsets can compensate for the lack of domestic content and are usually valued at around 100 per cent of the contract's value, with a minimum of 20 per cent in the form of direct offsets.[35]

For some time, the Czech Republic has been plagued by allegations of corruption and inefficiency in relation to major defence procurements. Thus, in 1996-97, a major scandal broke over a tender for an army information system, including allegations of a bribe to the Christian Democratic Party. In addition, there were a series of arms contracts in the past where the Army purchased defective equipment.[36] The current government has expressed its willingness to deal with these issues and to make the procurement process more transparent. However, *how* transparent the process actually becomes remains to be seen. Up until now, the Czech government has for example rejected calls from the opposition parties to publish full details of the *Gripen* deal.[37]

Defence industrial policy

Ever since the end of the Cold War, restructuring of the Czech defence industry has suffered from the inconsistency of the country's defence industrial policy. In the immediate post-Cold War period, the Czechoslovakian government introduced the so-called 'conversion programme' for the defence industry, which provided state subsidies to support the privatisation and conversion of state-owned conglomerates. In addition, it discouraged exports of military equipment to the Third World and cancelled all subsidies to the defence industry. This programme was widely unpopular in the Slovak regions, which had long depended on the production of heavy military equipment, and directly contributed to the break-up of Czechoslovakia. In the Czech Republic, the drive for privatisation continued until the mid-1990s, when most defence companies had been turned into joint-stock companies, disintegrated or left the armaments sector.

After the shock therapy of the early 1990s, the Czech government considerably softened its position on military exports and took a more active role in the restructuring of the defence industrial sector. Thus, in 1997 Prague chose Boeing as a strategic partner for the aeronautics company Aero Vodochody, and supported the development of the L-159 advanced light combat aircraft[38] as a vehicle of technological advancement for the Czech aeronautics industry. In 1993, the Government also signed a big contract for the modernisation of T-72 tanks with the domestic company VOP 025 Nový Jiccín, in the hope of giving Czech industry an edge in the modernisation of this widely used MBT. The commercial success of both projects is questionable, to say the least. However, they illustrate a growing government backing for defence companies that also becomes apparent in supporting measures for Czech defence exports.[39]

[34] Ibid.

[35] Ibid.

[36] One of the most serious cases was when the Ministry of Defence signed a €16.7 million contract without a public tender to purchase parachutes from a firm that did not legally exist. These parachutes turned out to be faulty and resulted in the death of a soldier. See: Open Society Institute, 'Corruption and Anti-Corruption Policy in the Czech Republic', 2002, pp. 178-9; http://ftp.osi.hu/euacession/2002_c_czech.pdf.

[37] Ibid.

[38] For a more detailed description of Aero Vodochody and the L-159 project, see the section on Czech defence industry below.

[39] According to *Jane's Defence Weekly*, the Czech MOD is currently engaged in negotiations with Egypt over the transfer of its surplus L-159A, offering to buy back old L-59E jets in return. Such a deal could be funded through the US government Foreign Military Sales (FMS) programme (because of the high US content of the aircraft) and would probably open the door to follow-on exports of L-159 trainer jets to Egypt and other markets. See Jiri Kominek, 'Czech cabinet clears sale of surplus L-159A stocks', *Jane's Defence Weekly*, 14 July 2004. The Czech proposal for a joint flying training centre of all Visegrad countries (plus possibly the Baltic states) must also be seen in the context of Aero's need for L-159 exports (see below).

While the Czech Republic has officially ceased to provide government subsidies for defence industrial enterprises, it continues to grant cheap loans and loan guarantees to embattled companies in the defence sector.[40] In addition, Prague has encouraged foreign investment by adopting an investment incentive package in 1998, which also includes military production. Under the conditions of this package, all investments above $5 million in regions with unemployment higher than a quarter of the country's average qualify for special incentives.[41] These incentives can include income tax relief, subsidies to municipalities where production is to occur, transfer of state-owned land for related construction and subsidies for the creation of new jobs and staff retraining. In addition, corporate tax relief is granted to new applicants for ten years and five years for existing companies investing in enlargement of their activities in the Czech Republic.[42] However, under Czech law a foreign company is not allowed to hold more than 50 per cent of a domestic defence enterprise.[43]

As a result of the rampant privatisation process in the early 1990s, the majority of Czech defence companies are now privately owned. The electronics and communications sector and the small arms and light weapons sector are the areas where privatisation has progressed the most. However, the Czech government maintains the ownership of several 'strategic enterprises', including some overhaul facilities and research institutes, and continues to be the majority shareholder in Aero Vodochody. An additional effect of the privatisation process and the conversion programme has been the disintegration of formerly large defence industrial conglomerates. As a result, the majority of defence companies in the Czech Republic are now small and medium-sized enterprises with both civil and military production.

In order to encourage research and development (R&D), the Ministry of Industry and Trade initiated the R&D support programme STRATECH in 1999.[44] STRATECH subsidises the R&D of strategic defence products and technology and through its 1999-2000 framework supported 30 projects worth CZK 350 million ($10 million).[45] In addition, the Czech MOD grants R&D subsidies through the defence budget. Thus, in 2003 it funded 63 projects with a total value of CZK 530 million ($19 million), or 1 per cent of total defence expenditure.[46] Overall R&D funding has been focused on the areas of NBC protection, passive surveillance systems and medical support on the battlefield, with 50 per cent of all funding being allocated to R&D in the area of passive surveillance systems.[47]

[40] As an example, Aero currently owes the Czech government $300 million in loans and the Government has extended the guarantees for several of Aero's other loans, worth $200 million.

[41] US Bureau of Industry and Trade, 'European Diversification and Defense Market Guide – Czech Republic'; http://www.bxa.doc.gov/defenseIndustrialBasePrograms/.

[42] Ibid.

[43] Ben Schiller, 'BAE confirms Omnipol purchase', *The Prague Post*, 7 May 2003.

[44] *IDET Newsletter*, 10/2003, available at http://www.idetservice.cz. For more information about STRATECH see also: Tasilo Prnka et al., 'State Supported R&D in the Czech Republic. Short Guidebook - 2003'; available at http://www.techprofil.cz.

[45] STRATECH has now been replaced by a new programme called CONSORTIA, on which, at the time of writing, no information was available.

[46] Ministry of Defence, 'Rozpocet 2003'; http://www.army.cz.

[47] Interview with Pavel Cerny, Council of the European Union, Member of the Agency Establishment Team.

3.2 Armaments industry

Defence industry profile

Number of companies	130[48]
Employment	17,000[49]
Industrial output ($ million)	175 (2002)[50]
Armaments exports ($ million)	87 (2002)[51]

The post-communist transition of the defence industry

During the Cold War, Czechoslovakia was the second largest producer of armaments in the WTO and ranked amongst the ten foremost arms exporters in the world.[52] Armaments production, for strategic reasons, was concentrated in Slovakia, where huge conglomerates produced heavy weaponry, vehicles and ammunitions. In contrast, production in the Czech and Moravian regions was focused on aeronautics, military electronics, communication systems and light weapons. At the height of production in 1987, the Czechoslovakian defence industry produced military equipment worth CZK 29 billion ($5.3 billion) and employed over 100,000 people.[53]

After the Cold War, dramatically shrinking defence markets, on the one hand, and the incentives provided by the national conversion programme, on the other, led to many defence companies leaving the armaments sector. Thus, by 1991, both arms production and exports had fallen to 50 per cent of their 1987 levels.[54] Job cuts followed, hurting in particular the labour-intensive production of heavy armaments.[55] Moreover, the disintegration of state-owned conglomerates created numerous small companies with only limited defence activities. Armaments production continued to decline until the late 1990s and has only recently recovered slightly.

Arms production and industrial cooperation

According to the national Defence Industry Association, there are about 130 companies[56] involved in the Czech armaments sector, including research facilities and arms-trading companies. The total number of employees working in defence-related production has been estimated at 17,000.[57] While Czech armaments production in general has increased slightly since the late 1990s, exports have continued to shrink (see Annex). In 2002, Czech defence companies produced military goods and services worth approximately $175 million, of which $102 million alone originated from the aviation sector.[58] Much of this production was geared towards foreign markets, and exports amounted to $87 million in 2002 (see Annex).[59] The main products of the Czech armaments industry are aviation equipment, armoured vehicles and tank

48 Association of the Defence Industry of the Czech Republic; http://www.czech-aop.cz.

49 Data provided by the Bonn International Centre for Conversion (BICC). According to BICC, this figure includes both direct employment and indirect employment through the supply chain. However, some ambiguity concerning employment figures persists. In 2002, Saferworld has estimated total employment in the Czech defence industry to lie around 25,000. See Saferworld, 'Arms Production in Central and Eastern Europe - Czech Republic'; http://www.saferworld.co.uk/armspubres.htm.

50 Ministry of Industry and Trade, 'The Prospects for Czech Defence and Security Equipment'; http://www.czechembassy.dk..

51 SIPRI Arms Transfers Database.

52 Yudit, Kiss, 'Trapped in Transition: Defence Industry Restructuring in Central Europe'.

53 ADI CR, *Czech Defence & Aviation Industry*, no. 4, 2003.

54 Op. cit. in note 52.

55 Yudit Kiss, 'Regional and employment consequences of the defence industry transformation in East Central Europe'.

56 Association of the Defence Industry of the Czech Republic; http://www.czech-aop.cz.

57 Data provided by BICC.

58 Ministry of Industry and Trade, 'The Prospects for Czech Defence and Security Equipment'; http://www.czechembassy.dk. This figure does not include revenues generated in civil areas. Since many Czech defence companies have both civil and military activities, the sum of their revenues is considerably higher.

59 SIPRI Arms Transfers Database.

upgrades, communications and electronic equipment, CBRN detection and protection devices, and small arms and ammunition.

The most important player in the aerospace sector and in the Czech defence industry at large[60] is Aero Vodochody. Aero, which manufactures subsonic jet fighters and military jet trainers, reported revenues of some $210 million in 2002 and still employs some 2,000 people.[61] Aero is owned by the Czech government (65 per cent) and the local Boeing affiliate, Boeing Ceska (35 per cent), which also has managing control of the company. Boeing obtained its stake in Aero in 1998,[62] when it agreed to invest $31 million and to provide marketing assistance to the company. In return, the Czech government extended existing loan guarantees to Aero and ordered 72 L-159 ALCA for the armed forces.[63] However, the Czech government has been dissatisfied with Boeing's performance for some time and when it failed to win a tender for jet trainers for the Indian Air Force in early 2004, the Government decided to reclaim managing control of Aero. For the moment, the fate of Aero remains undetermined, as Boeing is eligible for compensation if the current contract is changed any time before 2008.

Aero was a successful producer of light fighters and jet trainers during the Cold War, and has sold several thousand of its earlier models. However, Aero's latest model, the L-159, which to a large extent consists of US-designed equipment,[64] has so far failed to generate any foreign sales. This is particularly daunting for Aero, because commercial failure of the L-159 may well put at risk its capacity to develop military jets in the future. The company needs a substantial export contract in particular to fund further development of the L-159 trainer version and L-159 integration with new armament. Aero now hopes that Poland will procure the L-159 advanced trainer version, either to fulfil its own requirement for an F-16 lead-in trainer or for a possible joint flying training centre for all Visegrad countries that the Czech government (certainly not without ulterior industrial motives) recently suggested creating. Aero has also proposed Polish cooperation in the further development of the L-159. At the same time, the Czech MOD is believed to be engaged in negotiations with Egypt over the transfer of its own surplus L-159A jets. Such a deal could open the door to further exports of L-159B trainers to Egypt and, possibly, to Kenya.[65]

Prospects for Aero look slightly better in its civilian aircraft production programme, where it has paired up with the Taiwanese Aerospace Industrial Development Corporation (AIDC) in order to set up the joint venture IBIS Aerospace. IBIS is currently developing a new single engine turboprop multi-purpose aircraft, the Ae-270, and has reportedly received 80 firm orders. In addition, Aero is a licensed producer of Sikorsky S-76 helicopters and manufactures components and spare parts for large international aerospace companies.[66]

The armoured vehicle sector in the Czech Republic is dominated by several state-owned military repair depots that have specialised in upgrades. One of the biggest, VOP 026 Šternberk,[67] has recently modernised 350 German infantry fighting vehicles (IFVs) in a contract valued at $26.5 million, and is currently involved in a similar upgrade of 350 Swedish

60 In terms of both turnover and employees.

61 Aero Vodochody AS, 'Annual Report 2002'; available at http://www.aero.cz.

62 The original reason for Boeing's investment, worth $34 million, was probably that Boeing was looking for an inside track to sell 36 F/A-18s to the Czech government. See Alierta Mariano, 'Central European Defence Markets', NATO PA Committee Report, November 1998; http://www.nato-pa.int.

63 Jiri Kominek, 'Czech U-turn on armoured vehicles', *Jane's Defence Weekly*, 25 February 2004,

64 The domestic content in the production of the L-159 is quite small and according to some represents less than 10 per cent.

65 Jiri Kominek, 'Czech Government to buy back Vodochody shares', *Jane's Defence Weekly*, 25 February 2004; Grzegorz Holdanowicz, 'Czechs propose new flying training centre', *Jane's Defence Weekly*, 2 June 2004.

66 Aero Vodochody AS, Annual Report 2002; http://www.aero.cz.

67 VOP 026 had a turnover of $17.1 million in 2002. See Catalogue of the Czech Defence Industry 2003/2004.

IFVs.[68] The Czech government also hopes to involve VOP 026 in the licensed production of 250-300 wheeled armoured vehicles for which it has yet to hold a tender. Since VOP 026 has a history of cooperation with the Swiss MOWAG and has expressed a preference for its *Piranha* vehicle,[69] it seems probable that MOWAG will eventually win the contract. The other big military repair depot, VOP 025 Nový Jiccín,[70] is currently involved in the modernisation of 30 T-72 tanks for the Czech Army in a contract worth $156 million.[71] Both companies rely primarily on foreign customers and have been able to increase their turnover since the early 1990s.

A big player in the Czech land armaments sector is the military truck maker Tatra Koprivince.[72] Tatra's majority shareholder (70.5 per cent) is the US-based Terex, with which it also established a joint venture in 2002. Tatra is currently supplying vehicles worth $40 million to the Israeli Defence Ministry[73] and in 2003 received another large contract for the production of military trucks worth CZK 6 billion ($200 million)[74] for the Czech Army.

The communications and electronics sector in the Czech Republic is dominated by the MESIT holding group.[75] MESIT has a long history of producing electronics and communication equipment for the Czech aerospace business and was restructured as a joint-stock company in 1991. Now MESIT consists of 13 subsidiaries that produce communications and navigation technology, aviation instruments, and digital and analogue electronics, mostly for the Czech Army and police.[76] MESIT's most successful daughter company is DICOM.[77] DICOM produces mainly tactical radios and GPS equipment and has collaborated in different projects with the German Rohde & Schwarz and the Polish Radmor to develop transceivers for the Czech Army.[78] MESIT will also manage the Czech industry's participation in the NATO air ground surveillance (AGS) programme.

Aside from the MESIT holding, the other significant electronics company in the Czech Republic is ERA,[79] which produces radars and passive surveillance systems designed for both air traffic control and air defence applications. ERA, which has previously been cooperating with both Thales and Alenia Marconi, has succeeded in developing VERA-E, a passive surveillance system that is able to track stealth fighter aircraft. So far ERA has sold several of these systems to the Czech Army. Due to strong political pressure from Washington, Prague recently denied the export of VERA-E systems to China.[80] However, according to some sources, the United States may now itself procure an undisclosed number of these systems to compensate the Czech Republic for the missed deal.[81]

In the small arms and light weapons sector, the main player is the Ceská zbrojovka (CZUB)

68 See company web-page at http://www.vop.cz/.

69 ADI CR, *Czech Defence & Aviation Industry*, no. 2, 2003.

70 In 2003 VOP 025 had a turnover of $23.1 million and employed 950 workers. See Catalogue of the Czech Defence Industry 2003/2004.

71 Originally the MOD planned to upgrade 400 T-72, but recently it has significantly reduced this number. See Jiri Kominek, 'First upgraded T-72 tanks reach Czech Army', *Jane's Defence Weekly*, 14 January 2004.

72 Tatra currently employs 2,300 workers. See company web-page at http://www.tatra.cz.

73 Frantisek Bouc, 'Truckmaker eyes rebound', *The Prague Post*, 4 March 2004.

74 SDC International Inc., 'Czech Army to Purchase $200M of SDC Tatra Trucks', Press Release, 25 February 2003.

75 In 2003, the MESIT holding group had a turnover of $32 million and employed some 950 people. See Catalogue of the Czech Defence industry 2003/2004.

76 See company web-page at http://www.holding.mesit.cz.

77 DICOM records annual sales of approximately CZK 200 million ($6 million) and employs 125 workers. See http://katalog.czech-aop.cz.

78 See company web-page at http://www.dicom.cz.

79 In 2003 ERA recorded a turnover of $4 million and employed 140 workers. See Catalogue of the Czech Defence Industry 2003/2004.

80 Jiri Kominek, 'Prague divided over radar export to China', *Jane's Defence Weekly*, 28 April 2004.

81 Jiri Kominek, 'Czech Republic shelves sales of VERA-E radar to China', *Jane's Defence Weekly*, 2 June 2004.

company.[82] CZUB produces small arms for the Czech Army and police, as well as sporting and hunting weapons, and established a subsidiary in the United States, CZ-USA, in 1997. The majority of CZUB's production is destined for foreign markets, especially the United States and Germany. Other important producers in this sector include the ammunitions company Sellier & Bellot, which exports the majority of its production, and ZVI, which has produced the aircraft cannon for the L-159.

In the area of CBRN protection there are two main players, the Ortitest Group[83] and Gumárny Zubrí.[84] Ortitest produces detection and decontamination devices for the Czech armed forces and civil defence units. Ortitest has developed Detehit, a simple nerve agent detector pack, now in use with several Central and Eastern European armed forces.[85] Gumárny Zubrí specialises in the production of CBRN protection masks and mask accessories for the armed forces and the police. Both companies are joint-stock companies and also produce for the civilian market.

Under a law that dates back to the communist era, the Government must use an agent to buy and sell arms on its behalf. The biggest of these arms-trading companies is Omnipol,[86] which controlled defence exports under communism and still represents about 40 Czech defence companies.[87] In 2002 BAE Systems purchased a significant stake in Omnipol.[88]

Czech companies continue to cooperate with Slovak companies in the production of defence equipment. Thus, the Czech companies Tatra Koprivnice and Vitkovice produce parts of the *Zuzana* self-propelled howitzer, made by the Slovak ZTS-Špeciál, and the *Aligator* scout car produced by Slovak DMD Mobiltec has been tested at the Czech research facility at Vyskow.[89] As a result, the Czech Republic and Slovakia have established a joint commission for technical cooperation in the defence industry in order to explore the possibilities of future cooperation. In addition, the Czech Republic has also entered into agreements with other countries to facilitate military cooperation. These countries include the United Kingdom, Latvia, Poland, Tunisia and India.[90]

Arms exports

In 2002 Czech defence exports were estimated at approximately $87 million, representing close to 50 per cent of total armaments production.[91] As the Czech Republic has not so far reported its arms sales, the actual nature and destination of its exports remain unknown. According to the Ministry of Industry and Trade, small arms, ammunition and explosives made up 27.9 per cent of all arms exports in 2000.[92] According to another source, Czech small arms producers have continued to increase their exports from $49 million in 2000 to $73 million in 2002.[93] In addition, decommissioned Soviet-era weapons have made up a considerable part of Czech arms

82 In 2003 CZUB recorded a turnover of $42.7 million and employed 1,850 workers. See Catalogue of the Czech Defence Industry 2003/2004.

83 See company web-page at http://www.ortitest-group.com.

84 See company web-page at http://www.guzu.cz.

85 Andy Oppenheimer, 'To detect and to protect', *Jane's Defence Weekly*, 14 April 2004.

86 In 2002, Omnipol had a turnover of CZK 2.5 billion ($76 million) and employed 150 workers. See Omnipol, 'Annual Report 2002'; http://www.omnipol.cz.

87 Leah Bower, 'Selling war in a time of peace', *The Prague Post*, 23 May 2001.

88 Ben Schiller, 'BAE confirms Omnipol purchase', *The Prague Post*, 20 November 2003.

89 Saferworld, 'Arms Production in Central and Eastern Europe - Czech Republic', p. 8; http://www.saferworld.co.uk/armspubres.htm.

90 SIPRI Arms Transfers Database.

91 Op. cit. in note 89, p. 10.

92 Ibid., p. 14.

93 Nick Carey, 'Czech Republic singled out again as source of illegal arms', *Prague Business Journal*, 14 July 2003.

exports.[94] On top of that come quite important transfers of non-military weapons, ammunitions and explosives.[95] According to SIPRI,[96] almost 60 per cent of all Czech arms exports over the last decade went to countries in the Middle East, and a further 25 per cent to Asia. Exports to Europe and the United States in contrast remain very low (see Annex).

According to Czech law, export licences must be granted by the Ministry of Industry and Trade in consultation with the Foreign Ministry. NGOs have repeatedly criticised Prague for selling weapons to destinations with poor end user controls and a history of human rights abuses,[97] and up until now there has indeed been a lack of transparency as to licence approvals and export destinations.[98] However, steps towards improving this situation were made in 2000, with the introduction of an annual report on small arms and light weapons , and in 2001 with the creation of an investigatory body to scrutinise arms trading licences and review export policy.[99] Moreover, the Czech Deputy Foreign Minister has announced that an annual report on arms sales will be published from 2004 on.[100]

[94] In 2002, the Czech government offered 200 MBTs, 50 combat planes and 45,000 handguns for sale. Amnesty International, 'Undermining Global Security. The European Union's Arms Exports', 2004; http://amnesty.org.

[95] In 1999, the Czech exports of non-military weapons and ammunition were reported to be worth $59.2 million Saferworld, 'Arms Production in Central and Eastern Europe - Czech Republic', p. 14; http://www.saferworld.co.uk/armspubres.htm.

[96] These figures, however, do not include small arms transfers.

[97] According to Saferworld, Czech arms have been sold to countries such as Yemen, Sri Lanka and Eritrea. See Saferworld, 'Arms production in Central Eastern Europe – Czech', p. 11-15. See also Nick Carey, 'Czech Republic singled out again as source of illegal arms', *Prague Business Journal*, 14 July 2003.

[98] Dinah A. Spritzer, 'Arms' length', *The Prague Post*, 20 November 2003.

[99] Saferworld, 'Arms production in Central Eastern Europe'; http://www.saferworld.co.uk/arms_security/Beastrep.htm.

[100] Radio Praha, 'Czech government to publish regular annual report on arms exports', 29 April 2004.

Hungary

4.1 Armaments policy[101]

Government profile 2003

Defence budget ($ million)	1,400[102]
Defence budget (% of GDP)	1.8[103]
Procurement budget ($ million)	289[104]
FMA ($ million)	13.9[105]

Procurement policy

As in most Central and East European countries, the defence budget of Hungary plummeted from a staggering Cold War high of 2.79 per cent of GDP in 1989 to an all-time low of 1.26 per cent in 1997.[106] However, as in all other cases, the prospect of NATO membership finally halted and reversed the downward trend in defence spending in 1998 (see Annex). The objectives of building small, professional forces and producing niche capabilities in the form of combat engineers, military police, and NBC defence units,[107] have conspired to raise Hungarian defence expenditure.[108]

Under the provisions of the Strategic Defence Review (SDR) of 2003, defence spending is projected to climb from 1.8 per cent of GDP in 2003 ($1.4 billion) to 2.0 per cent in 2006 ($2.09 billion).[109] In 2004, the defence budget has been estimated at HUF 342 billion ($1,688 million).[110] In line with a ten-year plan for the Hungarian armed forces (HAF), most of these funds will be used for professionalisation and training, and the procurement share of the defence budget will be fixed at 20 per cent until 2008 (see Annex). Still, the overall increase in defence spending has also had a positive effect on acquisitions, with procurement spending rising from $122 million (HUF 35 billion) in 2001 to $270 million in 2003. Moreover, with the expected completion of the professionalisation process in 2008, the SDR expects procurement

101 All monetary data in this part is given in Hungarian forint (HUF) current prices of the years specified. $ prices have been calculated on the basis of annual exchange rates provided by *The Military Balance*.

102 IISS, *The Military Balance 2003-2004*. A recent study by the Central and Eastern European Business Center (CEEBIC) estimates the defence budget at $1,507 million. These differences may be due to different exchange rates. See Central and Eastern Europe Business Information Center, 'Defense Market Overview – Hungary', May 2004; http://www.mac.doc.gov/ceebic/country/Hungary/RESEARCH/HuDefMarket.htm.

103 Messages for the communication of the year 2004 budget of the Ministry of Defence, 14 October 2003; http://www.meh.hu/english/activities/briefing/budget_e20031014.html.

104 CCEEBIC 'Defense Market Overview – Hungary', May 2004; http://www.mac.doc.gov/ceebic/country/Hungary/RESEARCH/HuDefMarket.htm (see also annex).

105 IISS, *The Military Balance 2003-2004*.

106 Gustav Urbani, 'Hungary's Reform of the Armed Forces', in Dimitar Dimitrov et al., 'The Military Transition', *BICC Brief*, Number 25, August 2002.

107 Hungary made commitments to develop specialised capabilities in these areas at the NATO Prague summit in 2002.

108 US Bureau of Industry and Trade, 'European Diversification and Defense Market Guide – Hungary'; http://www.bxa.doc.gov/DefenseIndustrialBasePrograms/. However, according to CEEBIC the defence budget will be revised up from 1.71 % in 2004 to 1.76 % in 2006, or an estimated HUF 429 billion ($2,692 million), reaching the NATO target of 1.81 % after 2006.

109 Neil Barnett, 'More cuts to Hungary's reform', *Jane's Defence Weekly*, 29 October 2003.

110 CEEBIC, 'Defense Market Overview – Hungary', May 2004; http://www.mac.doc.gov/ceebic/country/Hungary/RESEARCH/HuDefMarket.htm.

spending to rise to a staggering 60-70 per cent of total defence expenditure (see Annex).[111]

Most of Hungarys current defence equipment was acquired from Russia during the Soviet era or recently, as part of the settlement of Russias outstanding $1.6 billion Soviet-era debt to Hungary.[112] Thus, since 1993, Hungary has received 28 MiG-29 fighters and over 500 BTR-80 armoured vehicles together with additional ammunitions and equipment from Russia. In the early 1990s, Hungary also received some arms and spare parts from the stocks of the former East German Army free of charge,[113]and in an effort to replace its outdated T-55 tanks, Hungary bought 100 T-72 MBTs from Belarus in 1996[114] (see Annex).

In spite of these acquisitions, much of Hungarys defence equipment remains obsolete, and according to Defence Minister Ferenc Juhász, Hungary was closer to fulfilling NATO requirements 12 years ago than it is now.[115] Still, with the adoption of the SDR and the ten-year plan for the armed forces, Hungary has sought to provide a clear framework for the modernisation of the armed forces, and has embarked on several large-scale procurement projects.

In the aeronautics sector, Hungary signed a revised contract in 2003 for the lease and eventual purchase after 10 years of 14 JAS-39 *Gripen* multirole combat aircraft in a deal worth HUF 210 billion ($950 million) over 15 years. This replaces a 2001 contract worth HUF 144 billion over 10 years, and specifies upgrades giving the Hungarian *Gripen* a multirole capability rather than the air defence role originally planned. Deliveries are scheduled to begin in 2006, two years later than originally envisaged.[116] In early 2004 the MOD invited bids for a HUF 28 billion ($134 million) deal to provide on-board weaponry for the *Gripen*. A decision on the winning bid is expected during 2004.[117] In addition to the lease of *Gripen* fighters, the MOD also plans a life extension for its fleet of MiG-29s, as well as the procurement of several Russian Antonov An-70 heavy transport aircraft in lieu of payment for $400 million in Russian state debt.[118]

In the land armaments sector, the HAF have initiated a comprehensive programme for the renewal of their fleet of non-armoured vehicles. In January 2004, the HAF awarded a HUF 4.2 billion ($20.6 million) contract to the Hungarian truck builder Rába for the supply of 90 H-14 4x4 trucks. This contract comes on top of four long-delayed contracts for non-tactical military vehicles worth HUF 230-250 billion ($1.02-1.11 billion), awarded to Italian and Hungarian companies in 2003.[119] For 2005 and 2006, further funding has been approved for the acquisition of additional off-road trucks from Rába.[120] Also for the Army, the Norwegian Kongsberg Defence Communications was awarded a contract, worth $128.5 million, to supply an army-wide radio system, the Multi Role Radio (MRR), to be delivered between 2004 and 2013.[121] This contract is part of a larger effort to modernise

111 Here again, the recent CEEBIC survey seems to suggest a very different development, estimating the share of defence related purchases to rise only to 20 % by 2008-2010). See CEEBIC, 'Defense Market Overview – Hungary', May 2004; http://www.mac.doc.gov/ceebic/country/Hungary/RESEARCH/HuDefMarket.htm.

112 US Bureau of Industry and Trade, 'European Diversification and Defense Market Guide – Hungary'; http://www.bxa.doc.gov/DefenseIndustrialBasePrograms/.

113 Germany has provided this equipment in recognition of the special role that Hungary played in the fall of the Iron Curtain.

114 Op. cit. in note 112.

115 Eszter Balázs, 'Awkward Takeoff', *Business Hungary*, Volume 17, Number 6, June 2003; http://www.businesshungary.com.

116 Neil Barnett, 'Hungary signs revised Gripen deal', *Jane's Defence Weekly*, 12 February 2003. Again, the CEEBIC survey suggests a higher price for the *Gripen* purchase, estimating it at $1.1 billion.

117 Tamás S Kiss, '*Gripen* open for bids', *Budapest Sun*, Volume XII, Issue 3, 15 January 2004.

118 Fraser Allan, 'Best Defence', *Business Hungary*, Volume 17, Number 1, January 2003; http://www.businesshungary.com.

119 See CEEBIC, 'Defense Market Overview – Hungary', May 2004; http://www.mac.doc.gov/ceebic/country/Hungary/RESEARCH/HuDefMarket.htm.

120 Damian Kemp, 'Truck boost for Hungary's Rába', *Jane's Defence Weekly*, 14 January 2004 and company web page at http://www.raba.hu.

121 Tamás S Kiss, 'Gripen open for bids', *Budapest Sun*, Volume XII, Issue 3, 15 January 2004.

the military communications capabilities of the HAF. According to some sources, HUF 100-140 billion ($460-680) are earmarked for this programme over the next ten years.[122]

Apart from these larger tenders, Hungary has concluded several small contracts, including the acquisition of 3D long-range fixed air defence radars from the British-Italian Alenia Marconi Systems,[123] as well as medical supplies for the military medical service. As a consequence of its NATO commitments to develop specialised capabilities in CBRN defence, Hungary spent HUF 2.3 billion ($11.1 million) on CBRN defence equipment in 2003 and has earmarked a further HUF 8.3 billion ($40.5 million) for 2004.[124] Recently Hungary has dropped plans to upgrade its fleet of Mi-24 attack helicopters in cooperation with other Visegrad countries, and is now considering the acquisition of new helicopters.[125] Moreover, Hungary has postponed a major tender for armoured fighting vehicles from 2005-6 to 2013.[126]

In general, local producers satisfy about 25-30 per cent of the Hungarian Armed Forces needs.[127] These products are mostly small arms, electronic components, ammunition and uniforms. Apart from these domestic acquisitions and minor procurements under the US Foreign Military Assistance (FMA) scheme, European companies have won virtually all of the recent competitions for the Hungarian forces[128] (see Annex).

In Hungary, all military acquisitions are closely regulated through domestic laws on procurement and offset agreements. The first Hungarian law on public procurement came into force in 1995 and was subsequently replaced by another act in 1999.[129] In accordance with the provisions of these acts, procurements exceeding a base value have to be announced publicly and follow a predetermined timeframe.

For military procurement, the evaluation process is conducted by an Expert Committee made up of individuals from various organisations within and occasionally outside the MOD. This committee analyses bids according to the evaluation criteria and prepares a recommendation for the Decision Preparing Committee, which determines if the procedures and evaluations have been conducted in a legal and professional manner. With the approval of this review committee, the recommendation is presented to the General Director of the Acquisition Bureau for approval and award of the contract.[130]

However, exceptions can be made to these standard procedures for reasons of national security and for the promotion of domestic production and employment. In practice, most of the bigger procurement decisions have been made at the level of the office of the Prime Minister.

The government has also drawn up legal obligations that require all international defence procurements over HUF 1 billion ($3.6 million) to be combined with offsets. Offset packages must consist of investments in and purchases from Hungary, equalling or exceeding the amount of the procurement contract.[131] Offset arrangements are concluded with the Ministry of Economic Affairs. The value and the nature of

122 According to CEEBIC, another major tender for communications equipment will be announced in the course of 2004. See CEEBIC, 'Defense Market Overview – Hungary', May 2004; http://www.mac.doc.gov/ceebic/country/Hungary/RESEARCH/HuDefMarket.htm.

123 AMS Press Release 22 June 2002; http://www.amsjv.com/html_eng/news/news-article.asp?rID=162.

124 See: CEEBIC, 'Defense Market Overview – Hungary', May 2004; http://www.mac.doc.gov/ceebic/country/Hungary/RESEARCH/HuDefMarket.htm.

125 Interview with Col. Eng. Bálint Kunos, Hungarian NADREP.

126 See: CEEBIC, 'Defense Market Overview – Hungary', May 2004; http://www.mac.doc.gov/ceebic/country/Hungary/RESEARCH/HuDefMarket.htm.

127 US Bureau for Industry and Trade, 'European Diversification and Defense Market Guide – Hungary'; http://www.bxa.doc.gov/DefenseIndustrialBasePrograms/.

128 CEEBIC, 'Hungary Defense Market Overview'; http://www.mac.doc.gov/ceebic/.

129 Michael H. Wiehen, 'Procurement Laws in Hungary, Romania and Slovakia – A Comparative Assessment', COLPI Report, February 2000.

130 CEEBIC, 'Hungary Defense Market Overview'; http://www.mac.doc.gov/ceebic/.

131 Government decree 152/1999 (X.22).

the offsets can vary greatly, but the government requires that a minimum of 30 per cent will be direct investments in Hungarian companies.[132]

The first Hungarian offset programme, with French manufacturer Matra, ran for five years until mid-2002. It was worth 100 per cent of the 112 million (FF570 million or HUF 22 billion) contract for *Mistral*-2 surface-to-air missile systems.[133] The largest current offset deal is linked to the lease/purchase of the 14 JAS-39 *Gripen* aircraft. It commenced in December 2001 and is scheduled to last 14 years, when it will have generated investment and industrial cooperation worth 110 per cent of the contracts HUF 210 billion ($950 million) value, 32 per cent of which will be in the form of direct investments.[134] The Ministry of Economic Affairs and transport expects the creation of 13-15,000 new jobs as a result of the agreement.[135] Another current offset deal is with the Norwegian Kongsberg Communications for the delivery of multirole radios. The offset must be met within seven years and will have a total value in investments and Hungarian exports of more than HUF 44 billion ($210 million).[136]

Defence industrial policy

During the Cold War, all defence-related industry was owned by the state and administered by either the Ministry of Defence or the Ministry of Industry and Trade (MIT). In the immediate post-Cold War period, the Hungarian government took a hard line on defence industrial restructuring. It quickly privatised large parts of the defence industry and halted all subsidies. As a consequence, defence industrial production soon dropped to unprecedented levels. In an effort to prevent a further decline, the Hungarian government then reversed its strategy and created a Military Industrial Office (MIO) to oversee the restructuring process of the defence sector. Yet the MIOs ambitious plan for consolidating the defence industry into a large state-owned holding ran into considerable opposition, and the MIO was dissolved in 1994. Ever since, the MIT has been in charge of coordinating the restructuring of the defence industrial base.

In general, the MIT has preferred to let enterprises take the lead in the consolidation process and confined itself to a supporting role. It has provided assistance to companies in securing loans and credit guarantees, represented Hungarian firms in negotiations and export deals and encouraged them to attain international quality certificates.[137] On several occasions the MIT has also provided direct assistance to embattled defence companies. Thus, on two occasions (in 1992 and 1997), the Ministry cancelled a total of some HUF 900 million of bad debt, accumulated by several defence companies.[138] In addition, the Hungarian government has provided since the end of the Cold War provided direct subsidies of some HUF 450 million per year for companies to preserve their military production capacities. Further subsidies have been provided through state support for specific R&D projects.

By 2003 the majority of Hungarian defence companies had been privatised, or turned into public-private joint-stock companies. The Ministry of Defence has only maintained ownership of Currus Armoured Vehicle Technique Company and a share in some minor maintenance companies. The MIT maintains a stake in some

132 Victoria Wood, 'Gripen deal to create jobs', *Business Hungary*, April 2002.

133 Swedish Chamber of Commerce, 'Defence Ministry approves offset agreements worth HUF 95 billion in 2003', Press Release, 23 December 2003; http://www.swedishchamber.hu/news/?newswf2_id=186&newswf2_action=.

134 Gripen International, 'Gripen International signs enhanced offset agreement with Hungary', Press Release, 2 February 2003; http://www.gripen.com/4.195dd5bfa0ba32d1e7fff828.html.

135 Hungarian MOD, 'Gripen Contract Modified', Press Release, 11 February 2003; http://www.honvedelem.hu/cikk.php?cikk=12063&next=90&archiv=1&next=90.

136 Hungarian MOD, 'Argument for a Successful Offsetting', Press Release, 14 June 2004; http://www.honvedelem.hu/cikk.php?cikk=16709&next=0&archiv=1&next=0.

137 Yudit Kiss, 'The Transformation of the Defence Industry in Hungary', *BICC Brief*, Number 14, July 1999.

138 Ibid.

of the research facilities, and the Privatisation and Property Management Corporation (APVRT) owns several arms and ammunition manufacturers. Currently the Government is planning to sell at least part of its shares in Currus, the communications company Armcom and the producer of air defence equipment Arzenal.[139]

4.2 Armaments industry

Defence industry profile[140]

Number of companies	61
Employment	2,000
Industry output ($ million)	70
Armaments exports ($ million)	4.7

The post-communist transition of the defence industry

In the early Cold War period, Hungary specialised in telecommunications, vehicle and chemical production. All other equipment was acquired through the quasi-barter system of the COMECON from other WTO countries. However, at the beginning of the 1970s the structure of the Hungarian defence sector gradually began to change. Production of weapons, ammunition and vehicles increasingly lost importance, and Hungarian firms successfully specialised in radar systems, telecommunications and electronic warfare equipment, which by the late 1980s made up almost 65 per cent of total defence-industrial output (see Annex).

Armaments production in Hungary reached its peak in 1988, when, according to official figures, the Hungarian defence industry consisted of 40 companies generating a cumulative output of approximately HUF 20 billion ($370 million) in military products. At this point, the armaments sector produced around 2 per cent of the total industrial output and employed some 30,000 workers, or nearly 2 per cent of the working population. About 80 per cent of defence-related production was exported, mostly to other WTO member states, the revenues being used in turn to acquire necessary equipment for the HAF.[141]

Having passed its peak in 1988, the Hungarian defence industry was engulfed in the market turmoil of the early 1990s, and has ever since struggled to find a viable role within a larger pan-European market. By 1993, the defence sector had reached an all-time low, producing only one-fifth of its 1988 output level and employing one-third of its previous workforce.[142] In the absence of domestic demand, foreign capital and the erratic, external market demand[143] became the primary drivers for the reshaping of the Hungarian defence industry. Thus, while there was a considerable influx of foreign capital, it rarely supported military development projects and mostly contributed to the conversion of military to civilian production. As a result, by the late 1990s, the bulk of Hungarian defence-industrial enterprises had been privatised, and around one-third of the principal weapons producers of the 1980s had converted their production to civilian use, with many others filing for bankruptcy.

Arms production and industrial cooperation

Today, Hungary has one of the smallest defence industries of the Central and East European countries. There are 61 companies involved in armaments production, about 40 of which actually produce items for defence, while the rest are primarily import/export trading companies. The total number of employees working in the defence industrial sector is estimated to be around 2,000. In 2003, the Hungarian defence

139 CEEBIC, 'Hungary Defense Market Overview'; http://www.mac.doc.gov/ceebic/.

140 Figures provided by the Hungarian Ministry of Industry and Trade.

141 Information provided by the Hungarian Ministry of Industry and Trade.

142 Yudit Kiss, 'Defence Industry Consolidation in East Central *Europe in the 1990s*', *Europe-Asia Studies*, Volume 53, Number 4, June 2001.

143 Yudit Kiss, 'The Transformation of the Defence Industry in Hungary', *BICC Brief*, Number 14, July 1999.

industry had a military output worth $70 million (HUF 16 billion), up from an all-time low of $31 million in 2000. This increase reflects both growth in domestic demand since Hungarys accession to NATO and the effect of offset requirements on major defence contracts.[144]

Hungarian defence companies cover such activities as the maintenance and upgrading of aircraft and armoured vehicles, defence electronics, radar and telecommunication systems, military simulation devices, ammunition, handguns and protective clothing.[145] In recent years, the share of the once dominant electronics sector has dropped dramatically and now only represents around 7 per cent of total defence industrial production, compared with 65 per cent[146] 15 years ago. The sectors that have gained in relative importance are the armoured and non-armoured vehicles sector, which primarily consists of overhaul facilities, and the small arms sector. These two sectors together now represent approximately 60 per cent of total defence-related turnover (see Annex).

In the aeronautics sector, the largest company is the Danubian Aircraft Company,[147] which was formed in 1992 as part of the process of privatisation of the state aircraft overhaul facilities. It maintains, overhauls and modernises the HAFs MiG-29 aircraft, helicopters (Mi-2/8/17/24) and L-39 trainer jets.[148] Danubian was the first Hungarian company to take a subcontract for an international producer, when in 1995 it began to participate in the production of components for the Swedish JAS-39 *Gripen*.[149] Danubian is also likely to benefit further from offsets related to the lease of *Gripen* aircraft and will most probably participate in a future upgrade of the Hungarian fleet of MiG-29s.

The armoured vehicle sector in Hungary was and still is very small. It includes a single company under the aegis of the Ministry of Defence and the Treasury, the Currus Armoured Vehicle Technique Company.[150] Currus is engaged in the overhaul and repair of T-55 and T-72 MBTs, BTR-80 armoured personnel carriers and BMP-1 armoured fighting vehicles, and has the capacity to perform 200 general overhauls a year.[151] Most recently Currus has diversified its operations and begun to produce armoured vehicles and spare parts for civilian use. The Hungarian government is currently considering plans to privatise parts of the company.[152]

The most important company in the non-armoured vehicle sector is the truck builder Rába.[153] Rába has just been awarded the status of Strategic Supplier by the MOD and is expected to supply a total of 8,000 vehicles to the HAF within the next 15 years.[154] Rába has also cooperated with the German MAN to develop a three-axle 6x6 truck.

The Hungarian military electronics and software sector has considerably declined in size over the last decade. Of the companies that remain, most are now producing various kinds

144 All figure displayed in this paragraph have been provided by the Hungarian Ministry of Industry and Trade. Figures do not include revenues generated in civil areas. Since many Hungarian defence companies have both civil and military activities, the sum of their revenues is considerably higher.

145 Ibid.

146 Ibid.

147 In 1999, Danubian recorded a turnover of $8 million and employed 295 workers. See Catalogue of the Hungarian Defence Industry 2001-2002.

148 See company web-page at http://www.danubian.hu/.

149 Ibid.

150 In 2002, Currus employed 410 workers and recorded a turnover of $12 million. See company web-page at http.//www.currus.hu.

151 See company web-page at http://www.currus.hu.

152 US Bureau for Industry and Trade, 'European Diversification and Defense Market Guide – Hungary'; http://www.bxa.doc.gov/DefenseIndustrialBasePrograms/.

153 According to its 2001 annual report, the Rába group employed 6,100 workers, and had net sales of HUF 57 billion ($200 million) and after-tax profits of HUF 1.8 billion ($6.3 million). Rába's main business is focused on the production of axles and other components for several large automotive manufacturers, such as MAN and DaimlerChrysler. See company web-page at http://www.raba.hu.

154 Damian Kemp, 'Truck boost for Hungary's Rába', *Jane's Defence Weekly*, 14 January 2004.

of radio transmitters and spare parts for both civilian and military use. However, some companies, such as Videoton-Mechlabor and Videoton System Technics have been able to preserve and develop their skills and have succeeded in selling reconnaissance and surveillance systems to India and the Czech Republic. Others, such as Hiradastechnika and AjKAI, have become subcontractors of international companies. In 2003 Thales Optische Systeme GmbH, a German subsidiary of Thales, opened its first subsidiary in Hungary, the Thales Hungaria Optikai Rendszerek. Thales Hungaria is part of the Thales High Tech Optics Strategic Business Line, which provides lasers, laser diodes, cryogenic coolers and optics to the international market, and is the first Thales venture of this kind in Central Europe.[155]

The most significant producer of small arms in Hungary is FégArmy,[156] which was privatised in spring 2003. The company produces a range of rifles, submachine guns and pistols for Hungarys military and police forces and for a number of foreign clients. In addition, there are several other small arms and ammunition producers in Hungary that mainly produce for foreign markets. One of them, Nike-Fiocchi,[157] is a joint venture between the Hungarian Nitrokemia and the Italian Fiocchi Munizioni.

On top of that, some Hungarian companies have successfully developed capabilities for the production of protective clothing and respirators. NBC Technika sold NBC defence systems to the Austrian and Israeli Defence Forces, and the company Respirator has cooperated with Frances GIAT in the production of respirators.

Arms exports

The Hungarian arms trade has all but collapsed since the end of the Cold War, and has so far been unaffected by the mild recovery that defence enterprises in the region have experienced since the late-1990s. Thus, annual exports of military equipment have continued to fall from $17.2 million in 2000 to $4.7 million in 2003 (see Annex).[158] In terms of geographical distribution, over the last decade approximately half of Hungarys military exports went to Latin America and the rest to Asian countries.[159]

So far, Hungary has not produced a public annual report on its arms exports.[160] However, in general Hungary has been considered a responsible arms exporter, respecting the principles of the EU Code of Conduct.[161] Thus, no arms exports to sensitive destinations have been reported, and Hungary is a fervent supporter of the Szeged Small Arms Process, which aims at stemming the spread of small arms in South-Eastern Europe.

155 Thales News Release, 2003; http://www.thalesgroup-optronics.com.

156 See company web-page at http://fegarmy.hu/.

157 In 2001, Nike-Fiocchi recorded net sales of HUF 1.5 billion ($5.2 million) and employed 90 workers. See company web page at http://www.nike-fiocchi.hu.

158 Data provided by the Hungarian Ministry of Industry and Trade. However, CEEBIC has estimated the value of Hungary's current defence related exports at around $9 million. See CEEBIC, 'Defense Market Overview – Hungary', May 2004; http://www.mac.doc.gov/ceebic/country/Hungary/RESEARCH/HuDefMarket.htm.

159 SIPRI Arms Transfers Database.

160 Saferworld, 'Arms production in Central Eastern Europe'; http://www.saferworld.co.uk/arms_security/Beastrep.htm.

161 Ibid.

Poland

5.1 Armaments policy[162]

Government profile 2003

Defence budget ($ million)	3,900[163]
Defence budget (% of GDP)	1.98%[164]
Procurement budget ($ million)	590[165]
FMA ($ million)	15[166]

Procurement policy

In contrast to other Visegrad countries, NATO membership has not delivered a significant boost to Poland's defence expenditure, which has hovered between $3.0 and $3.5 billion between 1997 and 2002. The Polish defence budget did, however, see a significant increase to $3.9 billion in 2003 and is rising further to an approximate $4.2 billion in 2004 (see Annex).[167] At the same time, Poland, like many other Central and Eastern European Countries, is struggling with a high public deficit and will have to curb spending if it intends to join the common currency any time soon. Thus, budget cuts have been considered by the Polish government and, if implemented, are likely to have a significant impact on defence spending.[168]

The Polish National Security Strategy (NSS), which was adopted in a revised version in September 2003, has set out a strategic vision for the future of the armed forces and closely aligned Poland's defence with both NATO and the EU. The NSS places a strong emphasis on the participation of Polish forces in international missions and foresees an important modernisation of equipment, in order to close the 'technological gap' with the United States and Western Europe.[169] Priority areas outlined in the NSS include the improvement of command and control capabilities, information warfare, and combat effectiveness.

Translating modernisation plans into concrete procurement projects, in January 2003 the Polish parliament approved a Programme for the development of the Armed Forces.[170]. According to this programme, the Government will between 2003 and 2008 spent $6 billion (Zl 23 billion) on military R&D and overhauls.[171] More specifically, $3.5 billion (Zl 13.5 billion) are foreseen for investment in 11 priority areas,

162 All monetary data in this part is given in zloty (ZL) current prices of the years specified. $ prices have been calculated on the basis of average exchange rates provided by *The Military Balance 2003-2004* (For 2003, $1 = Zl3.81).

163 For the sake of coherence with the other Visegrad countries, these figures are based on IISS, *The Military Balance 2003-2004*. According to the Polish MOD, the total defence expenditure, including defence expenditures of other ministries and financial resources outside the MOD budget (Military property Agency),was higher (Zl 15,580.6 million = $4.089 billion calculated on the exchange rate indicated in the previous footnote). See Ministry of National Defence, Budget Department, 'Basic Information on the MoND Budget for 2003; www.wp.mil.pl.

164 Ibid.

165 Figure provided by the Budget Department of the Polish Ministry of National Defence.

166 IISS, *The Military Balance 2003-2004*.

167 Figure provided by the Polish Representation to NATO (Zl 16,032 billion).

168 As a consequence, the Polish MOD could receive ZL 4.5 billion ($1.9 billion) less in the coming years than originally forecasted. See Grzegorz Holdanowicz, 'Poland to spend $ 798 million on procurement this year', *Jane's Defence Weekly*, 3 March 2004.

169 Grzegorz Holdanowicz, 'Modernisation to get major slice of Polish budget increase', *Jane's Defence Weekly*, 24 September 2003.

170 Ministry of National Defence, Budget Department, 'Basic Information on the MoND Budget for 2003; www.wp.mil.pl.

171 Grzegorz Holdanowicz, 'Living on the Edge: The Polish Defence Industry', *Jane's Defence Weekly*, 16 April 2003, p. 24.

and more than $2.9 billion (Zl 11 billion) for technical modernisation.[172] In the 2004 defence budget, procurement spending is forecast to be $798 million, representing 19 per cent of total budget expenditure, up from 14.6 per cent in 2003.[173] Major procurement programmes include the acquisition of a new multi-role fighter aircraft and a new infantry fighting vehicle.

In April 2003, the Polish government signed the largest procurement contract in its history for the acquisition of 48 F-16C/D Block supersonic fighter aircraft with Lockheed Martin. The contract also includes additional special equipment and weapons systems for the aircraft and the total package is worth an estimated $3.5 billion, financed by a 15-year US foreign financing loan worth $4.7 billion. Deliveries will start in 2006 and continue until 2008. The value of offset agreements for this contract will amount to an estimated $6 billion, of which technology transfers will account for 10 per cent and investments for around 20 per cent. The rest of the offset value will be covered by Polish exports.[174] US investments in the first three years are expected to reach $3 billion, with an additional $2 billion in the following three years and $1 billion over the last four years.[175] However, it has recently been reported that offset investments in 2003 fell well short of the agreed amount.[176] A number of Polish firms will also be involved in the production of components for the aircraft. In connection with the F-16 deal, the Polish MOD has also signed a contract with the US company Goodrich, worth $70 million, for the acquisition of a new airborne reconnaissance system.[177]

Still in the aeronautics sector, the Polish MOD is planning to upgrade parts of its helicopter fleet. Thus, it has signed contracts with BAE Systems and Rockwell Collins for the modernisation of 13 Mi-24 helicopters, which will also involve the Polish Wojskowe Zaklady Lotnicze 1 (WZL 1).[178] In addition, the MOD has launched an upgrade programme for the PZL W-3WA Sokol combat support helicopter, called *Gluszec*. In November 2003, the WSK PZL-Swidnik helicopter company won the contract to further develop a multivariant design proposal; it will now be in charge of modernizing 12 PZL W-3WA helicopters by the end of 2008.[179] Moreover, in 2001, the Polish MOD signed a contract for the acquisition of 8 C-295 light transport aircraft, worth $212 million, from EADS-CASA, which are currently being delivered. Last but not least, the Polish MOD is expected to call for tenders for advanced jet trainers, before the delivery of the F-16 in 2006.[180]

In the armoured vehicles sector, the Polish MOD concluded a contract for the purchase of a new infantry fighting vehicle with the Finnish company Patria in 2002. A total of 690 Armoured Modular Vehicles (AMV) worth $1.25 billion have been ordered, and delivery will take place between 2004 and 2013. The contract includes provisions for an offset agreement worth 69 per cent of the contract value, 5.1 per cent of which will be in the form of investments, 22 per cent technology transfers and the rest exports of Polish products and services.[181] As part of the offset deal, a subcontracting agreement was signed in July 2003 between Patria and Wojskowe Zaklady Mechaniczne (WZM), which

172 Ibid.

173 Grzegorz Holdanowicz, 'Poland to spend $ 798 million on procurement this year', *Jane's Defence Weekly*, 3 March 2004.

174 IISS, *The Military Balance 2003-2004*.

175 'Offsets in Poland', *NATO'S Nations and Partners for Peace*, March 2003.

176 In 2003, American investments reached only $519 million, while the offset contract foresaw $1.7 billion . See: 'At $519 million in 2003, Offset investments are two-thirds below agreed sum', *Poland A.M.*, Warsaw Business Journal, 25 June 2004.

177 Grzegorz Holdanowicz, 'Modernisation to get major slice of Polish budget increase', *Jane's Defence Weekly*, 24 September 2003.

178 Grzegorz Holdanowicz, 'BAE wins Polish Mi-24 contract', *Jane's Defence Weekly*, 10 March 2004.

179 Grzegorz Holdanowicz, 'Polish update for Sokol stresses compatibility', *Jane's Defence Weekly*, 21 January 2004.

180 Kamil Tchorak, 'Poland's Atlantic challenge', *Warsaw Business Journal*, 26 April 2004.

181 'Offsets in Poland', *NATO'S Nations and Partners for Peace*, March 2003.

will have the assembly line for the vehicles.[182] The AMV will be fitted with an Italian OTO Melara turret system armed with a gun from the US company ATK Systems.[183]

Also in the armoured sector, the MOD signed a cooperation agreement with the state-owned WZM-5 and the German Rheinmetall Landsysteme in September 2003 for the upgrade of a number of *Rys* armoured personnel carriers with new E8 turrets. The upgraded Rys will be delivered from 2005 on for those army units that are not to be equipped with the AMV.[184]

In the non-armoured vehicles sector, the Polish MOD has signed a Letter of Offer and Acceptance (LOA) with the US Defence Security Cooperation Agency (DSCA) to purchase 217 *Humvee* multipurpose wheeled vehicles in November 2003, worth $23 million. In connection with this contract the possibility of industrial cooperation between the Polish Bumar and the American AM General is being evaluated.[185]

Another large contract, worth $397 million, has been signed with the Israeli Rafael Armaments Development company for the acquisition of 2675 *Spike* anti-tank missiles and 264 missile launchers. Both missiles and missile launchers are to be manufactured under licence by the Polish Zaklady Metalowe Mesko (ZM Mesko), which is part of the Bumar Group. The offset agreement concluded with Rafael is worth $826 million[186] and will include a 'significant amount of technology transfers'.[187] Deliveries will take place between 2004 and 2013.

Finally, the Polish Navy has signed a contract with the German shipyard Blohm & Voss for the acquisition of 2 *Meko* A-100 frigates, for the Polish 'Project 621' corvette programme.[188]

In addition to the above acquisitions, the Polish armed forces have received a considerable amount of military equipment in the form of military aid. As part of an agreement signed with NATO in January 2002, the Polish Army has received 128 *Leopard*-2 tanks and 23 MiG-29 aircraft from Germany[189] The aircraft, decommissioned by the Bundesluftwaffe, were acquired for one symbolic euro. The *Leopard*-2 tanks will receive a general overhaul by Polish companies before being incorporated into the Polish Army.[190] In addition, the Polish Navy has received two frigates from the United States together with several SH-2 *Sea Sprite* helicopters,[191] as well as four *Koben*-class submarines from the Norwegian Navy.[192]

Defence industrial policy

In Poland, defence industrial restructuring began later than in the other Visegrad countries. Only in 1999 the Polish government initiated its first Strategy for the Restructuring of the Defence Industry, aimed at fostering specialisation of defence companies. However, this first programme had only a limited impact. In 2002, the Government therefore adopted the new Strategy of Structural Transformation of the Defence Industry Potential in the Years 2002-2005, which is aimed at a complete transformation of the Polish defence industrial base.

At the core of the strategy is the creation of two holding groups (usually referred to as 'capital groups'): Bumar, focusing on land arma-

182 Ibid.

183 Grzegorz Holdanowicz, 'Patria's armoured vehicle for Poland takes shape', *Jane's Defence Weekly*, 17 September 2003.

184 Grzegorz Holdanowicz, 'Polish depot promotes German turret for pair of vehicle upgrades', *Jane's Defence Weekly*, 17 September 2003.

185 Grzegorz Holdanowicz, 'Poland, US agree Humvee buy detail', *Jane's Defence Weekly*, 26 November 2003.

186 See SIPRI Arms Transfer Project.

187 Barbara Opall-Rome, 'Israel, Poland Launch Era of Defence Trade', *Defense News*, 19 May 2003.

188 Grzegorz Holdanowicz, 'Poland to spend $798m on procurement this year', *Jane's Defence Weekly*, 3 March 2004; http:/www.navship.com.pl/ en/index.html.

189 'Defence Gift of Allies', *Newsletter from Poland*, February 2002; www.paiz.gov.pl.

190 Ibid.

191 'Chapter 3: Key Economic Sectors', *Poland Quarterly Forecast Report, 4th Quarter 2003*; www.web17.epnet.com.

192 Ibid.

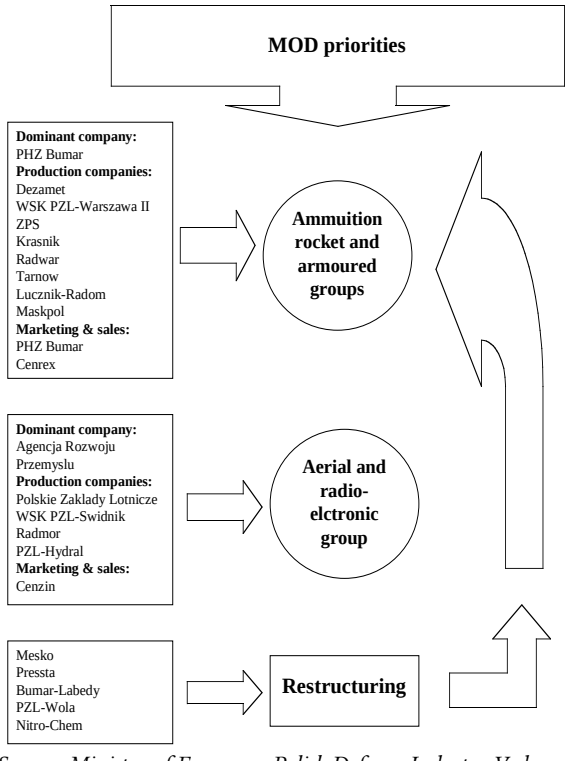
ments, and ARP (Agencja Rozwoju Przemyslu), specialised in aeronautics and electronics. The Government has selected the members of these groups on the basis of their ability to manufacture those types of military equipment that have been identified as priorities for the Polish armed forces.[193] Several other companies have been included, on the basis of their export potential and ability to participate in future offset programmes.

The creation of the two holding groups is proceeding in two stages. In the first stage, companies with good economic and financial standing have been consolidated. This stage being concluded, Bumar is now composed of nine, and ARP of five companies. In a second stage, the production process and finances of a further five companies will be restructured, before they also join Bumar (see Annex).[194]

Apart from the creation of two 'capital groups', the Polish government also plans to privatise 13 of the remaining defence companies. Prior to their privatisation, however, some of these companies will undergo restructuring, in which part of their military manufacturing capacities will be transferred to Bumar (see Annex). The firms that are eventually privatised will therefore have little or no military production. The revenues earned by the privatisation of these companies will be used to co-finance other restructuring activities.[195] As a consequence of the strategy of structural transformation, the majority of the Polish defence industry will therefore remain state-owned. Privatisation remains an exception, just like foreign direct investments: in 2001, EADS/CASA acquired a 51 per cent stake in the small aircraft company PZL Warzawa-Okecie, and Pratt & Whitney Canada was selected in March 2002 by the Polish MOD as a strategic investor in the aircraft engine manufacturer WSK PZL Rzeszow.

Over the last decade, the Polish government has also granted considerable subsidies to domestic defence producers. According to a recent report by the Polish Supreme Board of Inspection's (NIK), public aid to the arms industry between 1996 and 2002 reached more than Zl 7.6 billion ($1.9 billion). However, over the same period, employment fell by 46.7 per cent and the sector's debt grew to Zl 1.6 billion ($392 million).[196] According to the same study, profitability also decreased to minus 16 per cent. In the light of these developments several voices in the Polish government have called for a further consolidation of the defence sector, possibly by creating just one single holding group.[197]

Formation of Polish capital groups



Source: Ministry of Economy, Polish Defence Industry Vademecum, 2003

193 The basis for the acquisition priorities for the armed forces has been provided by the 'Programme of Restructuring and Technical Modernisation of the Armed Forces of the Republic of Poland in the Years 2001-2006'.

194 For a more detailed description of the restructuring process see Polish Defence Industry Vademecum, 2003.

195 Ibid.

196 Own calculation based on the 2002 Zl/$ exchange rate provided by *The Military Balance*.

197 'Critical Report Sparks Talk of Military Sector Consolidation', *PNB Economic Review*, 30 April 2004 and 'Auditing Board: to-date defence reforms ineffective', Polish Press Agency PAP, 4 March 2004.

5.2 Armaments industry

Defence industry profile

Number of companies	58[198]
Employment	50,000[199]
Industrial output ($ million)	971[200]
Armaments exports ($ million)	175[201]

The post-communist transition of the defence industry

During the Cold War, the Polish defence industry was the third largest within the WTO, trailing behind the Soviet Union and Czechoslovakia.[202] Since Poland exported approximately 80 per cent of its armaments production to other WTO member states, its defence industry was hard hit by the collapse of the organisation.[203] The decline in foreign and domestic orders led to a dramatic industrial shrinking process and massive lay-offs.[204] From 150 companies employing 215,000 people in 1989, defence industry was reduced to 58 companies employing about 50,000 in 2003.[205] By 2002 the total debt of the sector exceeded $392 million (Zl 1.6 billion) and the defence share of overall national production had fallen from 2 per cent in 1986 to less than 1.5 per cent in 1997.[206]

Arms production and industrial cooperation

However, in spite of this downsizing, Poland is now the largest weapons producer in Central and Eastern Europe. Polish defence firms are engaged in the design and production of aircraft engines, battlefield vehicles, artillery systems, protective clothing, small arms and ammunition (see Table III). While the majority of Polish military products are still based on Soviet-era designs,[207] Poland has also succeeded in developing several new weapons systems.[208]

In the armoured vehicles and ammunitions sector, the Bumar holding group is the dominant industrial player. The holding will eventually consist of 15 companies and is closely cooperating with 3 R&D units (see Annex). Bumar manufactures a range of armoured vehicles and tanks, armoured recovery vehicles, artillery pieces and electronics, as well as soldiers' personal equipment. The Polish MOD recently signed several contracts with Bumar for the period 2003-2008, which are valued at $650 million (ZL 2.5 billion).[209] Bumar will also participate in the licensed production of 690 AMVs from the Finish Patria and for which the state-owned military repair depot Wojskowe Zaklady Mechaniczne (WZM) will be the prime contractor.

Recently, Bumar also won several large export contracts in Asia. In India, Bumar was selected in 2003 for the delivery of 228 WZT-3

198 Ministry of Economy, Polish Defence Industry Vademecum, 2003.

199 Data provided by BICC.

200 Polish Defence Industry Vademecum, 2001, Data given for 1999 (ZL 3.7 billion).

201 'Defence Industry: Exports Reach $ 175 million After Three Quarters as Sector Recovers from Prolonged Downturn', *PNB Economic Review 2003*, 28 November 2003. This data is an estimation.

202 *Poland Quarterly Forecast Report, 4th Quarter 2003*.

203 Marla Nelson, 'Defence Conversion in Post-Cold War Poland: A Summary'; http://www.cfr.org/public/armstrade/poland.html.

204 Saferworld, 'Arms Production in Central and Eastern Europe'; http://www.saferworld.co.uk/armspubres.htm, July 2002.

205 Ibid.

206 Mariano Alierta, 'Central Europe Defence Markets', NATO PA Committee Report, November 1998; http://www.nato-pa.int and 'Critical Report Sparks Talk of Military Sector Consolidation', *PNB Economic Review*, 30 April 2004.

207 Yudit Kiss, 'Poland' in *The Defence Industry in East-Central Europe: Restructuring and Conversion*, (Oxford: Oxford University Press for SIPRI, 1997), p. 119.

208 Ibid, p. 120.

209 Grzegorz Holdanowicz, 'Living on the Edge: The Polish Defence Industry', *Jane's Defence Weekly*, 16 April 2003, p. 24.

armoured recovery vehicles worth $202 million. Several other small contracts for the modernisation of anti-aircraft missile systems[210] and tanks followed.[211] Some earlier contracts for the Indian armed forces included the delivery of fire-control systems, technical vehicles and handguns. Bumar has also been able to establish a close relationship with the Indian BEML and in early 2004 both firms signed an agreement for the creation of a joint venture company. In addition, Bumar secured a contract with Malaysia in 2003 for the delivery of 48 PT-91M MBTs, which is a 'Westernised' derivate of the soviet T-72. On this contract, worth $375 million, Bumar is cooperating with the French company SAGEM, which provides optical electronic instruments. The share of Polish-made components in the contract will be approximately 25 per cent.[212] In Iraq, Bumar recently lost a competition for the supply of small arms, military vehicles and uniforms worth $550 million to the new Iraqi forces. However, the company hopes now to succeed in another tender for the Iraqi army.[213]

The Polish aerospace sector is dominated by ARP, a holding group which consists of 5 main companies and cooperates closely with one R&D unit (see Annex). The most important companies in this holding are the helicopter manufacturer Polskie Zaklady Lotnicze (PZL) Swidnik and the aeronautics firm Polskie Zaklady Lotnicze[214] (PZL) Mielec. PZL Swidnik has subcontracting agreements with several foreign companies including Augusta, Airbus and Dassault, and generates over 50 per cent of its revenue from the delivery of components to these companies.[215] In addition, PZL Swidnik produces multipurpose helicopters[216] and has recently won a contract for the export of 11 helicopters to Indonesia. PZL Mielec acts as a subcontractor for Western groups as well. Moreover, it produces the M28 *Skytruck* light transport aircraft, which has been sold to Nepal, Vietnam and Indonesia. ARP has been awarded contracts by the MOD for the period 2003-2008 worth $144.3 million (ZL 550 million).[217]

Other important companies in the Polish aerospace sector include PZL Warzawa-Okecie and PZL Rzeszow. The latter currently produces Pratt & Whitney F-100/PW-229 engines for the Polish F-16 fighter aircraft . PZL Warzawa-Okecie manufactures jet trainers and will modernise several *Orlik* training aircraft for the Polish Air Force. In addition, PZL Warzawa-Okecie will provide in-service support for the C-295, which the MOD is acquiring from EADS-CASA. In the context of their cooperation, both Pratt & Whitney and EADS have become shareholders of their respective Polish partner companies.

Two companies dominate the Polish electronics and communication sector, Radwar and the Telecommunication Research Institute PIT (Przemyslowy Instytut Telekomunikacji). PIT is Poland's leading radar technology R&D centre, and has some experience in developing and manufacturing 3-D radar systems for air defence and has shown some interest in missile defence technologies. Thus, in June 2003, PIT and Boeing Corporation's Missile Defence Systems[218] signed a memorandum of understanding (MOU) on cooperation in ballistic missile defence and network-centric system technologies. This cooperation has received renewed importance in the light of recent news that Poland might host radar stations and intercep-

210 The contract is valued at $110 million.

211 'Arms Contracts in India', *The Warsaw Voice*, 18 February 2004; www.warsawvoice.pl.

212 'Defence Industry: Exports Reach $ 175 million after three quarters as sector recovers from prolonged downturn', *PNB Economic Review*, 28 November 2003.

213 *Bahrain Tribune*, 4 June 2003; http://www.bahraintribune.com.

214 PZL = Polish Aviation Factory.

215 Blaha, 'Les Industries de Défense à l'Est', *Courrier des Pays de l'Est*, February 2003, p. 23.

216 Its main product, the Sokol multirole helicopter, is a 'Westernised' derivative of the old Soviet Mi-2.

217 Grzegorz Holdanowicz, 'Living on the Edge: The Polish Defence Industry', *Jane's Defence Weekly*, 16 April 2003, p. 24.

218 Grzegorz Holdanowicz, *Jane's Defence Weekly*, 28 January 2004.

tor missile sites for the US 'National Missile Defense' (NMD) programme.[219] In addition, in January 2004, PIT came to an agreement with Lockheed Martin Naval Electronics & Surveillance Systems on cooperation in radar technologies for antimissile defence.[220] PIT also leads a Polish industrial group,[221] which in November 2003 signed an MOU with TIPS (Transatlantic Industrial Proposed Solution)[222] for cooperation on the future NATO Airborne Ground Surveillance (AGS) system.

A third company in the communication sector is Radmor, which is also part of ARP. Radmor has specialised in radio equipment, and is currently competing for a contract, worth $100 million, to modernise Indian T-72 tanks with night vision cameras and fire control systems. In addition Radmor has produced a radio station, which is currently in use in several Central and East European countries. Radmor is also involved in one of the most important cooperation ventures between the US and Polish defence industries, called the 'TERTRA communication system for police and rescue services', for which it will produce 140,000 radios. For this contract, the US firms Lockheed Martin and Motorola will cooperate with the Polish companies Radmor, Procom, Computerland and Telenergo.[223]

The Polish naval sector has been particularly hard hit by the collapse of the WTO market. Thus, in 1996 one of the bigger shipyards Stocznia Gdanska went into bankruptcy, only to be followed by Szczecin shipyards in 2002.[224] As a result, the big shipyards went through a restructuring process, and the Ministry of Treasury sold an 85 per cent stake of Stocznia Gdanska to private investors. However, due to lower production costs, European shipyards have outsourced low-skill component manufacturing to Polish shipyards. In 1999, Poland had gained a world market share of 2.4 per cent in ship production,[225] and 14 per cent of all European ship repair works were carried out in Poland.[226]

Currently the largest Polish shipyard is the state-owned Gdynia naval shipyard. Gdynia produces landing ship and patrol boats for the Polish navy, together with commercial tankers. Recently, Gdynia initiated cooperation with the German Blohm & Voss for the licensed production of 2 *Meko*-class corvettes.[227] Gdynia suffers, however, from a heavy debt load and has only been able to survive through the provision of state aid. Recently, the Polish government has considered setting up a Polish Shipyard Corporation (KPS), following the model of the 'two capital groups' in the aeronautics and land armaments sectors. Other Polish naval shipyards include the Nauta and Gryfia shipyards, which mainly conduct overhauls and modernisation of small and medium-sized vessels.

Arms exports

Between 1986 and 1991, almost 50 per cent of Poland's total military production was exported. After the end of the Cold War, Polish arms exports continuously decreased to an absolute low point of just $40 million in 2000. Ever since then, however, exports have increased again to approximately $175 million in the first three quarters of 2003[228] and are expected to rise further.

219 Ian Traynor, 'US in talks over biggest missile defence site in Europe', *The Guardian*,13 July 2004. In addition, the United States is negotiating with the Czech Republic and Hungary about the prospects of building further NMD sites in these countries.

220 Grzegorz Holdanowicz, 'Lockheed links with Polish centre on missile defence', Jane's Defence Weekly, 11 February 2004.

221 This group consists of PIT, CNPEP, Radwar DGT, PZL Mielec and WSK PZL Warzawa II.

222 TIPS is a consortium consisting of EADS, Galileo Avionica, General Dyunamics Canada, Indra, Northrop Grumman and Thales.

223 Saferworld, 'Arms Production in Central and Eastern Europe', July 2002; www.saferworld.co.uk/armspubres.htm.

224 'Poland will decide on national ship concern after finalizing Gdnyia yards plans mid-March', 9 March 2004; www.interfax.com/com?id=5702399&item=Pol.

225 Including ships built for both civil and military purposes.

226 Jurgen Müller, 'The German Shipbuilding Industry', 2003; http://strategis.ic.ge.ca/epic/internet/inimr-ri.nsf/en/gr110193e.html.

227 See Company web page at http://www.navship.com.pl/en/index.html.

228 Quoted in 'Defence Industry: Exports Reach $ 175 million After Three Quarters as Sector Recovers from Prolonged Downturn', *PNB Economic Review 2003*, 28 November 2003.

In recent years, Asia has become a major export destination for Polish defence products. This is the case in particular for India, which was already a major buyer of Polish defence equipment during the Cold War. Indonesia and Malaysia have also been lucrative export markets for Polish manufacturers for several years and Poland has granted a $135 million credit to Indonesia for buying Polish defence equipment. Africa and Latin America are also regions where Polish exporters seek to establish themselves, but for the time being only a few contracts have been signed with countries from these parts of the world . Finally, the Baltic States have been a market of some importance for decommissioned Polish military equipment.

In 2001, Poland passed a new law on arms export controls that has closed several existing loopholes and requires defence companies to collect information that helps with end-user verification. Since 2002, Poland has also published annual reports on arms exports.[229]

[229] Saferworld, 'Arms Production in Central and Eastern Europe', July 2002, available at http://www.saferworld.co.uk/armspubres.htm..

Slovakia

6.1 Armaments policy[230]

Government profile 2003

Defence budget ($ million)	624[231]
Defence budget (% of GDP)	1.9[232]
Procurement budget ($ million)	81[233]
FMA ($ million)	10.9[234]

Procurement policy

Slovakia did not receive an invitation for NATO membership before 1999. However, its defence expenditure remained around 2 per cent of GDP for most of the late 1990s and only dropped to 1.9 per cent of GDP ($624 million) in 2003. According to the draft 2004 budget, defence spending will decline further, to 1.8 per cent of GDP in 2004.[235]

In order to modernise its force structure and comply with NATO guidelines, the Slovak Ministry of Defence developed a strategy for the transformation of the armed forces based on three key documents: the new 'Defence, Military and Security Strategy', the 'Plan for modernisation and development of Armed Forces, Model 2010' and the 'Program Plan for the period 2003-2008'. According to these planning papers, the MOD will spend an estimated $600 million on modernisation projects during the period 2003-08.[236]

In 2003, personnel expenditure accounted for 41 per cent of the defence budget, while operational costs were estimated at 32 per cent, leaving approximately 27 per cent for the modernisation of equipment and infrastructure. Total procurement expenditure reached an estimated SK 3 billion ($81 million) in 2003,[237] while R&D spending remained at a low SK 207 million ($5.5 million).

The majority of procurement expenditure is earmarked to fulfil the goals of armed forces reform expressed in the 'Model 2010'. For the land forces, these include the upgrade of a limited number of tanks and BVP-2 armoured vehicles, and the acquisition of new mortars and modern command, control and information systems. In addition, the MOD plans to acquire a new type of light wheeled armoured carrier for its future light infantry brigade.[238]

As to the modernisation of the Slovak Air Force, work has already started on upgrading L-39 and L-410 trainer jets, AN-26 transport aircraft and Mi-17 transport helicopters.[239] Moreover, the in-service life of the current fleet of MiG-29 will end by 2010, but funding con-

230 All monetary data in this part is given in Slovak Koruna (SK) current prices of the years specified. $ prices have been calculated on the basis of annual conversion rates provided by *The Military Balance 2003-2004* (For 2003, $1= SK36.6).

231 Ibid.

232 Ministry of Defence, 'Budget for 2003', *Slovak Army Review*, Spring/Summer 2003, confirmed by D. Price, Invited NATO Members' Progress On Military Reforms, Report of the NATO Parliamentary Assembly, November 2003.

233 Data given in SK (SK 3 billion) in 'New Journey for Procurement Office', *Slovak Army Review*, Autumn 2003.

234 IISS, *The Military Balance 2003-2004*.

235 Martina Pisarova, 'Slovakia, an inferior NATO member?', *The Slovak Spectator*, 27 October 2003; www.slovakspectator.sk.

236 D. Price, Invited NATO members' progress on military reform, Report of the NATO Parliamentary Assembly, November 2003.

237 Ministry of Defence of the Slovak Republic, 'Budget for 2003 in figures, Facts and Graphs'. However, $81 million only represent approximately 12 per cent of the defence budget.

238 Annual National Programme Slovakia 2003, available at http://www.foreign.gov.sk/En/files/ANP_2003_en.doc.

239 *Military Technology*, June 2003, p. 57.

straints have obliged the MOD to postpone the acquisition of new combat aircraft for 15 to 20 years.[240] As an interim solution, 12 MiG-29 will now be refitted in order to extend their operational life. In a deal worth $43 million, engineers from the Russian MiG design bureau will supervise the upgrade work, to be carried out at Slovakia's LOT aircraft repair facility in Trencin,[241] and Russian participation will be paid as part of the settlement of Russia's old Soviet-era debt to Slovakia.[242] Other modernisation projects for the air force concern air defence radars and C4 systems, as well as upgrades of 10 Mi-24 combat helicopters (most likely by BAE Systems).[243]

According to 'Model 2010', the cumulative costs of these and other modernisation projects will be $1.7 billion until 2015.[244] While the MOD has shown a preference for Western companies, it continues to make a sizeable share of its purchases from Russia as part of the continuing repayment of Soviet-era debt.

Defence industrial policy

After the 'velvet divorce' from the Czech Republic, the new Slovak government blocked all ongoing privatisation projects and consolidated the most important civil and military engineering companies in one large state holding, the DMD Group. In 1997, the Government then passed a law under which all state-owned defence enterprises were turned into shareholding companies. Within these companies the state continued to hold a majority of shares through different state organisations such as the Fund of National Property (FNP), the MOD and the Ministry of the Economy (MOE). Once these shareholding companies had been established, the Government proceeded to sell them to selected private investors. The enterprises privatised as a result of this process included some of Slovakia's biggest defence companies,[245] such as ZTS Martin and the DMD Group.[246]

However, these transactions were plagued by corruption and most of the companies were sold for a fraction of their real value to shady investors close to government circles.[247] Unsurprisingly, after a change of government, the privatisation process was halted and many of the dubious contracts were dissolved. Eventually, most of the companies previously privatised once more reverted to state-ownership. After this ill-fated second attempt at privatisation, no further efforts were undertaken and the MOE continues to be the owner of the leading defence industrial enterprises in Slovakia.

Ever since Slovak independence, defence enterprises have received a constant trickle of state aid. In 1997, the Government introduced Act 211/1997 on the revitalisation of enterprises, which allowed for the financial assistance of embattled firms and protected many defence companies from bankruptcy. Having 'proved to be utterly counterproductive', this programme was cancelled again only one year later. However, for most of the late 1990s, the Slovak government continued to subsidise the defence industry through debt relief, state credits and indirect subsidies.[248] At the same time, the Government started to assist defence companies in obtaining foreign orders and foreign cooperation contracts.[249]

240 According to the former Slovak Defence Minister, Ivan Simko, quoted in 'New aircraft postponed for 15 to 20 years', Slovak Army Review, Spring/Summer 2003.

241 Jiri Kominek, *Jane's Defence Weekly*, 16 June 2004.

242 'New aircraft postponed for 15 to 20 years', *Slovak Army Review*, Spring/Summer 2003.

243 'Mi-24s in line for British upgrade', *Slovak Army Review*, Autumn 2003.

244 David Price, 'Invited NATO members' progress on military reform', Report of the NATO Parliamentary Assembly, November 2003.

245 *The Slovak Spectator*, 9-15 November 1998; available at www.slovakspectator.sk.

246 See DMD's website at www.dmd.sk/ebackground.htm.

247 Yudit Kiss, 'Defence Industry Consolidation in East Central Europe in the 1990s', *Europe-Asia Studies*, vol. 53, no. 4, 2001, p. 603.

248 WS Atkinst International Ltd in Association with SIPRI, 'Final Report on the Defence Related Industries in Certain Central and East European Countries', Chapter on Slovakia, June 1999. For recent years, however, no data on state aid to the defence industrial sector has been made available.

249 Ibid, p. 602.

6.2 Armaments industry

Defence industry profile 2003

Number of companies	40[250]
Employment	6000[251]
Industry output ($ million)	29 (2000)[252]
Armaments exports ($ million)	31(2002)[253]

The post-communist transition of the defence industry

During the Cold War, the Slovak regions were the centre of the Czechoslovakian armaments industry, and some 65 per cent of the country's production capacities were located there. Following the division of labour imposed by the WTO, Slovak producers mainly manufactured tanks, combat vehicles and anti-tank missiles under Soviet licences.[254] At the peak of the Czechoslovakian defence industry in the late 1980s, companies in the Slovak regions employed some 80,000 workers[255] and the largest defence enterprise, ZTS Martin, alone employed some 15,000 workers.[256]

After the collapse of the Warsaw Pact, defence industrial output fell from $519 million (SK 19 billion) to $95 million (SK 3.5 billion) between 1988 and 1992, and an estimated 30,000 jobs were cut. The growing economic imbalance between the Czech and Slovak regions, and controversy over the further privatisation of the defence industry, finally led to Slovak independence in 1993. By 1994, the combined industrial output of Slovak defence companies had fallen to $54 million (SK 2 billion), or around 10 per cent of its peak in 1988. The following years brought nothing but stagnation as Slovak companies struggled to adapt to the changed international environment and the Government failed to provide them with a stable regulatory framework.

In 1997, a change of government finally opened the way towards a certain recovery of the armaments sector. The goal of NATO membership, the recovery of the domestic economy in general, new export deals and state-led reforms all helped to stabilise the situation. Nevertheless, by the early 2000s Slovak defence industries were still struggling with serious economic and financial problems, and their future remains uncertain.[257]

Arms production and industrial cooperation

According to the MOE, there are some 40 defence companies in Slovakia, which produced armaments worth $29 million in 2000 (see Annex).[258] Slovak companies have specialised in the production of engineering technology and heavy weapons, and some companies have also developed a limited capacity in defence electronics.[259] In 2003, employment in defence-related industries was estimated at around 6,000.

The 'velvet divorce' from the Czech Republic has left Slovakia with only one relatively important military aircraft company, which is the repair plant LOT Trencin. LOT still employs some 800 workers and has some experience with the overhaul and repair of Soviet-era military aircraft. The company works primarily for governments in the third world,[260] and its most important business partner is Egypt, for whom

250 Saferworld, 'Arms Production in Central and Eastern Europe', July 2002; http://www.saferworld.co.uk/armspubres.htm.

251 Data provided by BICC.

252 Saferworld, 'Arms Production in Central and Eastern Europe', July 2002; http://www.saferworld.co.uk/armspubres.htm.

253 SIPRI Arms Transfers Database.

254 Yudit Kiss, 'Defence Industry Consolidation in East Central Europe in the 1990s', *Europe-Asia Studies*, vol. 53, no. 4, 2001, p. 600.

255 Ibid.

256 Ibid.

257 Tom Nicholson, *The Slovak Spectator*, 28 October 2002; www.slovakspectator.sk..

258 Saferworld, 'Arms Production in Central and Eastern Europe', July 2002; http://www.saferworld.co.uk/armspubres.htm.

259 Ibid.

260 Some of its former customers included Angola, Kyrgyzstan, Thailand, Bangladesh, Peru and Algeria.

it upgraded L-29 *Delfin* and L-39 *Albatros* training aircraft. Recently, LOT has also repaired Su-22 supersonic fighter-bombers for Angola.[261]

In the armoured sector, the main Slovak defence company is the DMD Holding Group (see Annex). The MOE and the Fund of National Property founded the DMD Group in 1995 in order to facilitate defence exports and coordinate R&D efforts of various companies. In 1997, the DMD Group consisted of 20 large Slovak engineering companies with cumulative revenues of $325 million (SK 11.7 billion).[262] However, only four of these companies were engaged in defence related production. In 1998, the DMD Group underwent a snap privatisation, only to be renationalised after a change of government.

The most important firm of the DMD Group is Konstrukta Defence. The company produces rocket launchers, artillery systems and mortars, together with a range of munitions and electronic systems. Konstrukta has recently cooperated with the German Diehl Munitionsysteme in order to upgrade its RM-70 rocket launcher to NATO standards, and has signed a cooperation agreement with GIAT of France to develop a new NATO compatible tank turret for T-72, M-60 and *Leopard* 1 tanks. Finally, Konstrukta has signed a memorandum of understanding with BAE Systems in order to support BAE's bid for an expected tender by the Slovak MOD for jet trainers. Should BAE succeed in its bid, Konstrukta is expected to benefit from the offset agreements that will in turn be concluded.[263]

Another member of the DMD Group, ZTS-Special, has developed a new howitzer, the *Zuzana* model 2000, which employs a chassis manufactured by the Czech company Tatra. In addition, ZTS-Special has cooperated with the Slovak Kerametal and Transmisie Engineering to construct the Aligator 4x4 multirole wheeled armoured vehicle.[264] Finally, for some time the Slovak DeTec has been cooperating with the German Rheinmetall Landsysteme in order to develop a new AMV 4x4 multirole armoured vehicle.[265]

Arms exports

Slovak arms exports hovered around some $40 million for most of the late 1990s (see Annex). After a big jump in export sales in 2001 to $91 million, exports fell again in 2002 to $31 million.[266] Much of Slovak arms exports consist of surplus weapons from the country's national armed forces.[267]

The Czech Republic remains one of Slovakia's largest export markets. Even after the 'velvet divorce', Slovak and Czech defence enterprises have maintained strong relationships and supply each other with components.[268] On top of that, Slovakia has exported weapons to African countries, in particular Angola.[269]

In the past, some of these arms exports were apparently conducted without the appropriate licences, and evidence has surfaced that in some cases Slovakia might have broken UN sanctions.[270] In May 2002, Amnesty International accused the Slovak government of ignoring EU guidelines on arms exports to sensitive regions.

261 Saferworld, 'Arms Production in Central and Eastern Europe', July 2002; http://www.saferworld.co.uk/armspubres.htm.

262 Yudit Kiss, 'Defence Industry Consolidation in East Central Europe in the 1990s', *Europe-Asia Studies*, vol. 53, no. 4, 2001, p. 602.

263 See company web-page at http://www.kotadef.sk.

264 Jiri Kominek, *Jane's Defence Weekly*, 11 April 2001, p. 30.

265 *Slovak Army Review*, Winter 2003.

266 SIPRI Arms Transfers Database.

267 In 2000, nearly two-thirds of Slovak arms exports have consisted of surplus weaponry. See Amnesty International, 'Undermining Global Security. The European Union's Arms Exports', 2004; http://amnesty.org.

268 WS Atkinst International Ltd in Association with SIPRI, 'Final Report on the Defence Related Industries in Certain Central and East European Countries', Chapter on Slovakia, June 1999.

269 Between 1999 and 2001, Slovakia exported weapons worth $25 million to Angola.

270 See 'Arms Trade, Human Rights, and European Union Enlargement: The Record of Candidate Countries', *Human Rights Watch Briefing Paper*, 8 October 2002; http://www.hrw.org/backgrounder/arms/eu_briefing.

The same month a report of the country's secret service, SIS, claimed that Slovakia had become a conduit for exports of Russian arms to troubled spots such as Angola, Belarus, Iran, Iraq, Liberia and Zimbabwe.[271] Faced with these accusations, in 2002 the Slovak government adopted new arms trade legislation in order to address certain loopholes. While this has resulted in a more effective export control regime, some shortcomings seem to persist.[272]

[271] On several occasions, Slovak weapons have been exported to Liberia, Sudan and Sri Lanka, in violation of existing arms sanctions. See Saferworld 'Arms production in Central Eastern Europe – Slovakia', pp. 8-12; http://www.saferworld.co.uk/arms_security/Beastrep.htm.

[272] Ibid.

Conclusion

The accession of 10 new member states to the EU has not changed the situation of Europe's armaments sector fundamentally. There are two main reasons for this. First, armaments have up until now remained outside the European integration process. Based on Article 296 of the TEC, member states have excluded the production, trade and procurement of military goods and services from the single market, and they have even refused to use the intergovernmental framework of CFSP/ESDP for armaments cooperation. It is only now that the Union is starting to get involved in this area. The newcomers are not therefore faced with a well-established *acquis* that could have a direct impact on their defence markets and industries. Second, the new member states, and even the four Visegrad countries, are small players in this field: while they have increased their military expenditure, their combined military spending still represents only five per cent of the EU total. Moreover, their industrial and technological capabilities are limited both in quantitative and qualitative terms.

This does not mean, however, that EU enlargement and armaments would be a non-issue. On the contrary, following the experience of the ECAP process and the work of the Convention, several initiatives have been launched which may considerably enhance the role of the Union in the field of armaments and have important implications for the new member states as well. This is the case in particular for the European Defence Agency, but also for the Commission's plans for a European Security Research Programme (ESRP) and a possible community directive on defence procurement. At the same time, armaments will remain a predominantly national domain, and most decisions in this field will be taken by unanimity. The new member states will thus participate in shaping future developments, whatever their military and defence industrial capabilities.

The first conclusion is therefore that the new members must define a position vis-à-vis the ongoing initiatives, and they should do so rapidly, because the latter have gained a considerable dynamic. This is easier said than done, both because the issues at stake are all highly complex and have many implications, but also because for newcomers the EU machinery with all its stakeholders and institutional turf battles is not always easy to understand. Even in old member states, only a few people know the specificities of both the armaments sector and the EU universe; in new member states, their number is inevitably even smaller. However, the Visegrad countries should prepare to make sure that their interests are taken into account in a process that involves risks and opportunities for them.

The most prominent and most advanced EU project related to armaments is the European Defence Agency (EDA), which was officially launched in July 2004. Although it is still unclear how the Agency will work in practice and what its actual influence will be, it is fair to assume that the EDA may become a useful tool for the Visegrad countries in several ways.

- The Agency's work on the development of European military capabilities may give the new member states additional guidance for the mod-

ernisation of their armed forces and help them to set a more stable basis for their military planning. Procurement policies of the Visegrad countries have come a long way since the end of the Cold War. All four have made considerable efforts to increase their defence budgets and have started to restructure and modernise their armed forces. However, the EDA can help to stabilise and integrate this process into a broader European context, which is key in terms of interoperability and cost-effectiveness.

- The EDA can help to identify opportunities for cooperation. Due to their common history as WTO members, all Visegrad countries still have large stocks of Soviet-era equipment, face similar capability shortfalls and often have comparable acquisition and modernisation projects. However, so far they have been unable to pool their needs and translate them into common projects. The EDA is an appropriate framework in which to foster their regional cooperation, in particular for upgrades and off-the-shelf acquisition.
- The Agency could support the modernisation of both the armed forces and defence industries of the Visegrad countries by promoting the development of niche capabilities. Monitoring defence capability development and armaments policies at the EU-level, the EDA is in fact in a unique position to suggest and foster role specialisation and new, efficient patterns of division of labour.

The Agency will have a small operational budget, ad hoc projects with separate budgets, and may one day use OCCAR for programme management. In all three cases, competition may become a problem for the participation of industries from the Visegard countries. If contracts funded through the Agency's common budget are awarded on the basis of competitiveness, the Visegrad Four may run the risk of getting no direct return on their financial contribution. If, in contrast, contracts are awarded on the basis of a strict application of the *juste retour* principle, the Agency will have great difficulties in accomplishing its mission of enhancing the competitiveness of Europe's industrial base. As long as the Agency's operational budget is minuscule and limited to feasibility studies, the financial stakes will not be high enough to create political tensions, but this may change in the future. Participation in EDA's ad hoc projects and programmes managed by OCCAR may create similar problems. Granted, in these cases financial rules and work shares can be negotiated on an ad hoc basis, but the application of the *juste retour* principle may nevertheless become a bone of contention.

The EDA also has a mandate to cooperate closely with the European Commission. The latter can in particular participate in the Agency's ad hoc projects. This provision is particularly important since the Commission is currently preparing an ESRP from 2007 onwards. According to the Commission, this would seek to maximise synergies and foster technology transfer between civil, security and defence research. Given the growing duality of technology and the increasing overlap between military and non-military security functions, it would certainly make sense to use the ESRP to co-fund certain EDA ad hoc projects. This could also be an advantage for the Visegrad countries, because the Commission is traditionally interested in promoting SMEs and ensuring a geographically balanced distribution of funding. Moreover, the Commission does not defend specific national interests, which may make it easier for companies from the Visegrad countries to get access to research funding than intergovernmental arrangements.

The Commission's initiative in the field of defence procurement may become more problematic than the ESRP. In September 2004 the Commission will present a Green Paper on public procurement of military goods and services. This is only the beginning of a consultation

process, and it is unclear what the actual outcome of this initiative will finally be. However, if the effect is to limit of the scope of Article 296, this will have a major impact on the defence markets of the Visegrad countries. Three aspects seem particularly important in this regard.

The first is transparency and fair competition. It is true that Central and East European defence markets are very competitive for off-the-shelf acquisitions from abroad. However, whenever local companies can fulfil the needs of the national armed forces, Visegrad countries, like all arms-producing countries, base their procurement decisions on a pronounced national preference. A restriction of Article 296, whether as a result of a new directive or a more rigid interpretation of existing law, would certainly limit these procurement practices and open the door to greater intra-European competition. Due to their lack of competitiveness and specialisation in low-tech products, defence companies of the Visegrad countries would then probably have difficulties in standing up to competitors from other arms-producing EU countries.

Second, a Community directive on defence procurement would leave little room for offsets, because they are hardly compatible with the principles of transparency and fair competition. Given their enormous importance for the defence industries of the Visegrad countries, the loss of offsets would have a major impact on the region's armaments sector.

Last but not least, a Community directive on defence procurement would probably imply further measures in other areas such as competition law or trade. This, in turn, could well call into question, for example, certain state aids. The impact would again be particularly strong for companies that lack competitiveness and depend on subsidies.

All of this will not happen before long - if ever. Even if the political consensus existed, a European defence equipment market could only be established step by step and would inevitably be a complex and time-consuming exercise. Governments and industries will therefore have some time to prepare themselves. In this context, privatisation and modernisation – of both production methods and product portfolios – are key for the success of defence companies.

In this regard, the Visegrad countries have come a long way since the end of the Cold War. However, in Poland and Slovakia in particular the privatisation process is only just in its initial stages. Moreover, the findings of this study suggest that defence production in the region still remains, to a large extent, in line with former Warsaw Pact specialisations. Production continues to be focused on heavy armaments, small arms and the modernisation of Soviet-era equipment. It seems doubtful whether such a portfolio will be sufficient to guarantee survival in the long run. Given their limited size, Central and East European defence companies will probably have no choice but to develop 'niche capacities' and/or to establish themselves as suppliers for the big Western prime contractors. Some efforts have been made to achieve this objective, but a lot remains to be done. Taking advantage of a relatively cheap and well-educated work force, both governments and companies should focus investment even more in seminal areas.

In principle, offsets, in particular direct investments, can support the inevitable adaptation process. They can help to improve competitiveness and establish sustainable relationships with foreign partners, if – but only if – they are used as a means to foster modernisation and specialisation rather than for maintaining non-competitive facilities and structures.

Implying as it does a loss of jobs, know-how and sovereignty, transnational consolidation of defence industries is always difficult and painful. It is therefore not astonishing that *all* EU arms-producing countries are extremely reluctant to engage in this process.

However, given the limited size of national

markets in Europe and the costs of modern weapons systems, a common European defence equipment market and transnational consolidation of industry are unavoidable if Europe wants to maintain an internationally competitive defence industrial base. The latter is not only a prerequisite for tackling security challenges, it is also a safeguard against a US monopoly. This in turn should also be in the interest of those who buy military equipment from the United States, since competition is the only guarantee of attractive American offers. In other words, the Europeanisation of defence industries and markets may be a challenging task, but in the long term the consequences for both big and small EU countries could be even worse if they continue to treat armaments as a predominantly national affair.

Annexes

The data given below has been collected from a variety of sources. Overall, information available on the defence industry in Central and Eastern Europe remains fragmented and incomplete. Moreover, currency fluctuations and different methodologies used by the various sources make it difficult to compare figures for defence budgets, industrial turnover and exports. Therefore some caution needs to be employed regarding the compatibility of the given data.

Inflation rates, end of year (per cent) 1995-2004

Country	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004 (June)
Czech Republic	9.2	8.8	8.5	10.7	2.1	3.9	4.9	2.1	1.0	2.7
Hungary	28.0	23.5	18.3	14.4	10.3	9.8	9.1	5.4	5.6	7.5
Poland	26.8	20.1	15.9	11.7	7.3	10.1	5.6	2.1	1.6	4.3
Slovakia	9.9	5.8	6.1	6.7	10.6	12	7.4	3.1	9.5	8.1

Currencies

- Czech Republic: Czech Koruna,
- Hungary: Hungarian Forint
- Poland: Polish Zloty
- Slovenia: Slovak Koruna

Sources: The Military Balance (1996-97; 1997-98; 1998-99; 1999-2000; 2000-2001; 2001-2002; 2002-2003; 2003-2004), Oxford University Press, International Institute for Strategic Studies; Eurostat News Release, available on-line at http://europa.eu.int/comm/eurostat/

Czech Republic

Defence expenditure

Year	1997	1998	1999	2000	2001	2002	2003
Defence budget							
(CZK million)	27,800	35,600	41,500	44,000	45,100	47,500	52,100
(US$ million)	920	1,140	1,160	1,150	1,200	1,450	1,900
(per centage of GDP)	1.9	2.1	2.3	2.3	2.2	2.1	2.2
Exchange rate (US$1=CZK)	33.6	33	35.7	38.1	38	32.7	28.1

Source: IISS, The Military Balance 1997-2003

Year	1997	1998	1999	2000	2001	2002	2003	2004
Defence budget								
(CZK million)	31,328	37,643	41,688	44,669	44,977	48,924	52,320	50,725
(US$ million)	932	1,140	1,165	1,175	1,182	1,495	1,860	1,899
(percentage of state budget)	6.0	6.6	7.0	7.1	6.5	6.6	6.6	5.8

Source: Ministry of Defence, 'Rozpocet 2003'; Ministry of Defence, 'Rozpocet 2004'

Distribution of defence expenditure

	2000	2001	2002	2003
Personnel	42.8	46.0	45.5	48.6
Equipment	22.5	20.3	17.5	21.0
Infrastructure	3.3	4.6	6.1	4.3
Other	31.5	29.1	30.9	26.2

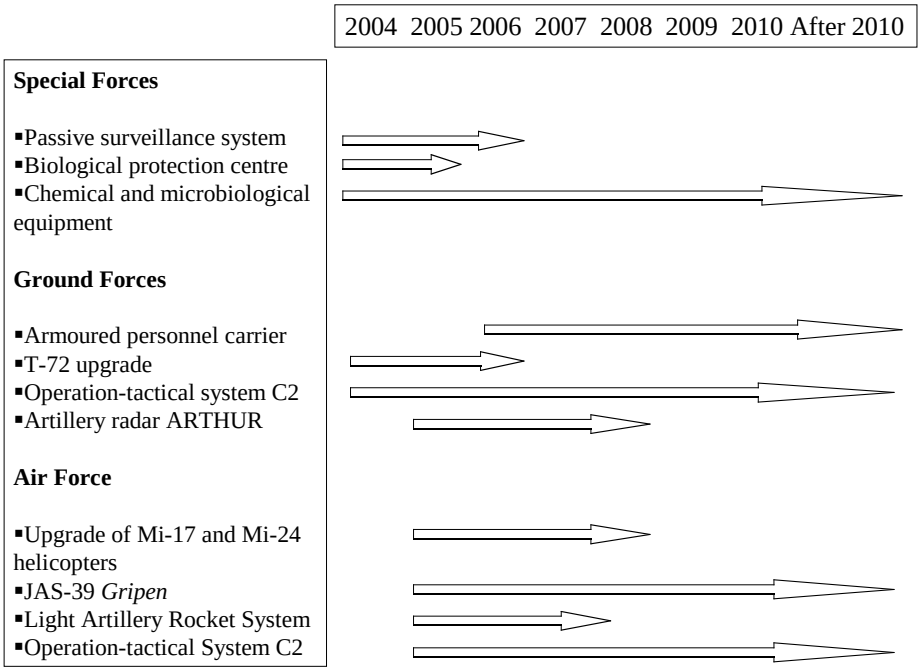
Source: NATO, 'Defence Expenditure of NATO countries', www.nato.int

Revised MOD Resource Framework 2004-10

Year	2004	2005	2006	2007	2008	2009	2010
Defence Budget							
(CZK billion)	50.7	53.8	58.4	61.3	64.2	67.4	70.3

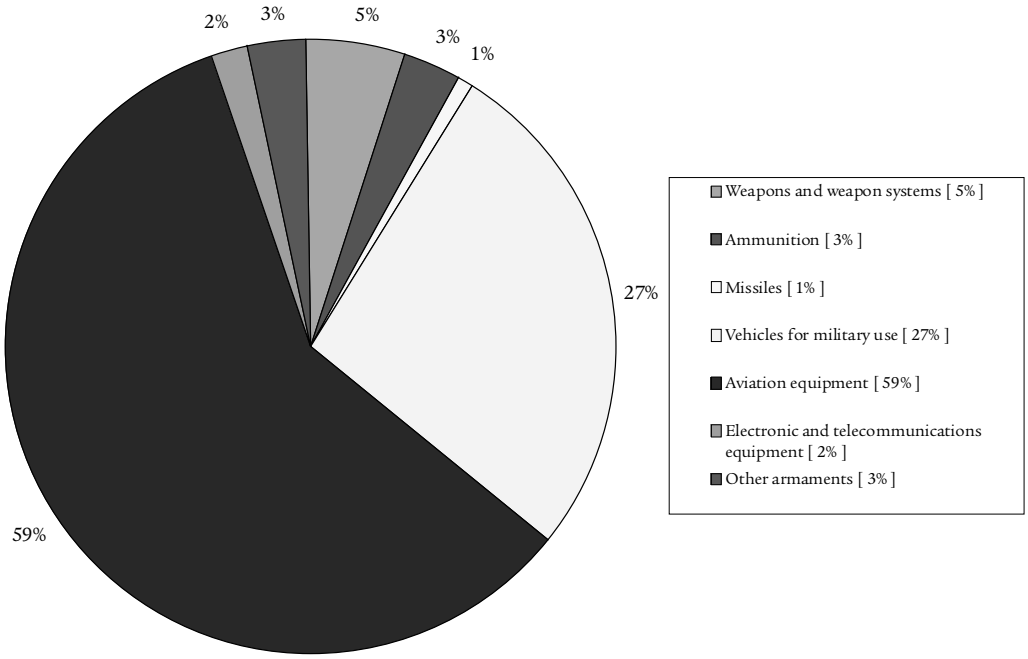
Source: Strategic Defence Review of the Czech Armed Forces 2003, www.army.cz

Planned MOD acquisitions (2004-10)



Source: ADI CR, Czech Defence & Aviation, No. 2, 2004

Military industrial output (2002)



Source: Ministry of Industry and Trade, 'The Prospects for Czech Defence and Security Equipment', http://www.czechembassy.dk

Arms production and exports

Year	1995	1996	1997	1998	1999	2000	2001	2002
Production (CZK billion)	2.24	1.91	6.38	n.a.	2.63	2.98	n.a.	n.a.
Production (US$ million)	85	70	201	n.a.	74	78	n.a.	175
Exports (US$ million)	154	117	182	104	101.4	100	68	87

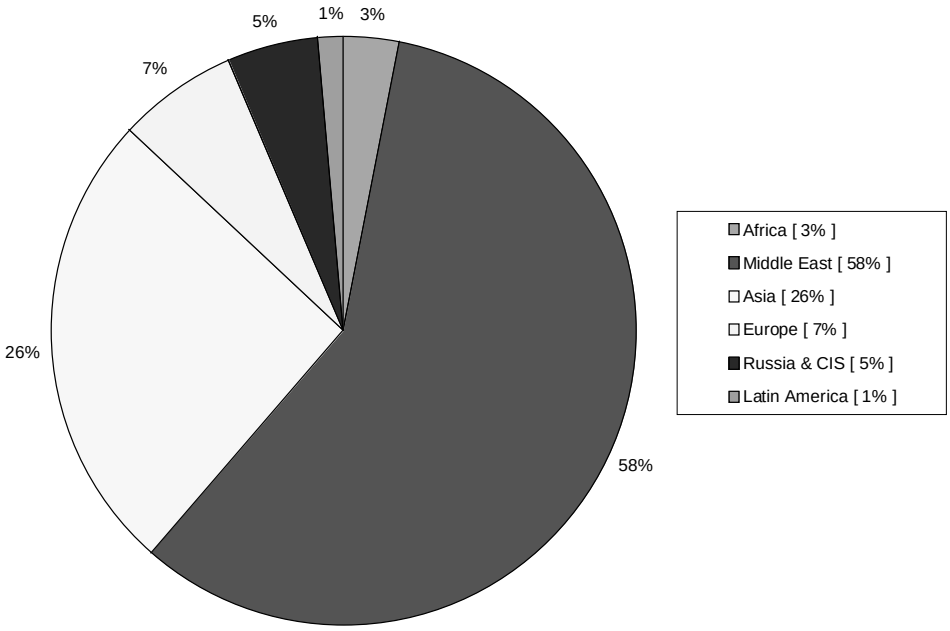
Sources: Jioi Chroustovsky, Armaments Industry in 2001, (www.czechembassy.dk); Saferworld, 'ArmsProduction in Central and Eastern Europe'; SIPRI Arms Transfers Database

Export structure

Year	1993	1994	1995	1996	1997
Aeronautical technology	78.5	79.5	59.2	46.4	9.7
Ground mobile technology	9.9	9.5	17.4	22.0	76.2
Ammunition	1.9	2.6	3.1	5.0	4.9
Arms	4.9	2.1	8.2	10.8	3.1
Electro-technology		0.3	0.3	3.2	1.3
Services	4.7	5.8	10.0	9.0	3.3

Source: Jioi Chroustovsky, Armaments Industry in 2001, (www.czechembassy.dk)

Destination of arms exports (1993-2003)



Source: SIPRI Arms Transfers Database

Major weapons imports (1990-2004)

Supplier	No. ordered	Weapon designation	Weapon description	Year of order	Year(s) of delivery	Value (US$)	Comments
Poland	11	W-3 Sokol	Helicopter	1995	1996-1997		Exchange for 10 MiG-29
Israel	10	EL/M-2140	Ground surv. radar	1994	1995-1997		
Bulgaria/ Ukraine	80	AT-6 Spiral/ 9M114	Anti-tank missile	1998	1999-2000	1.8 million	
Italy	72	Grifo	Combat ac radar	1998	2000-2002		For 72 L-159 fighter jets
Italy	2	RAT-31 DL	Air surv. radar	2002			Part of NADGE
Russia	7	Mi-24V/Mi-35/Hind-E	Combat helicopter	2001	2003		Part of Russian debt repayment
Russia	3	An-70	Transport aircraft	2002	2005-2006	195 million	Part of Russian debt repayment
USA	150	AIM-9M Sidewinder	SRAAM	2002	2002	35 million	For Protection of NATO Summit
Sweden	14	JAS-39 Gripen	FGA aircraft	2003	2004-2008	750 million	

Source: SIPRI Arms Transfers Database

TABLE I: Main defence companies in the Czech Republic

AIRCRAFT & AVIATION EQUIPMENT				
Company	**Main production line**	**Revenue**	**Employees**	**Foreign partners**
Aero Vodochody	▪Light fighter jets ▪Jet trainers ▪Civil aircraft ▪Spare parts & components	2002: $210 million	2000	Boeing; AIDC; Sikorsky Aircraft; BAE Systems; Vought Aircraft
Aviation Service	▪Customer support in avionics and airborne systems	2001: $8.3 million	50	
LOM Praha	▪Repair and service of engines		870	
PBS Veltka Bites	▪Aviation equipment ▪Turbines		890	
COMMAND & CONTROL SYSTEMS				
Company	**Main production line**	**Revenue**	**Employees**	**Foreign partners**
Ales	▪Air traffic control systems ▪Military command and control systems	2003: $1.8 million	30	
Eldis	▪Modernisation of radars		90	
ERA	▪Passive surveillance systems ▪SW application & modernisation	2003:$4 million	140	Thales; Marconi
Ericsson			100	Daughter company of Ericsson
EVPU Defence	▪Surveillance and monitoring systems			Honeywell Regelsysteme; ZEISS Optronik
Quittner & Schmiek	▪Cable harnesses ▪Circular connectors ▪Wire harnesses	2003: $3.5 million CZK 100 million	60	EADS, Wolfsberg aircraft
Tesla Hloubetin	▪Tactical radios ▪Radio relay systems		539	
Trade Fides	▪Security alarm systems	2003: $6.8 million	150	
Vues Brno	▪Electric machines and drives	2000: CZK 420 million	450	80% of production exported

TABLE I: Main defence companies in the Czech Republic — continued

COMMUNICATIONS & NAVIGATION SYSTEMS				
Company	**Main production line**	**Revenue**	**Employees**	**Foreign partners**
AG Systems	▪Information systems ▪Communication infrastructure	2002: €4.5 million		SUN Microsystems; Cisco; nStor; Supermicro: Oracle
ATS Telecom Praha	▪Telecommunication networks	2003: $11.3 million	70	Alcatel France; Thales Norway
AZD Praha	▪Transport telecommunication	2003: $120 million	1,900	
GiTy	▪Telecommunications technology	2003: $25 million	160	Cisco; Hughes Network Systems; Enterasys
MESIT holding	▪Radio-communication devices ▪Satellite navigation systems ▪Digital electronics	2003: $32 million	950	
Rohde & Schwarz Praha	▪Radio & telecommunications equipment	2003: $5-7 million	13	Rohde & Schwarz; Advantest; LS Telcom
Silicon Graphics, s.r.o	▪Army logistics systems ▪Mission simulators	2003: $13 million	25	SGI worldwide
T-CZ	▪Airport radar systems		220	
TTC Holding	▪Digital telecommunications technologies	2002: $27 million	350	Joint ventures with Marconi & Imtech EGU (Slovakia)
VOP Group	▪Repair and upgrade of army communications technology	2003: €3 million		
ARMOURED VEHICLES & TRUCKS				
Company	**Main production line**	**Revenue**	**Employees**	**Foreign Partners**
CTS servis	▪Hook-loaders and skip loaders	2003: $6.4 million	103	
Eberspächer	▪Vehicle air and water heater	2003: $3.5 million	13	Daughter company of Eberspächer (Germany)

TABLE I: Main defence companies in the Czech Republic — continued

Kar-Box	▪Special coachworks & containers	2003: $4.9 million	100	
Medtec-Vop	▪Special vehicles	2003: $5.3 million	140	
Policske strojirny	▪Car chassis and spare parts ▪Liquidation of ammunition	2003: $9 million		Subcontractor of Daimler-Chrysler (Germany)
Praga Holding	▪Off-road trucks ▪Gearboxes		1,150	
SVOS	▪Safety vehicles	2003: $4.6 million	95	
Tatra	▪Off-road trucks ▪Chassis		2,300	Majority shareholder is Terex (USA)
VOP 025 Novy Jicin	▪Repair and upgrade of tanks and vehicles ▪Production of special vehicles	2003: $23.1 million	950	
VOP 026 Sternberk	▪Repair and upgrade of armoured vehicles ▪Production of special vehicles	2002: $17.1 million		
WEAPONS, AMMUNITIONS & EXPLOSIVES				
Company	Main Production Line	Revenue	Employees	Foreign partners
ALFA – PROJ	▪Hand arms	2003: $4.2 million	120	
Ceska zbrojovka	▪Small weapons	2003: $42.7 million	1,850	US subsidiary CZ-USA
Explosia	▪Explosives & propellants		600	
Sellier & Bellot	▪Ammunition	2001: $31.5 million		70% of production exported
Zeveta Ammunition	▪Ammunition	2002: $1.8 million		
ZVI	▪Small arms ▪Automatic cannon ▪Ammunition			

TABLE I: Main defence companies in the Czech Republic — continued

CBRN EQUIPMENT				
Company	Main Production Line	Revenue	Employees	Foreign partners
Dräger Safety	▪NBC detection & protection equipment	2002: $2.3 million	16	Daughter company of Dräger, Germany
EST+	▪NBC decontamination devices		87	
Gumarny Zubri	▪Protective masks	2003: $19.5 million	710	
MET.CHEM.	▪NBC protective clothing ▪NBC decontamination devices	2003: $2.1 million		
Ortitest	▪NBC detection devices	2003: $700,000		

Hungary

Defence expenditure

Year	1997	1998	1999	2000	2001	2002	2003
Defence budget							
(HUF million)	97,000	142,000	182,000	189,000	236,000	293,000	314,000
(US$ million)	511	660	745	671	823	1,100	1,400
(percentage of GDP)	1.2	1.4	1.6	1.7	1.8	1.8	1,8
Exchange rate (US$1=HUF)	190	220	244	275	286	257	220

Source: IISS, The Military Balance 1998-2003

Year	2001	2002	2003	2004 (est.)	2005 (est.)	2006 (est.)	2010 (est.)
Defence budget							
(HUF billion)	268	294	309	342	387	429	n.a.
(US$ million)*	1,307	1,434	1,507	1,688	1,887	2,092	n.a.
Procurement budget							
(US$ million)*	153	242	289	326	n.a.	n.a.	487

* $ rates have been calculated with US$1 = HUF 205 rate of March 2004

Source: CEEBIC, 'Defense Market Overview - Hungary', http://www.mac.doc.gov/ceebic/country/Hungary/RESEARCH/HuDefMarket.htm

Distribution of defence expenditure

	2000	2001	2002	2003
Personnel	48.7	47.9	49.3	48.7
Equipment	12.4	10.5	11.1	10.2
Infrastructure	2.9	5.7	6.4	7.1
Other	36.1	35.9	33.2	33.9

Source: NATO, 'Defence Expenditure of NATO countries', www.nato.int

Distribution of defence expenditure 2000-10 (according to the 10-year plan

Years	2000-2003	2004-2007	2008-2010
Structural reforms	70%	20%	10%
Training and fighting capabilities	20%	60%	20-30%
Technological modernisation	10%	20%	60-70%

Source: Yudit Kiss, 'The Transformation of the Defence Industry in Hungary', BICC Brief, No. 14, July 1999

Armaments production & employment

Year	Production (HUF billion)	Production (US$ million)	Employees
1988	20.6	370	18,600
1989	12.6	193	n.a.
1993	6.8	77	5,100
1995	3.7	29	2,500
1998	8.2	37	2,200
2000	8.7	31	1,900
2001	14.3	48	1,500
2002	14.4	56	2,000
2003	16.0	70	2,000

Source: Data provided by the Hungarian Ministry of Industry and Trade

Armaments production by sector

	1988	1990	1995	2000
Electronics	67	74	11	7
Vehicles	14	14	19	32
Small arms	13	10	19	29
Other	6	2	16	32

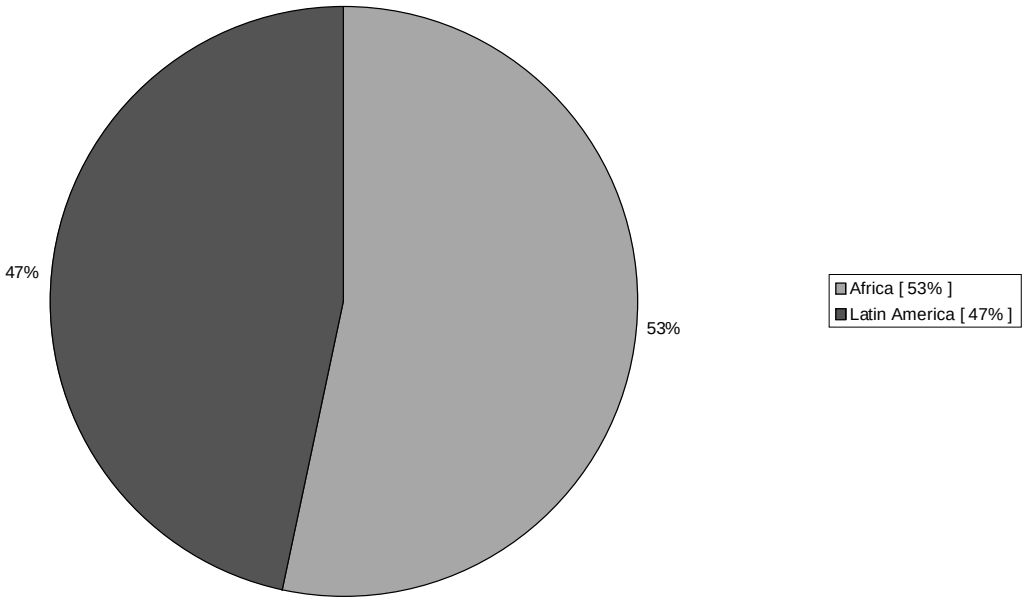
Source: Data provided by the Hungarian Ministry of Industry and Trade

Arms exports

Year	2000	2001	2002	2003
Arms exports				
(HUF million)	4,675	2,637	1,706	1,041
(US$ million)	17	9.2	6.6	4.7

Source: Data provided by the Hungarian Ministry of Industry and Trade

Destination of arms exports (1993-2003)



Source: SIPRI Arms Transfers Database

Major weapons imports (1990-2004)

Supplier	No. ordered	Weapon designation	Weapon description	Year of order	Year(s) of delivery	Value (US$)	Comments
Germany	20	L-39 Albatros	Jet trainer	1993	1993	6 million	Aid; Ex-GDR Army
Germany	20	Mi-24D Hind	Combat Helicopter	1995	1995		Aid; Ex-GDR Army
Romania	12	Yal-52	Trainer aircraft	1994	1994		
Russia	28	MiG-29	FGA aircraft	1993	1993	1,200 million	Payment for Russian Debt
Russia	555	BTR-80	APC	1994	1996-2000	320 million	Payment for Russian Debt
Belarus	100	T-72	MBT	1996	1996	13 million	Ex-Belarus Army
France	180	Mistral	Portable SAM	1997	1998-99	112 million	Deal includes radars, launchers and trucks
Italy	9	SHORAD-2D	Surveillance Radar	1997	1999-2001		Part of Mistral Deal
Italy	3	RAT-31S/L	Air surv. Radar	2002		35 million	Part of NADGE
Norway	10,000	MRR	Tactical VHF Radios	2002		128 million	
Sweden	14	JAS-39 Gripen	FGA Aircraft	2003	2006	923 million	Revised contract
USA	160	AIM-9M Sidewinder	SRAAM	2002		55 million	

Source: SIPRI Arms Transfers Database

TABLE II: Main defence companies in Hungary

AIRCRAFT & AVIATION EQUIPMENT				
Company	Main production line	Revenue	Employees	Foreign partners
Aerotechnika M&T Budapest	▪ Organization and realisation of maintenance and overhaul of aircraft components ▪ Development and realisation of aircraft radio navigation systems ▪ Special containers for aircraft batteries	1999: $1.6 million	4	LOM Praha, Aero Vodochody, Aviation Service (Czech Republic); LOT Trencen (Slovakia); PZL Rzeszow, PZL Swionik (Poland); Aerostar (Romania); Region Service (Russia); Bendix/King (Austria)
AviaTronic	▪ Flight data recorders & simulation systems ▪ Control systems for robot-flight objects ▪ GPS technology ▪ Software development	1999: $0.5 million	26	Toshiba Europe; Raytheon representation; robot flight building in cooperation with Czech Republic
Danubian Aircraft Company	▪ Maintenance, overhaul and modification of aircraft ▪ Aircraft components	1999: $8 million	295	Rostvertol, Kazan Helicopter, Mapo Moscow (Russia); McDonnald Douglas, Bell Helicopter Textron, Lockheed Martin (USA); SAAB Military Aircraft, FFV Aurotech, VOLVO Aero Engine (Sweden); Finnish Air Force
ARMOURED VEHICLES & TRUCKS				
Company	Main production line	Revenue	Employees	Foreign partners
'CURRUS' Combat Vehicle Technique Company	▪ Development & repair of armoured vehicles ▪ Vehicles for transporting assets ▪ Armoured bodies for civilian use	2002: $12 million	410	
Rába Jarmü	▪ Military Trucks	2001: $200 million	6,100	MAN, Daimler Chrysler (Germany)
COMMUNICATION, ELECTRONICS & COMPUTER TECHNOLOGY				
Company	Main production line	Revenue	Employees	Foreign partners
AjKAI Electrical	▪ Military VHF telecommunication equipment & devices ▪ Electronical and mechanical components	1999: $5.2 million	421	RUF (Germany); Ikarus (UK); Philips (Austria)
Antecom	▪ VHF-FM transmitters ▪ Special transmitters & power amplifiers ▪ Aerials	1999: $2 million	100	NEC (Japan); Motorola (USA)

TABLE II: Main defence companies in Hungary— continued

FMV Finommechanikai	▪ Spread spectrum radio relay ▪ Assembly of electronic parts	1999: $2.2 million	170	
Group 4 Megamicro	▪ Computer technology ▪ Security & property protection ▪ Software development	1999: $3.4 million	98	
Hiradastechnika	▪ Spectrum analyser & signal processing units ▪ IFF equipment ▪ Aircraft on-board instruments	1999: $8.6 million	1212	Philips (Netherlands); Westinghouse (USA)
MoD ArmCom	▪ Communication technology	1999: $2.4 million	227	
MoD Arzenal	▪ Simulation devices ▪ Radars & missiles	1999: $4.6 million	331	
MIKI Teknowledge	▪ Radio equipment ▪ Ground surveillance systems ▪ Optoelectronics	2000: $1.8 million	50	Agema Infrared Systems (Sweden); Honeywell (Germany); Flir Systems (USA)
MMG Teknowledge	▪ System integration of computerised fire control	2000: $0.3 million	8	Ericsson Radar (Norway); Kongsberg Ericsson (Norway)
ORION Electronical	▪ Microwave equipment & networks	1998: $8.4 million	300	
TELOQ	▪ Military technology logistics ▪ Maintenance & repair of NATO air defence and radar ▪ Maintenance & repair of air defence missiles			Joint venture between Elekluft (DASA): 51% and MoD Electronic Directorate: 49%
TKI	▪ Communication reconnaissance & neutralising counter-measures systems ▪ Cryptographic equipment	1999: $0.6 million	162	
Videoton-Mechlabor	▪ Intelligent, electronically controlled radio surveillance and monitoring equipment ▪ Complex ESM/ECM	1999: $0.4 million	26	Remotely piloted vehicle surveillance system (CZ)
Videoton-System Technics	▪ Intelligent radio reconnaisannce and jamming systems ▪ VHF & UHF receivers ▪ Aerials	1999: $1.6 million	45	Intelligent electronic radio reconnaissance equipment (India)
WEAPONS, AMMUNITIONS & EXPLOSIVES				
Company	Main production line	Revenue	Employees	Foreign partners
Fegarmy	▪ Handguns & submachine guns ▪ Hunting rifles	1999: $5 million	391	
Hungaro Techno Plus	▪ Small arms	1999: $0.2 million	36	
MM Specialist	▪ Grenades, mines & ammunition	1999: $0.6 million	60	

TABLE II: Main defence companies in Hungary— continued

MFS 2000 Hungarian Ammunition Manufacturing	▪ Ammunitions	1999: $2.6 million	222	
MOM Vizmerestechnikai	▪ Snipers ▪ Destroying heavy rifles	1999: $4 million	189	ELIN, SPX, Meinecke, E. Wehrle (Germany)
Nike-Fiocchi	▪ Ammunitions ▪ Hand grenades	2001: $5.2 million	90	Cooperation with Fiocchi
Nitokemia	▪ Explosives ▪ Chemical products	1999: $15.5 million	647	Joint-venture company Nike-Fiocchi
CBRN EQUIPMENT				
Company	Main Production Line	Revenue	Employees	Foreign partners
GAMMA Muszaki	▪ Radiation detection equipment ▪ Chemical protection equipment ▪ Nuclear medical diagnostic	1999: $0.3 million	23	
Innovatext	▪ Chemical and nuclear protection equipment ▪ Other textiles	1999: $0.8 million	21	
NBC Technika Vegyivedelmi	▪ NBC defence systems			Austrian Army; Israeli Army
Respirator	▪ Gas masks	1999: $4.8 million	134	GIAT (France)
OTHERS				
Company	Main production line	Revenue	Employees	Foreign partners
GeoDesy	▪ Theodolites, gyroscopic theodolites ▪ Precision tools	1998: HUF 496 million	113	
Heavytex	▪ Military camouflage ▪ Canvas & cotton fabrics	1999: $6.4 million	237	
Vehicle Instrument Manufacturing	▪ Electronic meters & gauges	1999: $2 million	177	
Pannon-Flax	▪ Cotton & textiles	1999: $12.2 million	643	
Perion Akku	▪ Batteries	1999: $11.8 million	308	
Power Quattro	▪ Power supply systems	1999: $2.6 million	55	
Salkon	▪ Parachutes ▪ Canvas	1999: $2.5 million	464	
Union Plusz	▪ Body armour	1999: $1.2 million	10	Du Pont, Akzo Nobel, ETEC, DSM

Sources: Catalogue of the Hungarian Defence Industry 2001-2002

Poland

Defence expenditure

Year	1998	1999	2000	2001	2002	2003	2004
Defence budget							
(ZL million)	11,600	12,600	13,200	14,000	14,300	14,800	
(US$ billion)	3.4	3.2	3.0	3.4	3.5	3.9	4.2 (Est)
(percentage of GDP)	2.2	2.0	2.0	2.0	1.9	1.95	2 (Est)
Exchange rate (US$1=ZL)	3.44	3.91	4.32	4.09	4.08	3.81	

Sources: IISS, The Military Balance; Polish Ministry of National Defence

Distribution of defence expenditure

	2001	2002	2003
Personnel	64.3	64.9	64.4
Equipment	8.8	11.1	14.4
Infrastructure	2.2	1.7	2.4
Other	24.6	22.3	18.6

Source: NATO, 'Defence Expenditure of NATO countries', www.nato.int

Polish military production structure, 1993-97 (percentage)

Sector	1993	1994	1995	1996	1997
Tanks and armoured vehicles	20.5	16.3	21.6	18.8	12.8
Aviation	32.5	33.4	36.9	28.9	29.8
Defence electronics	23.9	20.9	24.5	27.0	30.9
Armaments and ammunition	13.4	18.1	13.9	15.6	14.1
Other	9.7	11.3	3.1	9.7	12.4
Percentage of total industrial output	0.45	0.40	0.40	0.45	0.42

Source: Polish Defence Industry before Restructuring, Ryszard Leja, 1998; WS Atkinst International Ltd in Association with SIPRI, 'Final Report on the Defence Related Industries in Certain Central and East European Countries', Chapter on Poland, June 1999.

Restructuring and consolidation of the defence sector

Two Capital Groups			
Aerospace-Radio-Electronics Group ARP	Ammunition-Missile-Armoured Group PHZ BUMAR		
PZL Mielec	WSK PZL-Warszawa II	PSO Maskpol	Z Ch Nitro-Chem
WSK 'PZL-Swidnik'	PCO	CNPEP Radwar	ZM PZL – Wola
Kombinat PZL-Hydral	ZM Tarnow	PHU Cenrex	ZM Bumar-Labedy
ZR Radmor	FB Lucznik – Radom	ZM Krasnik	TM Pressta
PHZ Cenzin	ZPS Pionki	ZM Desamet	ZM Mesko

Source: Publication about the Polish Defence Industry for the DEFEXPO 2004 exhibition in New Dehli and www.arp.com.pl and www.phzbumar.com.pl

Privatisation of the defence industry

Privatisation Process			
Preparation for privatisation	Privatisation after separation of military production	Still require restructuring	Privatisation after consolidation
ZTS Nitron	ZM Mesko	ZTS Gamrat	Stocznia Remontowa
FIT-Krasnik	ZR Radmor	ZTS Erg-Bierun	Nauta
STOMIL- Posnan	TM Pressta	Huta Stalowa Wola	Morska Stocznia
ZSP 'Niewiadow	Zch Nitro-Chem	ZE Warel	Remontowa
BZE Belma	ZM Bumar-Labedy	WSK PZL Kalisz	Szczecinska Stocznia
	ZM PZL-Wola		Remontowa Gryfia repair shipyards.

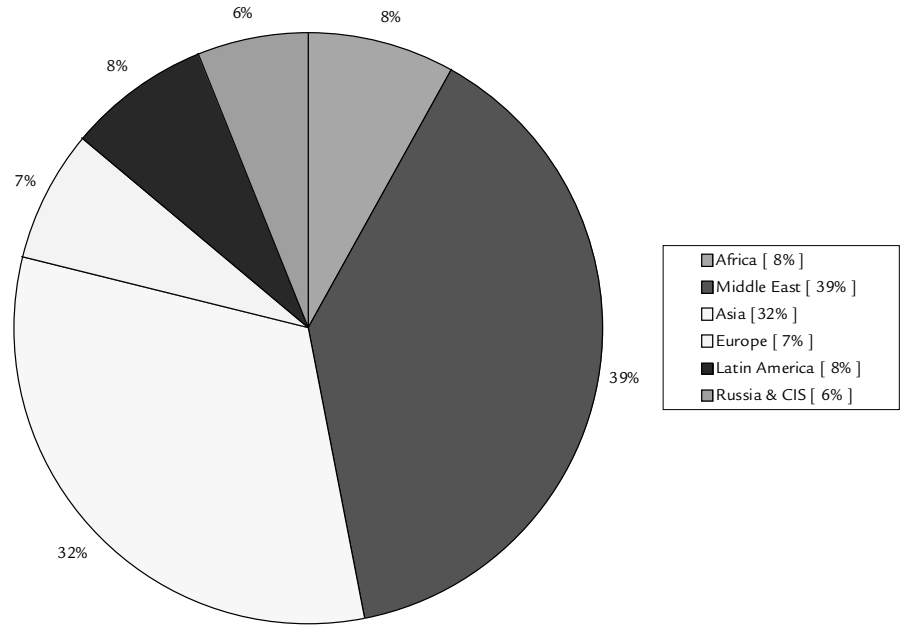
Source: Pawel Calski, Privatisation in Poland for the years 2002-2006, Continuation and New Challenges, available at www.ceinet.org/download/sef2003/24_Calski2.pdf

Arms exports

Year	1999	2000	2001	2002	2003
Exports					
(US$ million)		40	50	80	175 (est.)

Source: Poland Quarterly Report and BMI

Destination of arms exports (1993-2003)



Source: SIPRI Arms Transfers Database

Major weapons imports (1990-2004)

Supplier	No. Ordered	Weapon designation	Weapon description	Year of Order	Year(s) of delivery	Value (US$)	Comments
Czech Republic	10	MiG-29	FGA aircraft	1995	1995-1996		Exchange for 11 Sokol W-3
Germany	18	Mi-24/Mi-25/Hind	Combat helicopter	1995	1996		Aid; Ex-GDR
Germany	23	MiG-29S	FGA aircraft	2002	2002	300-380 million	Aid; Ex-GDR
Germany	128	Leopard-2A4	Main battle tank	2002	2002		Aid; incl several APCs & AMVs
Italy	3	RAT-31S/L	Air surv radar	2001	2006-2007	90 million	
Italy	6	A244	ASW torpedo	1999	2000		
Lithuania	1	Mi-17/Hip-H	Helicopter	2001	2002		Partly financed by Polish oil company
Netherlands	3	STING	Fire control radar	2001			
Norway	34	Mk-37 533 MM	AS Torpedo	2002	2002		Aid; Ex-Norwegian
Norway	30	Type-613	AS Torpedo	2002	2002		Aid; Ex-Norwegian
Norway	4	Type-207	Submarine	2002	2002		Aid; Ex-Norwegian
Russia	4	An-28	Transport aircraft	1993	1994-1996		
Russia	3	Bass Tilt	Fire control radar	1988	1992-1994		

Supplier	No. Ordered	Weapon designation	Weapon description	Year of Order	Year(s) of delivery	Value (US$)	Comments
Spain	8	CASA C-295M	Transport aircraft	2001	2003-2005	212 million	Offsets 100%
Sweden	3	Giraffe AMB-3D	Air surv radar	2001			
Sweden	24	RBS-15 SF	Anti-ship missile	2000	2001	10 million	
Sweden	60	RBS-15 Mk-3	Anti-ship missile	2001			
UK	6	AS-90 Turret	Turret	1999	2004-2016		
USA	48	F-16C	FGA Aircraft	2002	2006-2008	3.48 billion	Offsets worth $6 billion
USA	6	C-130K Hercules	Transport aircraft	2003	2005-2006	45-50 million	
USA	9	MSTAR	Ground surv radar	2000	2001	3.3-4.2 million	
USA	1	MSTAR	Ground surv radar	2002	2002		
USA	13	MSTAR	Ground surv radar	2003	2003-2004	5.56 million	
USA	384	AIM-120 AMRAAM	BVRAAM	2002			
USA	4	SH-2G Super Seasprite	AS/ASW Helicopter	2001	2003	20-22 million	Aid; Ex-US
USA	2	Perry class	Frigate	1999	2000-2002		Aid; Ex-US
Licenser							
Finland	690	AMV	Armoured vehicle	2003	2004-2013	1.25 billion	Suhak Programme
Germany	2	Meko-A100	Corvette	2001	2004-2006		
Israel	2675	Spike	Anti-tank missile	2003	2004-2013	397 million	Includes 264 launchers
Russia	77	T-72	MBT	(1978)	1992-1995		
Russia	10	An-28	Transport aircraft	2001	2001-2003		
USA	2	PA-34 Seneca	Transport aircraft	1994	1995		

Source: SIPRI Arms Transfers Database

TABLE III: Main defence companies in Poland

AEROSPACE, ELECTRONICS & RADIO GROUP(ARP)				
Company	Main production line	Revenue	Employees	Comments
Agencja Rozwoju Przemyslu	• Manages export, marketing and R&D activities of ARP	US 52.3 million (2003		
PZL-Hydral	• Fuel & fuel-control systems for aircraft engines • Hydraulic control and drive systems for radar	$22.4 million (1997)	2155	
Radmor	• Military tactical radicommunication systems • Accessories for radiostations	$13.8 million (1997)	576	
PZL Mielec	• Aircraft • Spare parts & components	$ 25 million (1994)		
Cenzin	• Export & sales			
PZL-Swidnik	• Helicopters	$ 50 million (1994)		
Instytut Lotnictwa	• R&D in aerodynamics, fuselage, air engines & avionics			R&D Centre cooperating with ARP
AMMUNITIONS, ROCKET AND & ARMOUR GROUP (BUMAR)				
Company	Main production line	Revenue	Employees	Comments
Bumar	• Manages export, marketing and R&D activities of Bumar			
Radwar	• Radars • Anti-aircraft command and control systems • identification friend or foe system	$52.3 million (1997)	2361	
Lucznik-Radom	• Small weapons			
Przaemyslowe Centrum Optyki (PCO)	• Fire control systems • Night vision equipment	$21 million (1997)	728	
Maskpol	• Gas masks & protective cloth • Decontamination systems	$5.7 million (1997)	492	
Pressta	• Rockets, guns & ammunition	$8.5 million (1997)	765	
PZL-Warszawa II	• Gyro sensors for fire control	$5.4million (1997)	611	
Bumar-Labedy	• Main battle tank • Armoured recovery vehicle • Armoured vehicle launched bridge	$87.2 million (1997)	4169	
Nitrco-Chem	• Explosives	$7.1 million (1997)	361	
Tarnow	• Artilleries, grenade launchers & machineguns			
PZL-Wola	• Diesel engines	$15.6 million (1997)	1284	

Mesko	• Anti-air missile set • Ammunitions	$53.3 million (1997)	4179	
Dezamet	• Bombs & ammunition	$4.8 million (1997)	740	
Zaklady Produkcji Specjalnej	• Ammunition			
Krasnik	• Ammunition	$59.3 million (1997)	4500	
Cenrex	• Exports and sales			
Centrum Techniki Morskiej	• R&D in weapons & equipment for the navy			R&D Centre cooperating with Bumar
Osrodek Badawczo-Rozwojowy	• R&D in small arms & anti-aircraft artillery systems			R&D Centre cooperating with Bumar
Obrum	• Military simulators & training systems • R&D in armoured vehicles			R&D Centre cooperating with Bumar
Skarzysko	• R&D in rockets, missiles & ammunition			R&D Centre cooperating with Bumar
MILITARY REPAIR AND RESEARCH CENTRES				
Company	Main production line	Revenue	Employees	Comments
Instytut Technicny Wojsk Lotniczych	• R&D in avionics & flight dynamics			
Stocznia Marynarki Wojennej	• Medium landing ship, patrol boats & minesweepers • Repair and overhaul of battleships			
Wojskowe Centralne Biuro Konstruckcyjno-Technologiczne	• Training equipment for MBTs & APCs • Airport equipment			
Wojskowe Zaklady Electroniczne	• Modernisation & repair of electronic warfare & C2 equipment			
Wojskowe Zaklady Inzynieryjne	• Repairs and modernisation of cisterns & bulldozers			
Wojskowe Zaklady Lotnicze Nr 1	• Repair of helicopters & aircraft engines			
Wojskowe Zaklady Lotnicze Nr 2	• Assembly and overhaul of aircraft			
Wojskowe Zaklady Lotnicze Nr 4	• Repair of aviation engines			
Wojskowe Zaklady Laczosci Nr 1	• Communication nodes • Radio links			
Wojskowe Zaklady Lotnicze Nr 2	• Automated command vehicles • Electro-acoustic broadcasting stations			
Wojskowe Zaklady Mechaniczne	• Repair and modernisation of armoured vehicles			
Wojskowe Zaklady Motoryzacyne Nr 5	• Repair and modernisation of armoured tracked and wheeled equipment			
Wojskowe Zaklady Uzbrojenia Nr. 2	• Repair and modernisation of anti-aircraft system & artillery equipment			

TABLE III: Main defence companies in Poland — continued

OTHERS				
Company	Main Production line	Revenue	Employees	Comments
Belma	• Anti-tank mines • Grenades	$7.9 million (1997)	721	
EADS PZL Warszawa-Okecie	• Military trainer aircraft	$13.2 million (1997)	1036	Majority shareholder is EADS
Huta Stalowa Wola	• Howitzers, mortars & engineering vehicles			
Gdynia shipyards	• Landing ships & patrol boats			
Instytut Przemyslu Organicznego	• R&D in explosives & gas generators			
Moratex	• Protective clothing			
Morska Stocznia Remontowa	• Overhaul of battleships			
Przemyslowy Instytut Telekomunikacji	• 3D radar & radar systems • Air command systems			
NAUTA	• Building of harbour tugs • Overhaul of ships			
Stomil-Poznan	• Tyres, wheels and brakes for aircraft & vehicles			
GRYFIA	• Overhaul of vessels • Building of small vessels			
Unimor-Radiocom	• VHF/UHF air and naval radios • Antennas			
PZL-Kalisz	• Aircraft engines			
PZL Rzeszow	• Aircraft engines • Gearboxes for helicopters	$65 million (1997)	5346	Majority shareholder is Pratt & Whitney (Canada)
Warel	• Equipment for military communication systems			
Niewiadow	• Trailers & caravans	$4.4 million (1997)	265	
Erg-Bierun	• Electric igniters & fuses • Detonators			
GAMRAT	• Explosives & grenades			
Nitron	• Detonators			

Source: Polish Defence Industry Vademecum 2003; WS Atkinst International Ltd in Association with SIPRI, 'Final Report on the Defence Related Industries in Certain Central and East European Countries', Chapter on Poland, June 1999 (latest data available); Polish Companies' websites.

Slovakia

Defence expenditure

Year	1997	1998	1999	2000	2001	2002	2003
Defence budget							
(SK million)	14,300	14,600	13,600	16,400	16,700	21,000	22,800
(US$ million)	416	311	362	356	345	464	624
(percentage of GDP)	2.1	2.0	1.7	1.8	2.0	2.0	1.9
Exchange rate (US$1=SK)	33.8	35.2	44.4	45.3	48.4	45.3	36.6

Source: Military Balance; Slovak Army Review, Winter 2003

Major DMD Holding Group's defence companies

Companies	Specialisation
ZTS Special AS	Artillery systems, howitzers, rocket launchers, mortars and medium and light-combat turrets.
ZVS Holding AS	Artillery rounds, ammunition and rockets.
PPS Detva Holding jsc	Armoured personnel carriers, armoured ambulances, multi-purpose and recovery vehicles.
DMD Mobiltec Martin jsc	
Konstrukta Defence, AS	Design, development and qualification of ground and air-defence weapon systems, medium and large calibre ammunition and rocket warheads, command and control systems, simulator and training aids.
ZTS EMS AS	Design, development and production of electronic components for artillery systems and tanks.

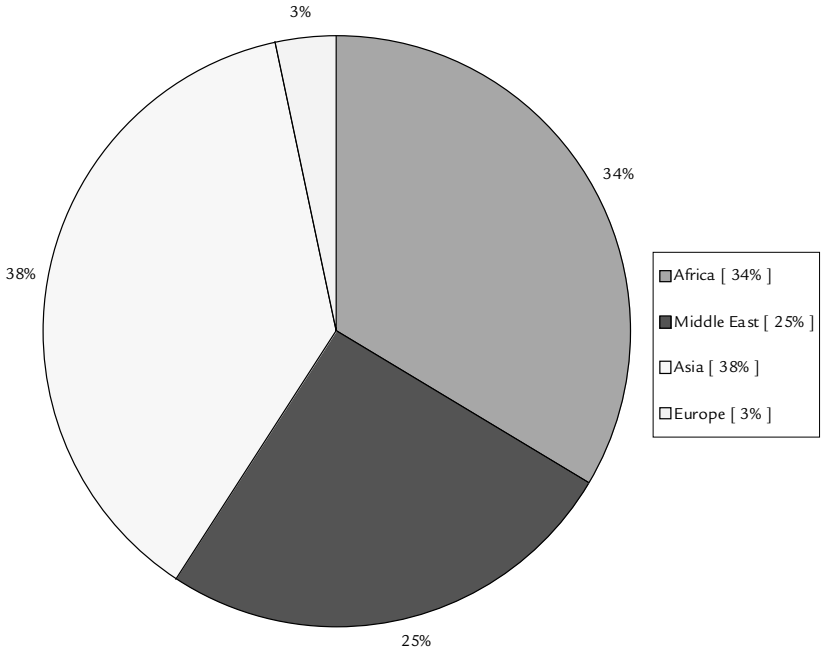
Source: DMD Holding AS, www.dmd.sk/edmddefense.htm

Arms exports

Year	1997	1998	1999	2000	2001	2002
Arms Exorts						
(SLK million)	1,277	1,272	2,300	2,041	4,500	1,400
(US$ million)	40	35	55	45	91	31

Source: SIPRI Arms Transfers Database

Destination of arms exports (1993-2003)



Source: SIPRI Arms Transfers Database

Major weapons imports (1990-2004)

Supplier	No. ordered	Weapon designation	Weapon description	Year of order	Year(s) of delivery	Value (US$)	Comments
Russia	4	Mi-17/Hip-H	Helicopter	2002	2002		Payment for Russian debt
Russia	14	MiG-29	FGA aircraft	1993	1993-1996	180 million	Payment for Russian debt
Russia	90	AA-10	BVRAAM	1993	1993		Payment for Russian debt
Ukraine	6	BMP-2	IFV	1994	1995		
Ukraine	14	AA-10	BVRAAM	1995	1995		
Ukraine	3	AA-12	BVRAAM	2000	2000		
UK	73	AMS 120 mm					

Source: SIPRI Arms Transfers Database

TABLE IV: Main defence companies in Slovakia

MILITARY AIRFRAMES, AIRCRAFT SYSTEMS AND POWER UNITS				
Company	Main Production line	Revenue	Employees	Foreign partners
Letecke Motory (Povazske Strojarne, Aeroengines division)	Development, manufacture and overhaul of turboengines for small aircraft. Manufacture of the complete range of engine components			
Letecke Opravovne Trencin. (Aircraft Repair Plant)	Overhaul and upgrading of a wide range of aircraft			
VRM	Design, development and manufacture of training simulators for military aircraft, based on virtual reality simulation environment. Products are to NATO compatible			
ARTILLERY AND MORTARS				
Company	Main Production line	Revenue	Employees	Foreign partners
ZTS Dubnica nad Vahom (DMD Group)	Design and manufacture of self-propelled howitzers Dana and Zuzana, the latter developed to NATO standards; manufacture of rocket launchers and mortars			
ARMOURED VEHICLES				
Company	Main Production line	Revenue	Employees	Foreign partners
ZTS TEES Martin (DMD Group)	Manufacture of T-72 tank, modernised to NATO standards; manufacture of a range of armoured vehicles such as bridge layers, recovery vehicles			
PPS Detva (DMD Group)	Manufacture of infantry combat vehicles, recovery vehicles, floating BVP vehicles			
NON-ARMOURED VEHICLES				
Company	Main Production line	Revenue	Employees	Foreign partners
Hontianske Strojarne Krupina	Manufacture of unmanned remote control-operated vehicle for mine clearance			
COMMAND, CONTROL AND COMMUNICATIONS AND ELECTRONIC WARFARE SYSTEMS				
Company	Main Production line	Revenue	Employees	Foreign partners
Tesla Liptovsky Hradok	Manufacture and assembly of private branch telephone exchanges, assembly of printed circuit boards			
ALES	Research, development and manufacture of air traffic control systems, automated information and control systems for air defence command posts; C4I2 information and control systems for the armed forces			
LOBB (Airforce repair company)	Repairs of radiolocation and navigation equipment for aircraft.			
OPTRONICS, GUIDANCE AND CONTROL SYSTEMS				
Company	Main Production line	Revenue	Employees	Foreign partners
ZTS Elektronika (DMD Group)	Research, development, manufacture and testing of electronic control systems for weapon technology used in tanks and artillery; passive night observation devices			

TABLE IV: Main defence companies in Slovakia — continued

SMALL ARMS AND MACHINE GUNS				
Company	**Main Production line**	**Revenue**	**Employees**	**Foreign partners**
Povazske Strojarne Povzbroj	Manufacture of pistols, ammunition cases and cartridges			
MUNITIONS, MINES AND PYROTECHNICS				
Company	**Main Production line**	**Revenue**	**Employees**	**Foreign partners**
ZVS Dubnica (DMD Group)	Manufacture of large calibre ammunition: mortar shells, rockets, anti-tank guided missiles, tank ammunition			
Konstrukta-Industry (DMD Group)	Design, development and manufacture of technology lines and equipment for filling and assembly of large calibre ammunition; mixers for defence and industrial explosives			
Chemko	Development and manufacture of a wide range of nitrogen, plastic and semi-plastic explosives			
PROTECTIVE EQUIPMENT AND SYSTEMS				
Company	**Main Production line**	**Revenue**	**Employees**	**Foreign partners**
Odeva Lipany	Manufacture of uniforms			
Zekon	Manufacture of camouflage clothing			
RESEARCH & DEVELOPMENT DEFENCE SERVICES				
Company	**Main Production line**	**Revenue**	**Employees**	**Foreign partners**
Konštrukta Defence Trenčín (DMD) Group)	Research, development artillery and mortars, munitions systems			
EVPU Nová Dubnica	Research, development and application of components for control systems of mobile combat means and reconnaissance completes systems			
ZTS Research and Development Institute Martin (DMD Group)	Research, development and modernisation of tracked and wheeled military equipment such as infantry combat vehicles, armoured recovery tanks, bridgelayers			
VTU Liptovsky Mukulas	Research, development and testing of equipment for the land forces such as radio communications, fire control systems, anti-aircraft systems, observation devices			
VTSU Zahorie	Research, development, testing and standardisation of combat equipment, weapon systems and ammunition			
VLTSU Kosice	Research, development, testing and standardisation of equipment for the air force such as avionics equipment, aircraft weapon systems and ammunition, airforce training systems			

Source: WS Atkinst International Ltd in Association with SIPRI, 'Final Report on the Defence Related Industries in Certain Central and East European Countries', Chapter on Poland, June 1999

Interviews conducted

- Bacri, Pierre Phillipe - European Commission, DG Enterprise
- Baluchova, Daniela - Czech NADREP
- Czerny, Pavel - European Council, Member of the Agency Establishment Team
- Gilles, Bill - BAE Systems Europe
- Krzywoszynski - Budget Department of the Polish Ministry of National Defence.
- Kunos, Bálint - Hungarian NADREP (Permanent Representative of the National Armaments Director)
- Lange, Sascha - SWP Berlin, Research Fellow
- Langer, Michael - Diehl Munitionsysteme
- Malisius, Volker - German Deputy NADREP
- Mernak, Gabriel - Slovak NADREP
- Mezzandri, Sandra - European Commission, DG Market
- Minc, Sandra - Eurotradia International, Paris
- Sipos, Mihály - Hungarian Ministry of Industry and Trade, Director Department of Industry
- Stefanowicz, Witold - Polish Chamber of National Defense Manufacturers
- Storz, Walter - German NADREP
- Ventker, Winfried - former German NADREP
- Warnken, Klaus - German Foreign Ministry, Director Arms Exports
- Weisserth, Hans-Bernhardt - EU Council, Policy Unit, Head of Section ESDP
- White, David - BAE Systems
- Wiede, Thomas - Journalist, Handelsblatt
- Zurek, Andrej - Polish NADREP

Abbreviations

AMV	Armoured Modular Vehicle
AMRAAM	Advanced Medium-Range Air-to-Air Missile
APC	Armoured Personnel Carrier
ASM	Air-to-Surface Missile
ASW	Anti-Submarine Warfare
BVRAAM	Beyond Visual Range Air-to-Air Missile
C3	Command, Control and Communications
C4ISR	Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaisance
CBRN	Chemical, Biological, Radiological and Nuclear
CFSP	Common Foreign and Security Policy
CIS	Commonwealth of Independent States
CZ	Czech Republic
ECAP	European Capabilities Action Plan
EDA	European Defence Agency
EMU	Economic and Monetary Union
ESDP	European Security and Defence policy
ESRP	European Security Research Programme
EU	European Union
FGA	Fighter/Ground Attack
FMA	Foreign Military Assistance
FMF	Foreign Military Financing
GDP	Gross Domestic Product
GPS	Global Positioning System
HAF	Hungarian Armed Forces
HU	Hungary
IFV	Infantry Fighting Vehicle
LO	Slovakia
LOA	Letter of Offer and Acceptance
MBT	Main Battle Tank
MOD	Ministry of Defence
MOU	Memorandum of Understanding
NADGE	NATO Air Defence Ground Environment
NATO	North Atlantic Treaty Organisation
NBC	Nuclear, Biological, Chemical

Abbreviations

OCCAR	Organisation for Joint Armaments Cooperation
PCC	Prague Capabilities Commitments
PL	Poland
R&D	Research and Development
SAM	Surface-to-Air Missile
SAR	Search and Rescue
SDR	Strategic Defence Review
SME	Small and Medium Entreprises
SRAAM	Short-Range Air-to-Air Missile
TEC	Treaty establishing the European Community
UN	United Nations
US	United States
WTO	Warsaw Treaty Organisation

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