



# BACKGROUND

Logistics support  
for NATO operations



February 2006



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Logistics is of vital importance for any military operation. Without it, operations could not be carried out and sustained. This is especially evident with NATO's out-of-area operations.

The new missions of the Alliance are radically different from those it faced during the Cold War. NATO has now been involved in out-of-area operations for over a decade. During the 1990s, these operations were still in Europe, but the September 11, 2001 attacks on the United States led to NATO foreign ministers removing all geographical limits to NATO's area of operations at their meeting in Reykjavik in May 2002.

This poses obvious logistic challenges and NATO logistics doctrine is evolving accordingly while at the same time various initiatives are underway to develop the required capabilities.

## Logistics defined

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NATO defines logistics as the science of planning and carrying out the movement and maintenance of forces. Under this agreed definition, logistics covers the following areas of military operations:

- design and development, acquisition, storage, transport, distribution, maintenance, evacuation and disposal of materiel;
- transport of personnel;
- acquisition, construction, maintenance, operation and disposition of facilities;
- acquisition or provision of services;
- medical and health service support.

These areas involve a wide range of services and responsibilities subdivided into the input and output sides of logistics:

- production or acquisition aspects of logistics (research, design, development, manufacture and acceptance of equipment). This is primarily a national responsibility. However, co-operation and coordination take place within NATO in many areas, largely under the auspices of the Conference of National Armament Directors and its subordinate bodies.
- consumer or operational aspects of logistics concerned with the supply and support functions of forces, falling mainly under the responsibility of the Senior NATO Logisticians' Conference and the NATO Pipeline Committee. Other bodies, such as the Committee of the Chiefs of Military Medical Services in NATO, advise the Military Committee on logistical matters in their specific areas of responsibility.

## Evolution of NATO logistics doctrine

During the Cold War, NATO logistics was limited to the North Atlantic area. The Alliance planned the linear defence of West Germany with national corps supported by national support elements.

Lines of communication within Europe extended westwards and northwards to Channel and North Sea ports. Planning called for reinforcements and supplies to be sealifted from the United States and Canada to these same ports and to be airlifted to European bases to pick up pre-positioned equipment.

The NATO Pipeline System evolved to supply fuel to NATO forces in Europe.

The NATO Maintenance and Supply Agency (NAMSA) was created in Luxembourg, initially to aid European countries in their Foreign Military Sales purchase of US combat aircraft in the 1950s.

### NATO Pipeline System

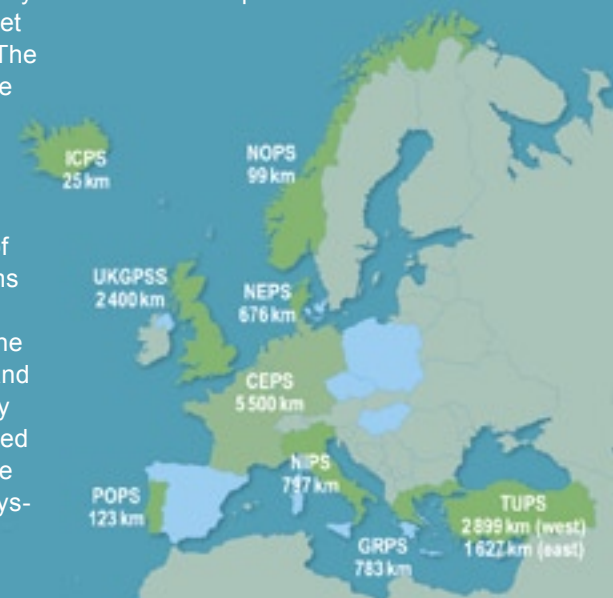
The NATO Pipeline System (NPS) was set up during the Cold War to supply Alliance forces with fuel. Although collectively referred to as one system, the NPS actually consists of ten separate and distinct military storage and distribution systems: Iceland, Italy, Greece, Turkey (two separate systems - east and west), Norway, Portugal, the United Kingdom, the North European Pipeline System (NEPS) located in both Denmark and Germany, and the largest system, the Central Europe Pipeline System (CEPS) in Belgium, France, Germany, Luxembourg and the Netherlands.

The NPS in total consists of some 11 500 kilometers of pipeline running through 13 NATO nations with its associated depots, connected air bases, truck and rail loading stations, pump stations, refineries and entry points. Bulk distribution is achieved using facilities provided from the common-funded NATO Security Investment Programme (NSIP). The networks are controlled by national organisations, with the exception of CEPS, which is a multinational system.

CEPS encompasses NATO assets for the movement, storage and delivery of fuel in Belgium, France, Germany, Luxembourg and the Netherlands. These are known as the host nations, with Canada and the United States designated as user nations. CEPS is managed by the Central Europe Pipeline Management Organisation (CEPMO). Collectively, the host and user nations comprise the member countries participating in CEPMO. The system is designed and managed to meet operational requirements in central Europe in peace, crisis and conflict, but is also used commercially under strict safeguards, supplying jet fuel to several major civil airports. The day-to-day operation of CEPS is the task of the Central Europe Pipeline Management Agency located in Versailles, France.

In addition to the above elements of the NPS, there are also fuel systems in the Czech Republic, Hungary, Poland and Spain. While those in the Czech Republic, Hungary and Poland are national systems, NATO military requirements have been incorporated into NSIP-funded projects which are being implemented. The Spanish system is purely national.

In order to support the new missions of the Alliance, the emphasis has shifted away from static pipeline infrastructure to the rapidly deployable support of NATO's expeditionary activities. To this end, NATO has developed a modular concept whereby all fuel requirements can be satisfied through a combination of 13 discrete but compatible modules which can receive, store and transport fuel in any theatre of operation. The concept also enables both NATO and Partner nations to combine their capabilities to provide a multinational solution to meet all fuel requirements.



In the 1990s, NATO recognized the changed security environment it was operating in as a result of enlargement, Partnership for Peace (PfP) and other cooperation programmes with Central and Eastern Europe, cooperation with other international organisations, and peace support operations in the Balkans. All these developments present significant and new challenges as well as opportunities to NATO's logistics staffs.



## NATO Maintenance and Supply Agency

NAMSA plays a key role in logistics. The agency is the executive arm of the NATO Maintenance and Supply Organisation, which provides the structure for logistics support of selected weapons systems in the national inventories of two or more NATO nations, through the common procurement and supply of spare parts and the provision of maintenance and repair facilities.

NAMSA's task is to provide logistic services in support of weapon and equipment systems held in common by NATO nations, in order to promote materiel readiness, to improve the efficiency of logistic operations and to effect savings through consolidated procurement in the areas of supply, maintenance, calibration, procurement, transportation, technical support, engineering services and configuration management.

Since its creation, the agency has provided acquisition support for the Nike, Hawk and Patriot surface-to-air missile systems, the TOW anti-tank

missile, the Multiple Launch Rocket System (MLRS), and the CL-289 un-manned aerial vehicle. In future, NAMSA will provide in service support for the deployable Medium Extended Air Defense System (MEADS). NAMSA is responsible for the depot level maintenance of the NATO Airborne Warning and Control System, the Alliance's largest commonly funded programme, which is run by the NATO Airborne Early Warning and Control Programme Management Agency in Brunssum, the Netherlands.

NAMSA is in charge of the storage depot for the common equipment of a deployable Combined Joint Task Force in Taranto, southern Italy, the main depot for all NATO's deployable assets. The agency also procured equipment for the Deployable Joint Task Force of the NATO Reaction Force.

The agency shares responsibility with the NATO Communications and Information Systems (CIS) Services Agency for stored common deployable CIS equipment. NAMSA ensures the commonality of non-CIS elements like trucks used to carry shelters to house CIS equipment.

NAMSA has developed modern materiel management and procurement techniques, including the Stock Holding and Assets Requirements Exchange (SHARE) and Common Item Materiel Management (COMMIT). The Agency also provides support for the Group of National Directors on Codification, which manages the NATO Codification System and logistics support for deployed NATO forces. Under the NATO Codification System, items of supply are given a single NATO stock number.





## Balkan experience

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NATO's deployment of the Implementation Force (IFOR) to Bosnia and Herzegovina in December 1995 revealed shortcomings in Alliance logistic support for peace support operations. The logistic footprint was very large, featuring redundant and inefficient national logistic structures. Experiences from IFOR resulted in major revisions to PfP and NATO logistic policies and procedures and highlighted the need for greater multinationality in logistics.

IFOR's 60,000 troops in Bosnia and Herzegovina were deployed and supplied nationally by road, rail, ships and aircraft over relatively short lines of communication. While the force was able to rely on some host nation support - civil and military assistance from neighbouring nations and even Bosnia and Herzegovina itself - it relied heavily on national support elements with redundant logistic support capabilities, reducing the overall efficiency and effectiveness of the overall force.

The Stabilisation Force (SFOR) which replaced IFOR and the Kosovo Force (KFOR) which deployed to the Serb province in June 1999 suffered from the same stovepiped national logistic support as IFOR. For example, KFOR had five field hospitals, which most NATO countries include in their logistic structures, one for each brigade, when fewer would have been sufficient for the force.

## Logistics for Afghanistan

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After the September 11, 2001, attacks on the United States, NATO could no longer afford to do logistics in the same way it did in the Balkans. It is now planning to be able to conduct rapid deployments far out of area, stretching lines of communication. In addition, it is not necessarily expecting host nation support, civil and military assistance from nations in the area it deploys.

NATO already faces some of these limitations with the International Security Assistance Force (ISAF) in Afghanistan, which is land-locked and far from Europe. The long lines of communication inside the country are hampered by rough terrain, unpaved roads and security threats.

The force therefore relies heavily on airlift for movement, reinforcements and supplies. Most of its airlift requirements are provided by the United States or by Russian aircraft leased by Supreme Headquarters Allied Powers Europe (SHAPE) through the NATO Maintenance and Supply Agency (NAMSA) in Luxembourg.

Tactical fixed and rotary-wing aircraft are crucial for the expansion of the ISAF mission beyond Kabul because it can take days to travel from the capital to the provinces by road, which can even be impossible in the winter if there is snow. This expansion began in January 2005 with the establishment of provincial reconstruction teams (PRTs) north of the Afghan capital, followed by more of the mixed civilian-military teams to the west and now to the south of Kabul. Forward support bases in Mazar-e-Sharif in the north and Herat in the west act as "hubs" from which "spokes" emanate to the PRTs themselves. The expansion to the north of the country required the commitment by NATO nations of six medium lift transports equivalent to the C-130 aircraft, in addition to 18 helicopters.

## Strengthening logistic capabilities

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Rapid deployments out of area require deployable logistic support units within combat formations, assured access to strategic lift and deployable logistic assets. These are being covered by the Prague Capabilities Commitment made by NATO leaders at their November 2002 summit in the Czech capital. One of the four major shortfalls this initiative aims to overcome is in deployability and sustainability. Specifically, it seeks to improve NATO's strategic air and sealift, air-to-air refueling, and combat service support capabilities.

Most progress has been made in the area of strategic lift. Two consortia have been set up, one covering airlift and the other sealift.

### Airlift

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The German-led airlift consortium includes Canada, the Czech Republic, Denmark, France, Hungary, Luxembourg, the Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain and Turkey. At the June 2004 Istanbul Summit, defence ministers of these 15 countries signed a memorandum of understanding aiming to achieve an operational airlift capacity for outsize cargo by 2005 using up to six chartered An-124-100 transport aircraft available on-call. In addition, the defence ministers of Bulgaria and Romania signed a letter of intent to acquire this capability. On 10 November 2005, the contract with Ruslan Salis, the commercial provider of the aircraft, was signed.

### Sealift

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Norway leads the Multinational Sealift Steering Committee, which includes Canada, Denmark, Hungary, the Netherlands, Portugal, Spain and the United Kingdom. The sealift agreement signed by their defence ministers in Brussels in December 2003 is based on four components:

- three ships available through assured access contracts;
- one ship available on an ad hoc basis from Norway;
- one or two ships on full-time charter from Denmark; and
- the residual capacity of four British ships.

At the Istanbul Summit, the defence ministers of Bulgaria, Estonia, Latvia, Romania and Slovenia signed a supplementary letter of intent on strategic sealift.







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### **NATO support for African Union in Darfur**

The Alliance provided airlift and logistic support to the African Union (AU) deployment to Darfur as it expanded its presence in an attempt to end the violence there. NATO, along with the European Union (EU), airlifted seven battalions of AU troops, plus 49 civilian policemen, starting in July 2005. Three of the battalions were Nigerian, three were

Rwandan, and one was Senegalese. Six of these battalions were transported by NATO.

The NATO airlift was coordinated by Supreme Headquarters Allied Powers Europe (SHAPE) in Mons, Belgium, while the EU airlift was coordinated by the European Airlift Centre at Eindhoven airbase in the Netherlands. A special air movement cell at the AU headquarters in Addis Ababa, supported by NATO and

the EU, coordinated incoming troops on the ground in Africa.

NATO also helped train AU personnel in key headquarters functions, including command and control, logistics and planning.

NATO extended its support of the AU until May 2006 so that it can also airlift the rotation of peacekeepers out of Darfur as well as provide additional training.

### **Cooperation with Russia**

One of the areas of cooperation within the NATO-Russia Council (NRC) created in May 2002 is logistics. The NRC Ad Hoc Working Group (AHWG) on Logistics is the forum for discussion and development of such cooperation. It was created in December 2004 to replace NRC expert groups on logistics, air transport and air-to-air refueling.

A memorandum of understanding on logistics cooperation between Russia and the NATO Maintenance and Supply Organisation is being finalised, as is a NATO-Russia Framework Agreement on Air Transport.

During 2004, Supreme Headquarters Allied Powers Europe (SHAPE) and the Russian Ministry of Defence

negotiated a final draft of the NATO-Russia Framework Agreement on Air Transport, whose purpose is to support humanitarian and rescue missions, exercises and operations authorized by the United Nations. In Exercise Steadfast Move 2005, held in Izmir, Turkey, in March 2005, SHAPE and Russia examined procedures for the use of Russian air transport assets. The results fed directly into the development of the Air Transport Implementing Arrangements by SHAPE and the Russian Ministry of Defence.

The AHWG's 2005 and 2006 Logistic Action Plans include the development of a host nation support agreement to facilitate support to ISAF offered by Russian President Vladimir Putin and currently being negotiated by NATO and Russia.

Under the 2005 Logistic Action Plan, seminars and workshops looked at such issues as logistic information and e-commerce, common information technology solutions, military medical support, fuels interoperability, operational logistics, maritime logistics, and support for Operation Active Endeavour, which Russia will join in 2006. Activities for 2006 will focus on the logistic aspects of defence against terrorism, multi-national logistic support solutions for peacekeeping operations, and logistic transformation. Furthermore, detailed planning will take place in 2006 leading to a fuels interoperability demonstration in 2007 and an exercise in 2008.



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## Logistic support for disaster relief

In 2005, NATO provided logistic support for disaster relief operations in Asia and North America. It airlifted aid to Pakistan after the September earthquake, to the United States after Hurricane Katrina, and to Asia after the tsunami at the beginning of the year.

NATO airlifted over 1,000 tons of relief supplies to Pakistan from the UN High Commissioner for Refugees (UNHCR), Alliance member nations and other countries. The airlift was conducted by NATO Airborne Early Warning & Control (NAEW&C) Force Training Cargo Aircraft, US Air Force C-17s, a Russian Antonov, and C-130s flying from air bases in Ramstein, Germany, and Incirlik, Turkey. NATO member nations provided helicopters in Pakistan itself.

In addition, NATO deployed elements of the NATO Response Force (NRF) to Pakistan. A Deployable Joint Task Force headquarters from Joint Command Lisbon, which has operational command of the current rotation of the NRF, was sent to Islamabad to help the UN High Commissioner for Refugees with planning, command and control, and logistics. Other NRF elements sent to Pakistan include a Spanish headquarters; a battalion of

engineers from Spain, Poland and Italy with equipment to help clear roads and set up facilities; a mobile, multi-national medical unit; and three water purification plants from Lithuania.

NATO aircraft delivered aid to the United States in September following the North Atlantic Council's decision to help in the disaster relief effort following Hurricane Katrina, which struck the US Gulf Coast on 29 August. The Council decided to commit the NRF and the NAEW&C Force to the relief effort. NATO established an air bridge between Ramstein and Little Rock, Arkansas, to deliver some 189 tons of aid from Alliance member nations, which was coordinated between NATO's Euro-Atlantic Disaster Response Coordination Cell and the US Federal Emergency Management Agency.

Fifteen British, Greek and Italian C-130 and French and German C-160 transport aircraft assigned to the NRF flew the aid to Ramstein, from where it was ferried to the US by NAEW&C Training and Cargo Aircraft, a Canadian A310, a Turkish C-130, and an Antonov An-124 volunteered by Ukraine.

The Hurricane Katrina and Pakistani earthquake relief operations were commanded by Supreme Headquar-

ters Allied Powers Europe (SHAPE) in Mons, Belgium, through the NRF headquarters, currently NATO's joint headquarters in Lisbon.

Less well-known was NATO's involvement in the tsunami relief operation in the Far East at the beginning of 2005. This was mainly in the transport and logistics area and included the chartering by the NATO Maintenance and Supply Agency of humanitarian relief flights from Russia and Azerbaijan for Austrian non-governmental organizations. In January and February 2005, seven flights were organized using Russian Antonov and Azerbaijani Ilyushin Il-76 transport aircraft, which airlifted food, medical supplies, water purification equipment, and vehicles from Vienna to Colombo, Sri Lanka. The Alliance donated 565 meters of bridging equipment to Indonesia. The equipment was former British and Dutch materiel stockpiled in Ploce, Croatia, to support NATO's Stabilization Force (SFOR), whose mission was taken over by the European Union in December 2004. The Netherlands acted as the lead nation, with British support, transferring equipment by ship to Banda Aceh, Sumatra, for use in the reconstruction effort there. The bridges are valued at over six million euros.

## Multinational units

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One of the factors limiting the sustainability of NATO peace support operations is the use of national support elements. Alliance logistic doctrine foresees cooperation and multinationality. The latter includes the creation of multinational integrated logistic units (MILUs) formed by two or more nations, under the operational control of a force commander at the joint force or component level, to provide logistic support to a multinational force. Belgium, Luxembourg, Greece and Austria formed the first such unit, the BELUGA transport unit, to support the Stabilization Force (SFOR) which succeeded IFOR in December 1996. Subsequently, a few MILUs have been formed on an ad hoc basis and for a short duration in SFOR and KFOR.

To achieve economies of scale, NATO is now pooling its logistics resources in the form of standing MILUs. In April 2005, Bulgaria, Canada, Lithuania, Romania, Slovakia, and Partnership for Peace (PfP) member Croatia agreed to form and sustain the first such unit, a Joint Theatre Movement Staff (JTMS) MILU. The unit will provide movement staff support to the Multinational Joint Logistic Centre during NATO operations and exercises. It will develop movement and transportation plans and prioritize movement requirements in theatre, as well as operate a Joint Theatre Movement Coordination Centre if required as part of a Combined Joint Task Force headquarters.

This capability was proven during the last Steadfast Move exercise, which is used to train national movement planners on the Allied Deployment and Movement System (ADAMS), a decision support system used to plan and coordinate NATO multinational force deployments. Exercise Steadfast Move is held annually either at the Turkish PfP logistic training centre in Izmir, Turkey, which was the case in 2005, or at The Hague location of the NATO Consultation, Command and Control Agency, which developed the ADAMS software. The initial proof of concept for the JTMS MILU allows the unit to be affiliated potentially with a six-month rotation of the NATO Response Force or to one of the High Readiness Forces (Land) available for Alliance missions.

The JTMS MILU was first proposed in 2002, when most of the countries which form the unit were PfP but not yet NATO members. A second MILU is being set up by Romania to provide force support engineering.





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