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**SUB-COMMITTEE ON  
TRANSATLANTIC DEFENCE  
AND SECURITY CO-OPERATION**

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**ALLIANCE-WIDE PROGRESS ON MEETING  
THE PRAGUE CAPABILITY COMMITMENTS**

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**DRAFT REPORT**

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International Secretariat

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\* Until this document has been approved by the Defence and Security Committee, it represents only the views of the Rapporteur.



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## **I. INTRODUCTION**

1. At the Prague Summit in November 2002, the allies committed themselves to developing the military capabilities necessary to allow the Alliance to take on a wide range of missions outside of Europe. The Prague Capabilities Commitments (PCC) are an important step forward for the Alliance as it seeks to maintain its relevance in the current security environment. Those capabilities in strategic lift, precision strike, command and control, and protection against weapons of mass destruction will enable NATO to act in a wide range of circumstances and be a guarantor of security beyond Europe. They are also critical to the development of the NATO Response Force.

2. Failing to fulfil the PCC, however, would be a serious blow to the Alliance. First, it would send a political signal that the allies are not serious about meeting their commitments, which would weaken the credibility of the Alliance. Second, it would compromise the ability of NATO to act as a military alliance. Perhaps capabilities development could be seen as an abstract issue 10 years ago when NATO's range of operations extended no further than the Balkans. But it is no longer a hypothetical issue now that NATO is involved in operations in Afghanistan. At a very basic level, either we have the ability to function as an Alliance in out-of-area operations, or NATO begins to lose its position as a major player in international security issues. Thus, progress on the PCC is critical from both a political and a military operational perspective.

3. Although the PCC are often broken down into specific items, we should not view each capability area as independent of the others. To a large extent, they are highly interdependent and success in one capability area may be negated by a lack of progress in another. For example, a large inventory of Precision Guided Munitions (PGMs) is not very useful unless the Alliance has the intelligence resources to know what to target. A rapidly deployable chemical, biological, radiological and nuclear (CBRN) protection unit is useless unless the Alliance has the airlift assets to bring that unit when and where it is needed.

4. This report will evaluate progress on the PCC. In doing so we are aware that the pursuit of military capabilities is an ongoing process and that this survey can only be seen as a progress report on where we stand at the moment. This report is also not intended to be a comprehensive survey of all the elements of the PCC of which there are more than 400. Rather it is a survey that touches on some of the most critical aspects of the PCC.

5. It should also be noted that it is not easy to compile a complete picture of progress on the PCC because neither NATO nor most national ministries of defence provide much transparency into either force goals or how national plans have or have not changed to reflect the priorities set forth in Prague. As legislators, it is both our right and responsibility to exercise some oversight over what our governments are doing—or not doing—to fulfil the PCC. We hope that this report will give each of us some information that can be used to inform our oversight and encourage greater transparency across the Alliance.

6. This report begins with a brief description of the PCC. It then examines the progress made in some of the more critical areas that will allow NATO forces to be more deployable and sustainable in the field. The report also considers trends in defence spending and efforts to shift funds within existing defence budgets toward fulfilling the PCC. We pay particular attention to the multinational programmes that could produce economies of scale and reduce the overall cost of developing certain capabilities, particularly in strategic lift and air-to-air refuelling.

7. In brief, the record thus far on the PCC is mixed. There are several notable areas of progress, particularly in strategic sealift and Precision Guided Munitions (PGMs). But an overarching problem that retards the development of many military capabilities is the persistent

lack of funding. The ultimate proof of the allies' commitment to improving their defence capabilities - and the future viability of the Alliance - is in making the resources available and fielding the assets. No amount of clever financing arrangements, asset sharing agreements, or summit declarations can be a substitute.

## **II. THE PRAGUE CAPABILITIES COMMITMENTS**

8. In Prague the individual allies made firm and specific political commitments to improve their capabilities in the areas of information superiority, combat effectiveness and deployability, and sustainability. Within those general categories, the allies committed themselves to improving their capabilities in: chemical, biological, radiological, and nuclear defence; intelligence, surveillance, and target acquisition; air-to-ground surveillance; command, control and communications; PGMs, suppression of enemy air defences; strategic air and sea lift; air-to-air refuelling; and deployable combat support and combat service support units. All of those areas represent serious holes in the capability of the Alliance, and will affect how the Alliance works together in the future.

9. Some analysts have gone so far as to call the PCC "the last best hope of the Alliance". It is not just that most of the European allies are far behind the US in capabilities, but rather that the gap between the US and Europe continues to grow. At some point it will simply be difficult for the Allies to co-operate because the gap will be too large for the forces to be interoperable.

10. This is not a new issue in NATO. The defence capabilities gap has existed for a long time and the allies have periodically sought to reduce it by encouraging the development of additional capabilities in European militaries. In 1999 NATO introduced the Defence Capabilities Initiative (DCI) that was designed to boost capabilities in the same areas as the PCC. Before the DCI there was the Conventional Defence Initiative (CDI). Neither of those initiatives succeeded which is why the PCC came into existence. A sceptic could be forgiven for asking, what is different now that makes the PCC any more likely to succeed where similar initiatives have failed?

11. Several factors set the PCC apart from those previous attempts. First, the PCC are much more focused than the DCI or CDI and give a very clear idea of precisely what needs to be done. Second, there is a considerable amount of political pressure behind the PCC. It was conceived at a NATO summit and carries the weight of a summit declaration, something that the previous attempts lacked. This indicates a level of "buy-in" at the top political levels and gives the PCC a higher profile. Third, the PCC is benefiting from a high level of co-operation between groups of individual allies who are organising themselves to share assets and development costs and make obtaining the necessary assets much more affordable than previous attempts at defence capabilities improvement.

12. Although all of the capabilities in the PCC are important, some stand out as particularly critical. In a most basic sense, the PCC are about getting military forces into the theatre of operations, sustaining those forces for as long as needed, and giving them the ability to strike precisely and decisively, while protecting themselves against a range of potential threats. Rather than take each element of the PCC separately, this report will consider them in groups of what forces need to deploy, sustain, strike and protect.

### **III. DEPLOYING NATO FORCES**

13. Clearly the first issue to tackle is getting NATO member forces to where they are needed. The critical elements in the PCC that relate to this area are strategic airlift and sealift. Although airlift often receives the most attention, sealift is also extremely important. In most military operations, the bulk of the equipment and supplies is transported by sea.

14. Strategic sealift is definitely a point for optimism about the success of the PCC. Norway is the lead country in this effort, convening several meetings to discuss various proposals including arrangements with national shipping companies. The outlook is good, not the least because of the oversupply of commercial shipping capacity in the global market and the willingness of the commercial sector to enter into contracts to supply sealift to the military. Eleven countries (Canada, the Czech Republic, Denmark, France, Greece, Italy, the Netherlands, Norway, Portugal, Spain and Turkey) are participating in a strategic sealift group, and the goal is to have 12-14 ships (mainly roll-on/roll-off) available for NATO operations on a mix of assured access and full-time charter contracts. At the moment the sealift group has arranged assured access to three ships, including one Norwegian and two Danish roll-on/roll-off ships, and the residual capacity in four of the UK's roll-on/roll-off ships. Both assured access and charter contracts involve using large ships owned by private companies. Assured access allows the military to use those ships for set periods of time. Full-time charters allow the military to have continual use of those ships although the ships are owned and operated by private companies.

15. This is closely tied to the better co-ordination of sealift through the Sealift Co-ordination Centre at Eindhoven, the Netherlands, which has already become a cost effective operations centre. The Centre costs about 100,000 euros per year to operate, but NATO sources say it saved an aggregate 3.5 million euros last year. It does so by arranging for ships that would otherwise be travelling empty or only partially loaded on return trips to carry the material of other allies. For example, an empty UK vessel returning from the Persian Gulf was used to carry Dutch air defence equipment, saving both countries about 500,000 euros each.

16. Those savings of a few million euros per year are only a tiny fraction of the approximately 150 billion euros that the European Allies spend annually on defence, but the sealift co-ordination programme has only just become operational and may show larger savings in the years to come. More importantly it represents a commitment by the European Allies to do more to rationalise their defence expenditures and avoid unnecessary duplication.

17. The programme to acquire airlift however, does not appear to be making nearly as much progress as the sealift programme. Fifteen NATO countries are involved in upgrading the Alliance's airlift capabilities. Following the Statement of Intent signed at the Prague Summit, Germany is leading a group of twelve Allies (Canada, the Czech Republic, Denmark, France, Germany, Hungary, Luxemburg, the Netherlands, Norway, Poland, Portugal and Turkey) in a multilateral effort to reduce the strategic lift shortfall. In addition, Germany, France, Spain, United Kingdom, Turkey, Belgium and Luxemburg are committed to acquiring a total of 180 Airbus A400M strategic lift aircraft. The A400 is unlikely to enter service before 2010; therefore, much of Europe is involved in the effort to find an interim solution until the A400 is ready. Despite lengthy negotiations and years of discussion of the pros and cons of various leasing and charter arrangements involving the Antonov 124 and Boeing C-17 aircraft, the members of the airlift group have repeatedly failed to finance any interim project. The reasons may be more political than financial. If the interim programme works, then it would cast doubt on the need for the A400 and the jobs, contracts and national prestige invested in the project. If this is the case, then it is unlikely that Europe will develop a strategic airlift capability until the A400 enters service. Despite predictions of 2008 or 2009 for the first of the A400 to enter service, Airbus officials and NATO international staff both find this to be highly optimistic. Given that the A400 has yet to move beyond the design phase, those close to the project predict 2012 as the likely in-service date.

18. One airlift project that is achieving some initial success is the European Airlift Co-ordination Centre in Eindhoven, the Netherlands. This centre co-ordinates the airlift and refuelling assets of Germany, Belgium, Italy, the UK, France and the Netherlands. Although it was only set up in 2002, it has already demonstrated its value. The centre costs approximately 200,000 euros per year, but has saved participating nations more than that already by consolidating cargo and preventing many empty return flights. Because of its initial success, some in NATO are predicting that it could take on a progressively larger role and possibly lead to a combined air and sealift operations centre that would maximize the utility of all strategic transportation equipment.

19. No matter the success of this effort to pool resources, the fact remains that much of Europe's airlift capability is relatively short-range, reaching the end of its expected life-span, and cannot hold oversized loads. The backbone of European transport aircraft is a collection of 40 year-old aircraft that cannot be expected to remain in service for the indefinite future. The UK is the only European ally with permanent access to large strategic airlift aircraft through its lease of four C-17s. If the European allies cannot find a way to finance an interim airlift option, then the co-ordination of existing airlift assets will likely be limited by the lack of serviceable aircraft at some point in the near future.

20. Another critical capability is air-to-air refuelling. There is a serious lack of this capability in European air forces and nine countries (Belgium, Denmark, Hungary, Italy, Luxembourg, Norway, Poland, Portugal and Spain) agreed at Prague to work together to find a way to this capability shortfall. The Spanish-led effort aims to build a jointly owned and operated fleet of approximately 10 multi-role aircraft that can perform air-to-air refuelling operations. There is little progress to report so far on this project.

21. This same shortfall was recognised by the European Union and the NATO working group on air-to-air refuelling and the EU working group formed under the European Capabilities Action Plan are working together to find cost-effective ways to increase the number of refuelling aircraft available to European militaries. The EU working group is headed by Spain and Italy.

#### **IV. SUSTAINING NATO FORCES DURING OPERATIONS**

22. If the first challenge is to get NATO forces into the theatre of operations, the second challenge is ensuring that the Alliance can maintain those forces there for an extended period of time. This involves a large number of capabilities including among others, Command, Control, Communications, Computers, Intelligence Surveillance and Reconnaissance (C4ISR), force protection, logistics and supply, and Combat Search and Rescue (CSAR).

23. There are encouraging trends in some of those areas. At a general level, there is growing interest and capability in Unmanned Aerial Vehicles (UAVs) across Europe. UAVs are, in the words of Assistant Secretary General for Defence Investment Marshall Billingslea, "a flying pick-up truck" that can carry a wide variety of payloads. Thus, increased investment in UAVs can provide increased capabilities for a range of missions. They can carry signals interception equipment, photographic reconnaissance equipment, radar, broadcasting equipment, or even be used to re-supply troops on the ground.

24. One indication of the increasing interest in UAVs is the number of cooperative ventures being formed between European aerospace companies to produce UAVs and technology demonstration projects. EADS, Dassault and Saab are working together to produce a combat UAV expected to be flown in 2009. Dassault, EADS and Thales are also pooling their expertise to build a strategic UAV for France. Alenia, the Italian aerospace company, is also building a combat UAV demonstration project that is slated to fly in early 2005. This aircraft will integrate a number

of stealth technologies to improve its survivability in hostile conditions. European aerospace companies are also working on components to make small, sophisticated UAVs that could be used for tactical reconnaissance for brigades or even smaller military units. EADS, for example, is already producing the world's smallest synthetic aperture radar (SAR), which will fit on the small (4 meter long) German-made Luna UAV. When finished, this project will give its users battlefield surveillance over an 80-square kilometer area. The German Parliament is expected to approve funding for this program in 2004.

25. France, Germany and the UK all have programmes to integrate UAVs into their intelligence, surveillance and reconnaissance capabilities. One project that is showing promise is the German Ministry of Defence's Euro Hawk UAV, which pairs the US Global Hawk UAV with a European-developed electronic intelligence sensor package. The Euro Hawk will be part of a networked information system and will give Germany a much improved surveillance capability. The UAV has already been proven under combat conditions and has undergone test flights in Germany with its new sensor package.

26. This project is an excellent example of Transatlantic defence co-operation. Rather than duplicating existing platforms that have already been proven under a variety of circumstances, it pairs that tested platform with a new sensor package. This reduces development costs and time until entry into service, while at the same time forging Transatlantic defence industry links.

27. Unfortunately, a lack of funding is delaying the delivery of the Euro Hawk system. The German Ministry of Defence Procurement Section called for buying five Euro Hawk systems and the training package at a total cost of \$600 million. But Ministry officials said in March that funding would fall short of what is needed to deliver the first Euro Hawk in 2006 as originally planned. Now the target date for delivery of the first Euro Hawk is 2007 with the second to be delivered in 2009.

28. In some ways this is an illustration of both what is going well and what is going poorly in the Alliance-wide effort to fulfil the PCC. Euro Hawk is building off existing tested technology that should allow the system to be rapidly introduced into service. But funding shortfalls are delaying the project and denying the German military an important capability it will need as it continues to play a large role in out-of-area operations. In the final analysis, no attempt to fulfil an aspect of the PCC can succeed unless we have the political will to fund the project in question.

29. Alliance Ground Surveillance (AGS) is another critical part of the C4ISR package that the Alliance needs for future operations. AGS will give Allied commanders a real-time, highly detailed and accurate picture of what is happening on the ground in a given area. It is a system that will take advantage of advances in distributed information systems, Unmanned Aerial Vehicles (UAVs) and manned aerial systems to give commanders - both at a headquarters and in the field - the information they need to make informed decisions.

30. All NATO members agree on the utility of AGS, but the question of what platform to use for the system was difficult to resolve. There were two competing consortia of companies with different platforms for the programme: the Transatlantic Industrial Proposed Solution (TIPS) and the Cooperative Transatlantic AGS System (CTAS). Both consortia were composed of the major aerospace and defence companies on both sides of the Atlantic and both proposed to use the same basic radar system. The major difference was the type of airborne platform that the two groups of companies proposed to use. TIPS is looking to a combination of the Airbus 321 and the Global Hawk UAV. CTAS planned to use a combination of smaller Bombardier business jets combined with the Predator UAV. There were various advantages and disadvantages to both proposals, the CTAS version would have had lower acquisition costs for the aircraft than the TIPS proposal, but would have had twice as many ground stations, 49 as opposed to 24 for the TIPS system.



31. The Conference of National Armaments Directors (CNAD) decided to go forward with the TIPS proposal and that decision was endorsed at the Istanbul Summit meeting. This opens the door for a 350 million euros two-year design and development phase, and acquisition beginning in 2006 if all goes according to schedule. But, the CNAD decision was already a year behind what was hoped for by then-NATO Assistant Secretary General for Defence Investment Robert Bell when he met with the Defence and Security Committee in February 2003. Despite the delay, the AGS system is expected to be operational by 2010. The US and the UK will provide ground surveillance for the NRF for part of the interim period through their national capabilities.

32. The AGS program will be a NATO owned and operated system, similar to the AWACS programme in that regard. One advantage to the selected system is its greater ability to process data aboard the manned aircraft. The TIPS system based on the Airbus A321 will have space for 14 consoles, while the CTAS system would have had only 5 or 6 and relied on the ground stations to transmit data across the network. The selected TIPS system will also use the Global Hawk UAV, which can fly higher and spend longer on target than the Predator UAV that was to be part of CTAS system.

## **V. PRECISION STRIKE AND FORCE PROTECTION**

33. A third challenge is to give deployed forces the ability to strike targets with great precision while at the same time protecting those forces from attack. NATO is increasingly likely to face adversaries that hide among civilians, and it is morally and politically impossible to cause unnecessary civilian casualties when the technology exists to prevent it. At the same time, we need to be able to protect NATO member forces from any sort of attack, particularly one using unconventional weapons.

34. There is substantial progress across the Alliance in procuring PGMs. Only five years ago US forces conducted the vast majority of air operations over Kosovo and Serbia because most European air forces simply lacked the ability to carry and use PGMs. There has been a tremendous increase in the precision strike capability of European air forces since then, with the UK, France, Germany, the Netherlands and Denmark in the lead.

35. The UK selected the Raytheon Paveway IV missile over the Joint Direct Attack Munition (JDAM). This all-weather PGM can use both laser guidance and GPS guidance, giving it the ability to "see" targets through cloud cover or other obstacles. It is being fitted to the UK's Tornado, Harrier and Eurofighter aircraft, and is expected to enter service in 2007. This will give UK strike aircraft the ability to attack targets from a distance of 150 km. The UK plans to purchase more than 2,000 of the Paveway IV missiles.

36. The UK has already integrated PGMs into its combat forces. Eighty four percent of the Royal Air Force's air-launched weapons during 2003 operation in Iraq were precision guided including the Paveway, the US-made Maverick and the European-produced Storm Shadow. In fact, as a percentage of air launched weapons used, UK forces used a slightly higher percentage of PGMs than did US forces.

37. Technology transfer and encryption issues, however, have slowed the development of European PGM capabilities. The most cost effective means of acquiring PGMs is for European militaries to buy part of the production runs of US-made Joint Direct Attack Munition (JDAM) kits, which essentially bolt a guidance package onto a conventional bomb. The problem is that although the larger bombs extend past the wing of the aircraft and can link directly to the satellite that guides them to their target, the smaller bombs fit completely under the wing and are linked through the aircraft to the satellite. This requires upgrading and installing certain technology and

encryption codes in European aircraft, and the US government has not yet resolved how this should happen.

38. The Alliance is also making progress in its ability to protect troops from attacks. NATO made protection against CBRN attacks a priority at the Prague summit, and so far the effort is showing some promising results. In December 2003, the CBRN battalion was set up under the leadership of the Czech Republic. It will have full operational capability in June 2004 and is composed of specialists from 13 countries who will work together in force protection against unconventional weapons. The UK for example, is providing biological detection assets and Portugal is providing an explosive ordnance disposal team. The battalion will become part of the third rotation of the NATO Response Force in the summer of 2004.

39. This is a good example of the development of "niche" capabilities in the Alliance. Although many of the smaller allies such as the Czech Republic cannot be expected to develop large expeditionary forces, the smaller allies have been encouraged to develop deployable units in particular high-demand areas. The Czech military is using its expertise in CBRN protection to contribute a numerically small but highly useful specialized unit in this area.

40. The remaining challenges for the CBRN unit are in communications and deployment. Because the battalion's components are situated in different locations, strategic airlift to get the unit into the field quickly is a priority. Given the lack of airlift in Europe, the CBRN battalion is looking to US or chartered aircraft for its deployments. Once again, this illustrates the interconnected nature of the PCC. It is difficult to make meaningful progress in one area unless progress is made in all capabilities.

## **VI. DEFENCE BUDGET TRENDS IN THE ALLIANCE**

41. To a large extent, the success of the PCC will depend on the ability of NATO members to alter their defence spending, reducing the amount spent on large standing forces and infrastructure while increasing the amount spent on modern equipment. In general, most of the NATO allies have halted the downward trend on defence spending since the end of the Cold War and several are increasing their spending. Many analysts and NATO officials cite 2% of gross domestic product (GDP) as the target level of spending in the Alliance. About half of the allies spend that or more including France, Greece, Turkey, the UK and the US. But many allies fall well below that mark.

42. Although it is too little data to assume a trend since 2002, 13 of the 18 allies with defence budgets (Iceland is excluded from this analysis because it does not have a defence budget) spent more on defence in 2003 than in 2002. On average, the Allies spent an additional 1% (or 0.8% excluding the United States - see Table 1). The Allies also spent 0.7% more of their defence budgets on equipment in 2003 compared to 2002. In percentage terms, the share of the defence budget devoted to equipment rose by an average of 7.2% (or 7.6% excluding the United States - see Table 2).

43. Although those broad measures can be a indication of the political will to fund the military at the level needed to meet current needs, it is more important to focus on how those resources are being spent. Across Europe, individual countries are undertaking wide-ranging projects to restructure their militaries to better meet some of the current challenges. Many Allies are attempting to develop their capabilities in network-centric warfare, albeit at a lower cost than the US is paying for the transformation of its armed forces. Some European ministries of defence, particularly in France and the UK, are spending more on advanced information systems and other items that will allow their militaries to operate in networked environments.

44. The UK announced a major overhaul of the structure and funding of its armed forces in the summer of 2004. It will cut back on the overall size of the military while increasing the budget and focusing resources on systems considered more critical to network centric warfare. The plan imposes significant changes on the military including base closures, reductions in the total size of the armed forces, and reductions in the number of main battle tank units, fighter aircraft squadrons and surface ships such as destroyers and frigates. At the same time the budget will rise in real terms by 1.4 percent per year for the next three years—from £29 to 33 billion—the largest sustained growth in the UK's defence budget since the end of the cold war. All of this is designed to free resources to invest in systems that will make the UK armed forces increasingly focused around networked operations and improve its capability to operate in co-operation with increasingly sophisticated US systems. For example, the Ministry of Defence estimates that approximately £6 billion will be moved from other budget categories to pay for investments in network-centric warfare.

45. The Ministry of Defence is also planning to find approximately £2.8 billion in savings from greater efficiency in procurement and other areas. But the history of such attempts at improving efficiency is not encouraging. A report by the House of Commons Defence Committee released in July finds that efforts by the Ministry of Defence to procure equipment cheaper and faster have in large part been unsuccessful. In fact, the report notes that the problems experienced by the Defence Procurement Agency led to cost increases on 20 major programs totalling £3.1 billion.

46. Germany announced a complete overhaul of its military in 2004. It plans to cut the *Bundeswehr* to 250,000 troops, a reduction of 35,000, and close 100 of Germany's 621 bases. The *Bundeswehr* will be divided into three categories of troops: an intervention force of 35,000 that will be used to fulfil international commitments taken under NATO or EU leadership, a stabilisation force of 70,000 troops for international peacekeeping, and a support force of 137,000 troops for a operational and logistical support.

47. The savings from base closures and reductions in force—an estimated 26 billion euros over 10 years—would then be directed toward modernisation programmes. Other cuts in Germany's tank fleet, patrol boat fleet, and combat aircraft inventory are projected to save 700 million euros. Assuming that the defence budget remains constant at 24.4 billion euros, those combined savings from phasing out older parts of the inventory, closing bases, and reducing personnel, could free up enough resources to move ahead on some of the items critical to fulfilling the PCC. But the Ministry of Defence has been under consistent financial pressure. In June 2004 the German government announced that it would reduce the 2005 defence budget by an additional 400 million euros. Some, such as Col. Bernhard Gertz, chairman of the German Armed Forces Association, question the ability of the Ministry of Defence to implement its reform plans if similar reductions are made in the next few years.

**Table 1**  
**Defence Expenditures and Percentage Change, in 1995 Prices (in millions of Euros unless noted)**

Country	2002	2003	Difference	Percentage Change
Belgium	2974	3010	36	1.2
Canada (Can \$)	12099	12293	194	1.6
Czech Rep. (Cz. Crowns)	32835	34811	1976	6.0
Denmark (Dan. Crowns)	17651	17777	126	0.7
France	35448	36137	689	1.9
Germany	29336	28870	-466	-1.6
Greece	4413	4439	26	0.6
Hungary (Florints)	139961	145652	5691	4.1
Italy	17687	16186	-1501	-8.5
Luxembourg	170	177	7	4.4
Netherlands	5905	5811	-94	-1.6
Norway (Nor. Crowns)	27841	25778	-2063	-7.4
Poland (Zlotys)	7671	8276	605	7.9
Portugal	2138	2084	-54	-2.5
Spain	6711	6776	65	1.0
Turkey (1000 Tur. Pounds)	351860	363740	11880	3.4
United Kingdom (£)	20626	21077	451	2.2
United States (US \$)	306302	323414	17112	5.6
<i>Average</i>				<i>1.0</i>
<i>Average excluding US</i>				<i>0.8</i>

Source: NATO

**Table 2**  
**Percentage of Defence Expenditures Devoted to Equipment**

Country	2002	2003	Difference	Percentage Change
Belgium	7.1	5.2	-1.9	-26.2
Canada	13.9	16.0	2.1	15.2
Czech Republic	17.5	21.0	3.5	20.0
Denmark	13.5	18.0	4.5	33.7
France	19.1	20.6	1.5	7.9
Germany	14.1	14.0	-0.0	-0.3
Greece	13.1	12.7	-0.4	-3.2
Hungary	11.1	10.2	-0.9	-8.0
Italy	12.4	12.7	0.3	2.2
Luxembourg	19.7	17.1	-2.5	-12.9
Netherlands	15.9	17.1	1.3	8.0
Norway	23.7	21.8	-2.0	-8.2
Poland	11.1	14.4	3.2	29.1
Portugal	4.1	7.3	3.2	76.7
Spain	12.8	11.8	-1.1	-8.2
Turkey	31.5	32.9	1.4	4.4
United Kingdom	23.6	23.5	-0.1	-0.5
United States	27.4	27.6	0.2	0.8
<i>Average</i>			<i>0.7</i>	<i>7.2</i>
<i>Average excluding US</i>			<i>0.7</i>	<i>7.6</i>

Source: NATO

48. In fact many of Germany's plans to date have been hindered by a lack of funds for modernisation. Germany plans to revamp its command and control structure to fit better into the "network centric" model of communications, but is currently pursuing a programme that would modernise some units while leaving others with outmoded systems. This two-tiered model may work, but as some analysts point out, both types of units may eventually be in the field together and the lack of compatibility between systems could harm interoperability.

49. It may be the case that Germany and other allies can exploit advances in the commercial sector and build improved command and control systems at a relatively low cost. The use of "commercial off-the-shelf technology" can save a considerable amount because with some modifications, advanced communications equipment in the commercial sector can be adapted to military use at a fraction of what it would cost to develop the same system through military R&D. This approach has shown promise in both the United States and the United Kingdom.

50. A note of caution, however, is in order. Some allies have had serious problems in adapting commercial off-the-shelf technology to battlefield conditions. Clearly similar problems can occur with a system specifically developed for the military, but such failures are more likely with commercial system that were not designed for the specific demands of combat conditions. A desire to find cost-effective solutions should not override the need to find effective solutions.

51. France is also making large-scale changes in how it buys military equipment and what equipment it will buy in the coming years. France is showing an interest in "network-centric" systems that is procuring equipment that enables the military to link Command, Control, Communications, Computers, Intelligence Surveillance and Reconnaissance (C4ISR) systems. France's military procurement agency the *Délégation Générale pour l'Armement* (DGA) recently placed orders worth 240 million euros for systems that will link naval units and provide them with a common picture of the operational areas, as well as provide, mail, video conferencing and common mapping across all ships in the area. A similar programme is being funded for the French Army as well. Those programmes are expected to be fielded in 2006 or 2007 and are likely to substantially boost France's capability in network-centric operations.

52. In a move to what is called "smart procurement," the French government is shifting many programme management decisions away from the civil service to the military chiefs. At the same time it is altering the budgeting process to allow greater transparency and measure performance against a set of agreed-upon indicators. The new process shows an increased openness to non-traditional financing of military projects such as leasing, outsourcing and private financing. Perhaps most significantly, the new budgeting rules allow for funds to be allocated to filling requirements rather than a particular programme. This should theoretically make it easier to shift funds from one project to another as long as the overall requirement is being fulfilled. Those reforms are designed to position France in a leading role within the new European Defence Agency (EDA), which is being set up in the coming year.

53. The EDA is another potential tool for rationalising European defence expenditures and creating economies of scale. This is being organised within the EU structure and is not a NATO effort, but it could help many NATO members improve their military capabilities. It is unlikely, however that the agency will become a centralised procurement office, at least not in the immediate future. The agency is being designed to promote the capabilities of the EU rapid reaction force and coordinate national efforts to meet the goals set down in the European Capabilities Action Plan (ECAP) a set of defence goals that closely mirror the PCC. According to officials in several European ministries of defence, the new agency will work to consolidate demand for defence items through consultation with the national ministries and coordinate military requirements.

54. It is not clear, however, if EDA will stay within this limited mandate or grow to take on a larger role in the procurement decisions. For the time being it is clear that those decisions will stay at the national level, but the history of the EU suggests that agencies often begin small and gradually assume more power relative to the national authorities. It is also not clear if EDA will be any more successful in coordinating armaments procurement across the EU than the existing JACO (Joint Armaments Co-operation Organisation) which has not been able to accomplish much since its creation in 1996.

55. In a related but separate effort, there is now broad agreement among EU member states to use some EU funds for military research and development projects, a significant shift from the consensus of a few years ago. Several pilot projects are being launched in 2004 with a focus on satellite intelligence, avionics and information technology. The total funding for those projects is currently limited to 75 million euros, but EU sources say that the goal is to eventually increase collective research and development and merge defence research into the larger EU research budget known as the framework programme.

56. All of those reforms at a national and at an EU level may or may not bear fruit in the coming years. It is often the case that expected savings from base closures and reducing military equipment inventories do not materialise. An EU initiative will only be as successful as the member countries want it to be. Yet, if nothing else, we should view those efforts listed here as an indicator of the seriousness of the situation and the desire within the political leadership of the allies to do more to channel resources towards the development of capabilities in line with the PCC.

57. Spain is increasing its defence budget by 4.1% in 2004, or an increase of 360 million euros. This is part of a 15-year modernisation programme for the Spanish military in which Spain plans to spend 18 billion euros to radically change its armed forces. In addition to the planned procurement of the A400 airlifter and the Eurofighter, Spain is in the process of purchasing a range of equipment that will allow its military to play a larger role in operations outside of Europe. In particular, Spain is building a new multipurpose amphibious assault ship that is expected to be delivered in 2008. The ship will be able to carry four large helicopters or six smaller helicopters. It will also be able to carry short vertical take off and landing aircraft, and heavy equipment such as tanks or armoured personnel carriers. It will also be able to hold up to 1355 personnel and doubles the capacity of Spain's two existing amphibious assault ships.

58. This comes on top of increases in Spain's defence budget last year, and is part of a 4.6 billion Euro package. In addition to the multipurpose ship, Spain also plans to build four new submarines capable of firing cruise missiles, and 24 Tiger attack helicopters. Most of the funding for this package is expected to come from the sale of surplus Ministry of Defence property.

59. Those national shifts towards network-centric operations and other systems should be encouraged, and it will be necessary to do so if we have any hope of maintain interoperability between European and US forces. The US continues to invest heavily in research and development, and the 2005 defence budget puts particular emphasis on C4ISR systems. Of the seven main transformational systems under development, communications systems are to receive \$3.6 billion. This is only a part of a US defence budget that dwarfs the combined defence expenditures of all of Europe combined. It not realistic or even necessary to expect that Europe can match the United States in defence expenditures, but it is critical that Europe shift spending toward items that will enable interoperability, even as the United States moves further ahead in communications, command and control, and other network-centric systems.

60. This massive investment by the United States in its military has the potential to widen the gap in capabilities between itself and its European allies to an unbridgeable degree. In particular, the growing gap in R&D spending (arguably a good predictor of future defence capabilities) bodes

ill for the capabilities gap. The US spends approximately \$50 billion per year in defence R&D; Europe collectively spends less than \$12 billion. This comparison is somewhat unfair in that European countries also tend to fund commercial R&D with some military applications, but there is still a significant difference between US and European spending.

61. At the moment however, Europe continues to spend a disproportionate amount on personnel and infrastructure. The average percentage of the defence budget spent on personnel across the European allies is 55% with some members spending 70% or more leaving little room for increases in R&D or procurement. The US by comparison spends about 33% on personnel, but invests nearly four times as much per soldier. US defence spending is not only greater in the absolute, it is increasingly directed at research, development and procurement of the items that will enable US forces to tackle the challenges of the 21st century. It is thus imperative that Europe increases its efforts to narrow the capabilities gap.

62. The proportion of defence budgets devoted to personnel may become an even larger issue as the few remaining conscription-based militaries move towards an all or mainly professional force. Most of Europe is doing so although Germany and Norway plan to keep some conscripts in the armed forces for the foreseeable future. Professional troops are better trained, remain in the service longer, and are do not face legal restrictions on their deployment out of the country, but a professional force is also more expensive. Thus even with drastic cuts in the size of the military, it is likely that many European militaries will be spending more on personnel in the future.

## VII. CONCLUSIONS

63. As this brief survey shows, the record thus far on fulfilling the PCC is mixed. To be fair, we should note that the PCC is only a two-year old effort and there are already grounds for optimism about the future direction of the initiative. Yet, despite the progress in areas such as sealift and PGMs, there are also areas where we are not making the necessary progress to give the Alliance the capabilities it needs for current and future contingencies. There is some progress on shifting resources toward the development of capabilities, but that progress will have to be sustained for many years to achieve the level of necessary funding.

64. There are several lessons to be learned from the experiences of the allies as they work on fulfilling the PCC. First is that there are many areas where we can build military capabilities based on commercial systems. Many of the needed improvements in command and control, information systems, and communications can use modified, commercially developed products. This can be far less expensive than going through a lengthy research and development process to build a system for purely military purposes. But we should be extremely careful to test and vet those systems before fielding them. When a system fails in the commercial world, the result is lost profits or time. When a system fails in military situations, the cost can often be measured in lives. We owe it to our service personnel to ensure that the equipment fielded with them meets their needs.

65. Another lesson is that there is tremendous potential in cooperative programmes, asset sharing, and creative financing arrangements. The collaboration of countries on sealift is impressive and is showing results because it is taking advantage of a range of opportunities to create economies of scale. Not every member of NATO can afford to have every capability, but it is possible to create the conditions where the use of assets can be maximized, and the costs spread across several members. We should also do what we can to increase Transatlantic defence industrial co-operation. There is also a need for greater Transatlantic defence industry collaboration as exemplified by the international consortium developing the Alliance Ground Surveillance system and we should avoid placing unnecessary barriers to such valuable and cost-effective collaboration.

66. A final and important lesson is that the PCC are closely linked and success in one area is diminished by a lack of progress on another capability. An excellent reconnaissance system is useless if we do not have the ability to get it where it is needed in time. Precision Guided Munitions cannot be targeted unless we have surveillance that tells us where to strike and information systems that can distribute the information at the right time to the right commanders. Although it is easy to see the PCC as discrete individual boxes of capabilities, the reality is that they all fit together, and missing one piece can compromise the integrity of the whole package.

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