

Cluster Bombs, Landmines, Nuclear Weapons and Depleted Uranium Weapons



**A report on the financial links between
banks and the producers of
controversial weapon systems**

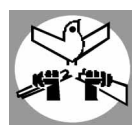
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Voor Moeder
Aarde vzw



netwerk
Anders omgaan met geld





This report is part of the campaign 'My Money. Clear Conscience?'

**A campaign of Netwerk Vlaanderen vzw,
in cooperation with Forum voor Vredesactie,
For Mother Earth and Vrede vzw**

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Introduction

In October 2003 Netwerk Vlaanderen and her partners from the peace movement released a report¹ as part of the "My Money. Clear Conscience?" campaign². This report revealed that the five largest banks in Belgium (AXA, DEXIA, FORTIS, ING and KBC) have a combined investment of \$1.5 billion in 11 international weapon producing companies.

There was a lot of press attention. The clients of the banks were astonished, shocked and concerned. The banking world was completely surprised and has clearly been dealing with the matter. The theme has been taken up in the corridors of the financial world in Belgium.

But, we have the impression that despite the press attention and the reaction of the clients, the banks do not realise the seriousness of the situation. It seems that the tactic has been to let the storm subside and get on with "business as usual".

For this reason, Netwerk Vlaanderen and her partners in the peace movement are using this report to bring new facts to light. This report focuses on the links between the same five bank groups and the production of controversial weapon systems, in particular landmines, cluster bombs, nuclear weapons and depleted uranium weapons.

There is nothing secret in our agenda. We want to use this report to increase the pressure on the banks to stop their investment in the arms trade. It must present the banks with the reality of their choice to invest in these weapons. Even more than the previous report, we look at the details of which unacceptable practices and weapons the banks are investing in, when they choose to deal with the arms industry.

In recent decades, cluster bombs have been responsible for thousands of civilian victims, often years after the end of armed conflict. They have been widely used in the wars in Yugoslavia, Kosovo, Afghanistan and Iraq. Landmines are the pariahs of the weapon world. Every year they create 26,000 civilian victims. In more than 3/4 of the world, they have also been declared illegal.

Nuclear weapons have a devastating power. These weapons of mass destruction present an ongoing threat to the whole of civilisation. Despite numerous international treaties, the nuclear weapon states continue to modernise their nuclear weapon arsenals.

Depleted uranium weapons have been used in armed conflict over the past 15 years, despite being radioactive and chemically toxic. They cause serious health problems after the conflict for both soldiers and civilian victims.

It is not nice, but these are the cold facts. An anonymous decision of "asset management" could prove to be an investment in landmines. An interesting business proposal could be a loan for a producer of nuclear weapons or a bank guarantee for a specialist in the production of cluster bombs.

This is banking to death, banking until the bomb falls!

¹ *Mijn Geld. Goed Geweten?, een onderzoek naar de financiële banden tussen banken en wapenproducenten*, Christophe Scheire, a report from Netwerk Vlaanderen, Brussels, October 2003.

² The campaign "Mijn Geld. Goed Geweten?" is a campaign of Netwerk Vlaanderen vzw in cooperation with Forum voor Vredesactie, For Mother Earth and Vrede vzw.

Chapter 1

Cluster bombs and Cluster munitions

1.1. Cluster munitions³

What are cluster munitions?

Cluster munitions are large weapons that open in the air and release (often hundreds) of sub-munitions. These sub-munitions are smaller bombs or grenades. In some cases, the sub-munitions can also be landmines.

Cluster munitions are made up of a container and sub-munitions.

The word "Cluster bomb" is often used, but this refers specifically to cluster munitions that are dropped from aircraft (air-launched). The term cluster munitions covers both air-launched and ground-launched weapons. The ground-launched sub-munitions are normally referred to as 'grenades', while the air-launched variety are called 'bomblets'



A fighter plane drops a cluster bomb that opens at a designated height and releases more than 100 bombs. (animation BBC)

Cluster munitions can be launched from fighter aircraft, bombers and helicopters. Ground-launched cluster munitions can be delivered by artillery and missiles. The sub-munitions can contain different kinds of explosives or chemical agents. Some have anti-personnel effects; others are designed for use against tanks or other military targets. These can also be combined within a single cluster munition. Cluster munitions can also have chemical or incendiary effect.

Cluster munitions spread their contents over a large area, from the equivalent of several football fields to hundreds of acres.

What makes cluster bombs so controversial?

In contrast to landmines, cluster munitions are designed to explode when they reach their target. Landmines are used with the intention that they do not explode immediately, but when a victim touches them. For example when a child plays with them, or when they are driven over by a tractor.

³ Cluster Munitions: Toward a Global Solution, Steve Goose in World Report 2004 by Human Rights Watch, January 2004, <http://www.hrw.org/wr2k4/12.htm>

But many studies have shown that the sub-munitions from cluster bombs have a high rate of non-detonation. The most optimistic figures refer to 5% of sub-munitions not exploding. This figure could actually be as high as 30%. In a single cluster bomb strike, there may be a huge number of undetonated sub-munitions left over a huge area. In short, a minefield has been created. The unexploded sub-munitions become, de facto, a form of landmine.

For a variety of reasons, unexploded cluster munitions are even more dangerous than other unexploded remnants of war.

- Firstly, the huge number of sub-munitions released from a single cluster munition.
- Secondly, many cluster munitions are more sensitive than landmines, and more difficult to de-mine.
- Moreover, cluster bombs are deadlier than anti-personnel landmines. They contain more explosives and are more likely to kill than to injure. Precisely because of the larger amounts of explosive, they are often responsible for more than one victim per incident.

A cluster attack has a large humanitarian impact through the spreading of sub-munitions over a large area. Even if a cluster bomb is used against a military target, the sub-munitions can also cause civilian casualties.

Naturally, the unexploded sub-munitions also have a great psychological impact on the population. The insecurity remains high, even after the end of the war or armed conflict, and death remains just around the corner.

Unexploded cluster munitions also have serious social and economic consequences. The ground where cluster munitions remain is unusable for civilians, because of the great risks. This can, for example, lead to the isolation of communities or the loss of income through an inability to continue farming an area of land.

The clearing of land that has been scattered with cluster munitions costs large sums of money.

The use of cluster munitions

In the last decades, the US and United Kingdom have been the most important users of cluster bombs. The United States alone has a stockpile of more than 1 billion sub-munitions. In total, more than 57 countries have stocks of these weapons, including Belgium, the Netherlands, US, UK, Sudan, Chile, Russia, Saudi Arabia, Israel, Iran and Iraq.

Cluster munitions have been used in at least 16 countries by at least 11 states. The affected countries are Afghanistan, Albania, Bosnia-Herzegovina, Cambodia, Chad, Eritrea, Ethiopia, Iraq, Kuwait, Laos, Lebanon, Russia (Chechnya), Saudi Arabia, Serbia and Montenegro (including Kosovo), Sudan and Vietnam.

A few examples of the use of cluster munitions:

The first Gulf War (1991)

Cluster bombs were used in large numbers during the first Gulf War in 1991. According to a report from Human Rights Watch⁴ the United States and her allies dropped 61,000 cluster bombs on Iraq and Kuwait between 17th February and 28th February 1991. These cluster bombs contained a total of around 20 million sub-munitions and accounted for 1/4 of the bombs dropped on Iraq and Kuwait. Even using the conservative estimate of a 5% non-explosion rate, this means around 1 million dangerous sub-munitions remain⁵.

⁴ *US Cluster Bombs for Turkey?*, A Human Rights Watch Report, vol. 6, no. 19, December 1994, <http://www.hrw.org/reports/1994/turkey2/>

⁵ For more information on the use of cluster bombs containing landmines in 1991, read the chapter on landmines in this report.

After the war, a report from the US Air Force⁶ mentioned an "excessively high non explosive rate" due to the height from which the bombs were dropped and the fact that they had landed on sand and water.

These unexploded sub-munitions have killed 1,600 civilians, and wounded 2,500. 60 percent of the victims were younger than 15 years old.

The use of cluster bombs in urban areas (mainly in the south of Iraq) meant that refugees and international humanitarian organisations were also put at risk.

Yugoslavia and Kosovo (1999)

Between March and June 1999, the US, UK and the Netherlands dropped 1,765 cluster bombs on Yugoslavia, containing a total of 295,000 sub-munitions. According to U.N. Mine Coordination more than 20,000 unexploded sub-munitions were left behind.

During the bombardments, between 90 and 150 civilians were killed and many more were wounded. In the year after the war, at least 50 civilians were killed and 101 wounded due to these unexploded sub-munitions.⁷

Afghanistan (2001-2002)

The United States dropped 1,288 cluster bombs in Afghanistan (containing 248,056 sub-munitions). Conservative estimates mention 12,400 unexploded sub-munitions remaining in Afghanistan.⁸

Iraq (2003)

In 2003, the United States and the United Kingdom dropped 13,000 cluster munitions in Iraq (containing almost 2 million sub-munitions). In contrast to previous wars (for example in Kosovo and Afghanistan), the majority of these weapons were ground-launched. The use of these ground-launched cluster bombs in populated areas were the most significant cause of civilian casualties. Hundreds of civilian deaths and injuries caused by cluster munitions were reported in Baghdad, al-Hilla, al-Najaf, Basra, and elsewhere.⁹

International law

In contrast to anti-personnel landmines (see the Ottawa Treaty further in this report), the production, trade and use of cluster munitions is not banned. This is remarkable, considering the fact that unexploded sub-munitions are as dangerous (or even more dangerous) for civilians. Despite this, the Ottawa Treaty does not cover cluster munitions.

There are arguments that can be used to show that cluster munitions are de facto forbidden, according to principles of International Humanitarian Law (IHL). This body of law, which governs the conduct of war, demands that parties to armed conflict are able to distinguish between military and civilian targets. In most circumstances, the use of cluster munitions cannot make this distinction. This is due to the range of the weapon, and also due to the high rate of unexploded sub-munitions.

⁶ *Gulf War Air Power Survey, US Air Force, vol. II, pt. I (1993)*

⁷ *Civilian Deaths in the NATO Air Campaign, A Human Rights Watch Report, vol. 12, no. 1 (D), February 2000 and Ticking Time Bombs: NATO's Use of Cluster Munitions in Yugoslavia, A Human Rights Watch Report, vol. 11, no. 6 (D), May 1999, <http://www.hrw.org/reports/2000/nato/>*

⁸ *Fatally Flawed, Cluster Bombs and their use by the United States in Afghanistan, Human Rights Watch, December 2002, <http://www.hrw.org/reports/2002/us-afghanistan/>*

⁹ *Off Target: The conduct of the War and Civilian Casualties in Iraq, Human Rights Watch, November 2003, <http://www.hrw.org/reports/2003/usa1203/>*

In the context of the Convention on Conventional Weapons (CCW), attempts are being made to limit the risks of explosive remnants of war. On 28th November 2003, an agreement was reached on this subject in the negotiations for the CCW. International NGO's welcomed this as a first step, but expressed regret that this protocol only dealt with 'post-war measures'. There was nothing about prevention.

Nevertheless, a number of countries, including Belgium, requested the start of new negotiations for a new protocol dealing with sub-munitions. The proposal was not successful due to heavy opposition from countries including China, Russia, the United States and Pakistan.

In the meantime, some countries tried to quell the commotion by announcing investments in making their weapons more reliable. Experts say that it is highly unlikely that a weapon that is designed to be used over such a large area can be made more accurate.

International campaigns

On 13th November 2003, 85 NGOs from 42 countries formed the Cluster Munitions Coalition (CMC) in The Hague, Netherlands. Amongst others, Handicap International, Human Rights Watch, Landmine Action UK, Pax Christi (Netherlands and Ireland) and Protection (Egypt) are the driving forces behind the coalition. The CMC has 3 demands to governments:

- No use, production or trade of cluster munitions until their humanitarian problems have been resolved.
- Increased resources for assistance to communities and individuals affected by unexploded cluster munitions and all other explosive remnants of war.
- Users of cluster munitions and other munitions that become explosive remnants of war to accept special responsibility for clearance, warnings, risk education, provision of information and victim assistance

According to the CMC there are more than enough reasons to urgently introduce stronger rules regarding cluster munitions as a category of weapons. The immediate danger to civilians from cluster munitions is very high, due to their inaccuracy and the fact that they are spread over a large area. Furthermore, there is also the danger from the unexploded sub-munitions that remains for years after the end of the war. Above this, the use of cluster munitions is increasing, and there is a risk of widespread proliferation of these weapons.¹⁰

1.2. Companies involved in the production of cluster bombs and cluster munitions

Forges de Zeebrugge

Forges de Zeebrugge is a Belgian (Herstal) based subsidiary of TDA. TDA (Thomson Dasa Armaments) is in turn a joint venture of Thales (French weapon giant) and EADS Deutschland GmbH (EADS is the 2nd largest arms producer in Europe). These two companies each have 50% of the shares in TDA. Forges de Zeebrugge is therefore a subsidiary of EADS and Thales.

TDA makes particular use of funds made available by the parent companies, Thales and EADS. TDA refers to itself as one of the most important European weapon producers. They develop mortars, air-

¹⁰ The Cluster Munition Coalition, <http://www.cmc-international.org/>

launched weapons, next generation weapons and missile components.¹¹ On the TDA website, Forges de Zeebrugge (FZ) in Herstal is described as the Research and Development department for missile systems and the production and test centre for missiles.

Forges de Zeebrugge produces missiles in 68mm and 2"75 calibre for "air-to-ground fire support" by helicopters and fighter planes. These missiles can be equipped with various sorts of warheads and sub-munitions.

In Jane's handbook 2002, Forges de Zeebrugge is mentioned as a producer of amongst other things cluster munitions.¹²

Forges de Zeebrugge has delivered cluster munitions for the army.

The company has developed the FZ 70mm (40-round) LAU97 multiple rocket launcher system. This is a highly mobile (light artillery) missile launcher. As far as can be determined, this weapon is not in use by NATO countries. However, it is in use by other countries such as the United Arab Emirates. Indonesia has also been granted a license to produce this weapon system.

This system can be supplied with a number of different rockets from Forges de Zeebrugge. One of these missiles is clearly a cluster munition, namely the 'FZ-100 6.2 kg cargo warhead with a payload of nine 0.48 kg anti-personnel/anti-tank bomblets'. The sub-munitions have a deadly radius of 10.5m and can penetrate up to 105 mm of conventional steel plate. Indonesia now produces this missile itself under license.¹³

Forges de Zeebrugge produces missile systems (TDA/FZ) for the new fighter helicopters Eurocopter Tiger and Rooivalk.¹⁴ The Rooivalk helicopter is armed with 70 mm Folding Fine Aerial Rockets (FFAR) from Forges de Zeebrugge, with a variety of warheads that can be selected according to the target. South Africa has ordered 12 Rooivalks of which the first was available in 1999. The Malaysian government has plans to order Rooivalks once the budget for this is available.¹⁵ Special effect bombs and sub-munitions are also part of the range (anti-runaway, close air support, anti-shelter, land-vehicle neutralization, and so on). The TDA bombs and sub-munitions are specially developed for integration in "airborne cargos for stand-off delivery". This means that they are also usable as cluster munitions.

TDA also produces DPICM (Dual Purpose Improved Conventional Munitions).¹⁶ DPICMs are sub-munitions that can possess both anti-personnel and anti-material effects. Such sub-munitions were widely used in the last Gulf War.¹⁷ Each MLRS¹⁸ warhead contains 644 M77 Dual Purpose Improved Conventional Munitions (DPICM) bombs. Each warhead can spread sub-munitions over an area of 200 metres in diameter. DPICMs have a significant non-explosion rate.¹⁹ A presentation report made by the US Third Infantry Division announced that officers in Iraq used this weapon with reservations, due to the high failure rate, especially when it was not used on roads. However, more than half of the arsenal available in Iraq is made up of DPICMs.²⁰

¹¹ <http://www.tda-arm.com/fr/presactionnariat.htm>

¹² Jane's International IDD, 2002

¹³ Jane's Defence database

¹⁴ www.tda-arm.com/fr/products/a.htm

¹⁵ www.army-technology.com/projects/rooivalk

¹⁶ <http://www.tda-arm.com/fr/products/a.htm>

¹⁷ TDA makes DPICMs, but it is possibly not DPICMs from TDA that were used in Iraq

¹⁸ MLRS = Multiple Launch Rocket System (see Lockheed Martin, below)

¹⁹ <http://www.globalsecurity.org/military/systems/munitions/dpicm.htm>

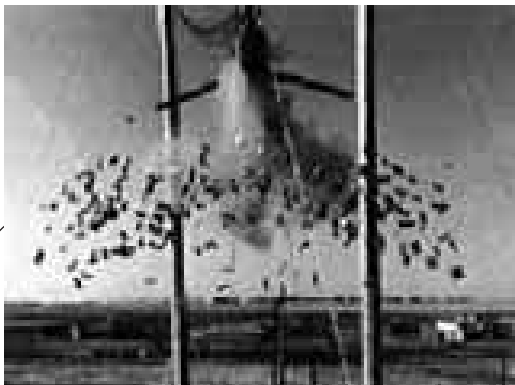
²⁰ Fires in the Close Fight: OIF (Operation Iraqi Freedom) Lessons Learned, Third Infantry Division, no date, http://sill-www.army.mil/Fa/Lessons_Learned/3d%20ID%20Lessons%20Learned.pdf (retrieved 10th November 2003).

Raytheon

Raytheon is a world leader in the development and production of missile systems.

The assortment of Raytheon weapons also includes cluster munitions.

Raytheon produces the AGM154 Joint Standoff Weapon (JSOW). This is a bomb that can be launched from the air, also from a great height. JSOW can be produced in three variants, two of which are cluster munitions.²¹



The Raytheon JSOW cluster bomb, dropped from a fighter plane

The variant AGM154A is the standard version of the JSOW. This is a cluster munition containing 145 BLU-97/B sub-munitions.²² These sub-munitions have both anti-personnel and anti-material effects. Each submunition fragments on explosion into around 300 pieces.²³

The AGM154B (Anti-Armor) variant contains 6 BLU 108/B sub-munitions.²⁴ Each of these munitions contains a further four sub-munitions that can be spread over the target area. They contain both anti-personnel and anti-material effects. These sub-munitions can be used in various weapon systems.²⁵

Since 1999 the US Airforce has used the JSOW in Yugoslavia and Afghanistan as well as in Iraq. It is unclear how many JSOWs were used in the last Iraq war. For the first time there was widespread use of ground-launched cluster munitions. It is clear that at least 253 JSOWs were dropped.²⁶ The JSOW was used on a variety of fighter planes, including the F/A-18, F-16, B-2 and B-52.²⁷

Raytheon is also the producer of Tomahawk missiles. These missiles are launched from warships or submarines. The Tomahawk missiles have two possible configurations of warhead. One of these is a sub-munition holder with Combined Effect Bomblets. The Tomahawk can, therefore, also be used as a cluster bomb. The US Navy has used the Tomahawk in several conflicts: Desert Storm (1991), Iraq (1993), Bosnia (1995), Desert Fox (1998), Operation Allied Force (1999)²⁸

²¹ <http://www.raytheon.com/products/jsow/>

²² <http://www.fas.org/man/dod-101/sys/smart/agm-154.htm>

²³ <http://globalsecurity.org/military/systems/munitions/blu-97.htm>

²⁴ <http://www.fas.org/man/dod-101/sys/smart/agm-154.htm>

²⁵ <http://globalsecurity.org/military/systems/munitions/blu-108.htm>

²⁶ *Off Target: The conduct of the War and Civilian Casualties in Iraq*, Human Rights Watch, November 2003, <http://www.hrw.org/reports/2003/usa1203/>, p. 56

²⁷ <http://www.raytheon.com/products/jsow/>

²⁸ <http://www.raytheon.com/products/tomahawk>

Lockheed Martin

Lockheed Martin is not only the largest weapons producer in the world, but also the greatest supplier of weapons to the Pentagon, and the largest weapon exporting company in the world. It is not surprising that Lockheed Martin is involved in the production and trade in cluster munitions.

The company, and more specifically the division Lockheed Martin Missiles and Fire Control is the producer of the MLRS system (Multiple Launch Rocket System), a highly mobile missile launching system that in less than 1 minute can fire 12 MLRS missiles.²⁹

MLRS is used to fire ground-launched missiles.

The missiles used in the MLRS system are missiles with cluster munitions. These are also produced by Lockheed Martin.

A short overview³⁰:

The basic MLRS missile (M26) consists of a warhead with 644 M77 sub-munitions (DPICM) and has a range of 32 km. This means that a total of 8000 sub-munitions can be fired per minute.

- The ERR missile (M26 A1/A2) has a range of 45 km and contains 518 M77 sub-munitions
- The "guided" MLRS XL30 missile has a range of 60 km and contains 402 DPICM sub-munitions (in production since April 2003).
- The ATACMS Block 1 missile has a range of 165 km, and contains 950 M74 anti-personnel/anti-material sub-munitions
- The ATACMS Block 1A has a range of 300 km and contains 275 M74 sub-munitions



The MLRS systems fires a ATACMS Block 1 rocket composed of 950 sub-munitions (Lockheed Martin)

In March and April 2003 MLRS cluster munitions were used in the war against Iraq. The use of ground-launched sub-munitions (including the MLRS) by American and British ground troops was the largest cause of civilian casualties in the war. These weapons were used in populated areas including Baghdad, Basra, al-Hillal, al-Najaf and Karbala.

There is still a great lack of clarity about the total number of sub-munitions used in Iraq, but the Third Infantry, the First Airborne Division and the 214th Field Artillery Brigade have reported the use of 1014 MLRS missiles and 330 ATACMS missiles. The MLRS cluster munitions were primarily used at long ranges. The majority of the American-used sub-munitions were DPICMs. In Iraq, it was standard practice to fire salvos of six MLRS missiles. Each salvo launched 3864 sub-munitions over a target area with a radius of 1 km. According to a report by the American 'Office of the Under Secretary of

²⁹ <http://www.army-technology.com/projects/mlrs/>

³⁰ The description of these products can be found on the website of Lockheed Martin, <http://www.lockheedmartin.com/wms/findPage.do?dsp=fec&ci=20&sc=400>

Defense for Acquisition, Technology and Logistics' MLRS sub-munitions have a failure rate of 16%.³¹ Before the start of the war in Iraq, Human Rights Watch asked the United States to rule out the use of four specific types of cluster munitions. Amongst others, the use of MLRS missiles with M77 sub-munitions was considered by HRW to be very dangerous for civilians.³²

The MLRS system is supplied by Lockheed Martin to 14 countries, including the US, Israel, Bahrain and the Netherlands.

Lockheed Martin is also the producer of the WCMD, the Wind Corrected Munition Dispenser. This is an extension for existing cluster munitions (CBU-87, -89, and -97) that makes it possible to use cluster munitions in unfavourable weather conditions including high wind speeds. Most cluster bombs dropped by the American Air Force in the last war in Iraq were equipped with WCMDs from Lockheed Martin.³³

Lockheed Martin played an important role behind the scenes in support of the war in Iraq. In 2002, the Committee for the Liberation of Iraq was formed with the support of the Bush administration. The former vice chairman of Lockheed Martin, Bruce Jackson, became the chairman of the Committee. The group promoted Bush's plans for the war against Iraq. Jackson was also involved in the issuing of the statement of the Vilnius 10; ten Central and East European States - the so-called New Europe - that supported Bush in the run up to the war in Iraq. The divide between 'Old' Europe (Germany and France) and 'New' Europe helped Bush to acquire support for his war against Iraq. The wife of Vice President Dick Cheney was a member of the Board of Directors of Lockheed Martin. The slogan of Lockheed Martin is "We never forget who we're working for".

EADS

EADS was formed in 2000 by the merger of three military manufacturers: Deutsche Aerospace Agentur (DASA) from Germany, Aerospatiale Matra from France, and Construcciones Aeronauticas S.A. (CASA) from Spain. EADS also has a Belgian component. On 2nd May 2002 EADS announced the take-over of Siemens Oostkamp³⁴. Oostkamp had been a supplier for EADS for many years (including parts for the Eurofighter/Typhoon). Oostkamp is now part of the System & Defense Electronics division of EADS.

One fifth of the production of EADS is military. This makes EADS the second largest weapons producer in Europe, and the seventh worldwide.³⁵

EADS also produces cluster bombs. The AFDS is produced by the German section of EADS, EADS/LFK. This cluster bomb can be delivered by various fighter planes. Amongst others, the American army have approved the use of the AFDS for their F16s.

³¹ "Off Target: The conduct of the War and Civilian Casualties in Iraq", Human Rights Watch, November 2003, <http://www.hrw.org/reports/2003/usa1203/>. In this report also includes details of specific cluster munition attacks on densely populated areas and the casualties that were caused.

³² "Cluster Munitions a Foreseeable Hazard in Iraq", A Human Rights Watch Briefing Paper, March 2003, <http://www.hrw.org/backgrounders/arms/cluster031803.htm>

³³ <http://www.lockheedmartin.com/wms/findPage.do?dsp=fec&ci=20&sc=400>

³⁴ "EADS strengthens defence business", EADS Press Release, 2nd May 2002, http://www.eads.net/eads/es/index.htm?xml/es/press/archiv/eads2002/defence/sysde/20020502_siemens_e.xml&press

³⁵ <http://www.eads.com>

The AFDS has a range from 9 to 25 km further than where it is dropped. After the cluster bomb has been launched, it travels under its own power to a pre-programmed target area. The area over which the sub-munitions are spread can also be varied.

In the AFDS cluster bombs can be loaded with various types of sub-munitions, depending on the nature of the mission that is being undertaken. It is even possible to combine various sorts of sub-munitions.

EADS can supply the AFDS with six different sorts of sub-munitions. Possibilities include crater-forming sub-munitions (for the destruction of runways and roads), anti-tank sub-munitions, and others. Depending on the type of sub-munitions being used, the capacity can vary between 24 and 120 sub-munitions per cluster bomb.

The AFDS cluster bomb is based on the previous DWS39 cluster bomb from EADS, which is used by the Swedish Air Force amongst others.³⁶

Conclusion

The companies mentioned above are certainly not the only producers of cluster munitions and cluster bombs. A full summary of the market is outside the scope of this report.

A number of companies were researched but not included here because it was not possible to find clear links with the 5 banks that are the subject of the report. These include Insys (UK) and Israeli Military Industries (IMI).

The cluster bombs that are produced by ATK can be found in the chapter on landmines, because the sub-munitions that they contain are landmines.

1.3. The links between the producers of cluster munitions and the banks

Bank guarantees from KBC, Fortis and Dexia for Forges de Zeebrugge

Forges de Zeebrugge relies very little on banking institutions for its financing. The latest available information is from the end of December 2002. At that time, FZ did not have any long-term bank loans, and only a small number of short-term bank loans for which the financial institution involved could not be determined.

However, FZ does have bank guarantees from three banks. These bank guarantees are necessary to receive credit from suppliers, and advance payments from customers. If Forges de Zeebrugge cannot pay the suppliers or supply the goods paid for in advance, then the bank steps in to pay the debts. At the end of 2002, FZ had bank guarantees of the following values³⁷:

CBC (KBC groep)	5.080 \$
	156.746 EURO
Banque Artesia (DEXIA groep)	1.904.762 \$
Fortis Bank	136.896 \$
	898.118 EURO

³⁶ EADS-Product brochure of the AFDS-system

<http://www.eads.com/frame/lang/en/xml/content/OF00000000400004/2/04/28100042.html>

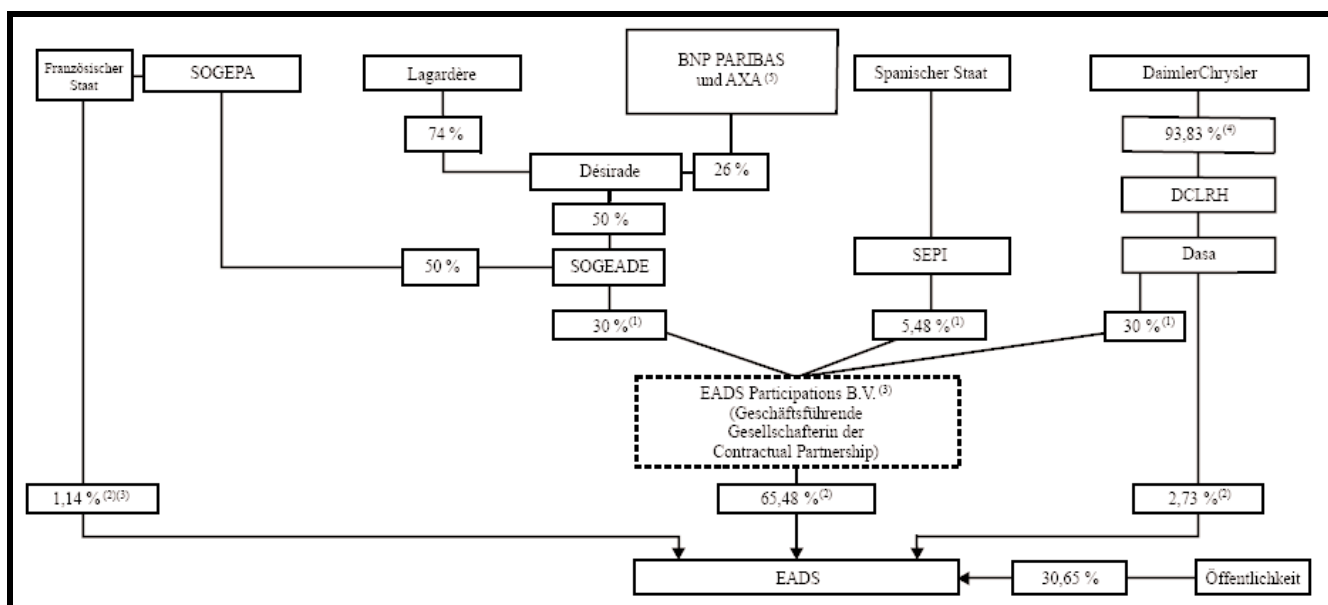
³⁷ Comptes Annuel 2002, Forges de Zeebrugge, Herstal, June 2003

A credit facility from ING for EADS

In July 2002, EADS received a credit facility of 2,850 million Euro from an international banking syndicate led by BNP Paribas (France), Deutsche Bank (Germany) and JP Morgan (US). ING was one of 30 banks in this syndicate, which contributed between 50 million and 100 million Euro. One part of the credit was valid for one year, and a larger part was valid for 5 years. The credit was used as working capital and as back up for the issuing of bonds.³⁸

AXA, one of the most important shareholders in the establishment of EADS

At the time of the merger that created the company, EADS shares were issued on the stock exchanges of Frankfurt, Paris and Madrid. Through a complicated structure, AXA became a shareholder in the new company (see figure below).³⁹



As the figure shows, the French holding Sogead and the German/American company DaimlerChrysler were the most important shareholders in EADS, each with 30% of the shares. The situation has hardly changed, with both large shareholders in possession of 30.1% of the shares.⁴⁰ Half of the shares of Sogead are in the hands of the French state, and the other half in the hands of the French holding Désirade. The majority shareholder (74%) of Désirade was the French company Lagardère, while the French banks BNP Paribas and AXA held 26% of the shares. It was agreed that in July 2003 both of these banks would sell their shares to Lagardère.⁴¹ It is not known if this happened.

³⁸ Netherlands –Loans, Euroweek, London, 19th July 2002

³⁹ Verkaufsprospekt European Aeronautic Defence and Space Company EADS N.V., Amsterdam, July 2000

⁴⁰ Aero-notes nr. 9, EADS, Amsterdam, December 2003

⁴¹ Verkaufsprospekt European Aeronautic Defence and Space Company EADS N.V., Amsterdam, 7th July 2000

Investments of the 5 researched banks

The bank institutions that were studied invest⁴² the following amounts in various producers of cluster munitions.⁴³

INVESTMENTS IN PRODUCERS OF CLUSTER MUNITIONS (NUMBER OF SHARES)							
Company	AXA Group	DEXIA Group	Fortis Group	ING Group	KBC Group	Total	%
<i>EADS</i>	208,167	172,047	791,760	606,646	58,817	1,837,437	0.23%
<i>Lockheed Martin</i>	9,307,995	32,049	49,240	1,447,879	127,716	10,964,879	2.45%
<i>Raytheon</i>	1,169,782	138,465	59,222	231,269	106,889	1,705,627	0.41%

INVESTMENTS IN PRODUCERS OF CLUSTER MUNITIONS (VALUE OF THE SHARES IN US \$)						
Company	AXA Group	DEXIA Group	Fortis Group	ING Group	KBC Group	Total
<i>EADS</i>	4,787,559	3,956,848	18,209,408	13,952,036	1,352,711	42,258,562
<i>Lockheed Martin</i>	430,774,009	1,483,228	2,278,827	67,007,840	5,910,696	507,454,600
<i>Raytheon</i>	35,561,373	4,209,336	1,800,349	7,030,578	3,249,426	51,851,062

1.4. Conclusions

Despite the highly controversial character of cluster munitions, none of the banks that were researched have any problems investing in their production.

Financial institutions that turned their back on cluster munitions.

ABN Amro steps out of cluster munitions

Under pressure from many months of actions from, and negotiation with, the Dutch opposition party SP, ABN Amro decided to pull out of its involvements with the British company Insys, that tests cluster bombs for the British army. ABN Amro held just under 18% of Insys shares, through a British investment fund: "The Fifth ABN Amro Causeway Development Capital Fund". In an explanation, the bank made it clear that they had made their defence policy tighter in November 2002. This new policy means that ABN Amro will make no new transactions or start relations with companies related to cluster bombs.⁴⁴

This policy from ABN Amro is an important precedent. It is the first step towards a sustainable, peaceful, investment policy. This bank has made a clear ethical choice. They no longer wish to be involved in cluster munitions. It is clearly an individual choice of this bank, which goes further than its strict legal responsibility. Despite the highly controversial character of these weapons, they are not forbidden. On the contrary, the American, British and Dutch armed forces have used them in recent years in many conflicts (see above).

⁴² Both direct and indirect. Direct refers to investments in the bank's own portfolio. Indirect refers to investment funds offered to their clients.

⁴³ Shareworld databank, Accessed March 2004

⁴⁴ ABN Amro's toelichting op Insys en clusterbommen, Press Release ABN Amro, 18th February 2004

But ABN Amro still has work to do to fulfil this policy. In February 2003, EADS, a European giant based in the Netherlands and producer of cluster bombs, started a programme of bringing bonds to the market (up to a total value of 3 billion) in order to refinance long-term bank loans. ABN Amro Bank is one of the dealers in these bonds.⁴⁵ Such business transactions with a producer of cluster bombs, such as EADS, do not fit in the policy of this bank and should be absolutely avoided.

The Norwegian Government Petroleum Fund

This Norwegian state fund is a mixed fund, set up in 1990, in which all oil income from the Norwegian state is placed. The fund invests 40% of this in shares and 60% in bonds. Each year, the state uses part of this money in order to balance the budget. The fund is also seen in Norway as an important investment for future generations. The forecasts show that in the future the Norwegian government will be able to rely less and less on income from oil. It is argued that a large part of the current oil income must be put aside to deal with future difficult periods caused by an ageing population, and the decline of oil income in the future.⁴⁶

In 2002, the Norwegian government gave a mandate to a commission to propose ethical guidelines for this fund. This commission submitted its report to the Ministry of Finance in June 2003. On the basis of this report, the government will make a proposal to the Norwegian parliament on an ethical policy.⁴⁷

In its report, the commission proposed that the Petroleum Fund should no longer invest in producers of cluster bombs. Also, there should be no investments in companies that make key components for these weapons.

There are two arguments used in this report to rule out cluster bombs. The first argument is that these weapons cause huge humanitarian problems. The second argument is that these weapons cannot distinguish between civilian and military targets, and are therefore in breach of international humanitarian law.⁴⁸

⁴⁵ "EADS signs up to EuroMTNs with Barclays", *Euroweek*, London, 24th January 2003; and "EADS to initiate Euro Medium Term Note (EMTN) programme with Eurobond benchmark transaction", *Press Release EADS*, Amsterdam, 6th February 2003.

⁴⁶ "The Norwegian Government Petroleum Fund", *Norwegian Ministry of Finance*, October 2003, <http://odin.dep.no/archive/finvedlegg/01/28/fakta046.pdf>

⁴⁷ <http://www.odin.dep.no/fin/engelsk/p10001617/p10002777/index-b-n-a.html>

⁴⁸ "Report from the Government Commission on Ethical Guidelines for the Government Petroleum Fund", June 2003, <http://odin.dep.no/fin/engelsk/p10001617/p10001682/006071-220009/index-dok000-b-n-a.html>

Chapter 2

Landmines

2.1. Landmines

What are landmines?

A mine is ammunition that is placed on, under, or near, the ground or other surface, and which is designed to explode when a person or vehicle comes close to, or touches, the mine.

This definition highlights the fact that there are two different sorts of mines, namely anti-tank mines and anti-personnel mines.

Anti-personnel mines kill or injure one or more person. They are designed to explode if approached or touched by one or more person.

Mines developed to explode through the presence, proximity or touch of a vehicle, and fitted with a protection against the handling by people, are not described as anti-personnel mines. These are anti-tank mines.⁴⁹ Anti-tank mines are mainly developed to explode under a pressure of at least 100 kg. However, these mines obviously cannot distinguish between a tank and, for example, a tractor.

This chapter is primarily concerned with anti-personnel mines (AP-mines). There are different sorts of AP-mines, depending on the damage they cause. There are 'blast mines', that cause mainly serious injuries to the feet and legs, and can often result in amputations. Fragmentation mines are mines that separate on detonation into hundreds of smaller parts, and can be spread over an area of up to 50 metres. Some of these mines first jump to a height of between 1 and 1,5 metres before explosion. In this way they can also cause injuries at the level of the stomach of an adult or the head of a child.

A new development is the so-called 'smart mine'. This refers to mines with a self-destruction mechanism. After a certain time, they destroy themselves. There is however nothing smart in these mines. These mines cannot distinguish between civilians and soldiers.

Landmines can be laid by hand, but they can also be deployed by helicopter, plane or artillery (Remotely delivered, R/D).⁵⁰

What makes landmines so controversial?

The mine has been designed with a view to disable personnel. Operating research has shown that it is better to disable a man than to kill him. A wounded man requires attention, conveyance and evacuation to the rear, thus causes disturbances in the traffic lines of the combat area. Also a wounded person has a detrimental psychological effect on his fellow soldiers. – From a brochure from Pakistan Ordnance Factories, "Technical Specifications for Mine Anti-personnel (P4 MK2)"

⁴⁹ "Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on their Destruction", United Nations, 1997

⁵⁰ "Landmines, The Problem", International Campaign for a Ban on Landmines, www.icbl.org



Fanar Zekri Baker, 9 years old, lost both legs when he stepped on landmine while playing in the grass. Arbil, Iraq

Landmines, in contrast with cluster munitions, are not designed to explode when they touch the ground. They are only detonated by the presence or touch of a potential victim.

Anti-personnel mines are therefore not deployed against a specific target. They lie waiting to be detonated when touched. They cannot make a distinction between the footstep of a soldier and that of a civilian or child.

For those victims who survive the explosion of a landmine, amputations are often necessary, with a long rehabilitation period. As a result, in Cambodia alone there are 35,000 people who have had an amputation as a result of the explosion of a landmine. And that only refers to the survivors. In the last decades, hundreds of thousands have been killed or injured worldwide by landmines.⁵¹

Most estimates suggest that each year 26,000 are killed or injured by landmines. Eight to ten thousand of these are children. Children are more vulnerable to landmines for a variety of reasons. Their shorter stature means they are

generally closer to the explosion. As a result, their injuries are often more serious than those of adults. Children are naturally more curious, often play outside, leave the well-used paths, and often pick up mines believing they are playthings.

Children who are victims of landmines can be a heavy burden on their families. Beside the psychological consequences, the financial consequences can be serious. Children often need a new prosthetic limb every 6 months (as they are still growing), and adults need a new limb every 3 to 5 years.

Victims of landmines are often dependent for the rest of their lives on medical care. In any case it is not possible to rehabilitate them into society. Victims are often not economically productive, and may have lost their economic value to the community.⁵²

Landmines remain a daily threat to the community. After the end of the conflict, the remaining landmines can claim their deadly toll. The presence of landmines in a region can seriously hinder the development and reconstruction after a conflict. Ground where landmines (could) lie is not usable. And there is naturally also the psychological impact of not yet exploded landmines. In countries such as Afghanistan, Angola, Bosnia, Cambodia, Chechnya, Croatia, Iraq, Mozambique, Nicaragua, Somalia, and many others, landmines remain a daily threat.⁵³

In 1997, an international treaty was negotiated that outlawed the use, production or trade in landmines. (See below).

⁵¹ "Landmines, The Problem", International Campaign for a Ban on Landmines, www.icbl.org

⁵² "Landmines, Their Impact", <http://www.landmines.org.uk/268>

⁵³ "Landmines, The Problem", International Campaign for a Ban on Landmines, www.icbl.org

The use of landmines

History of the landmine

The 2nd World War was the first war in which landmines were widely used. They were mainly used against tanks. More than 300 million AT mines were used in WWII by the various armed forces. However, anti-tank mines can easily be recovered by the enemy, and reused against the army that originally laid the mine. In order to prevent this, anti-personnel mines were developed in order to be laid around the anti-tank mine.

Originally AT and AP mines were primarily defensive, tactical weapons. They were laid in order to protect a particular area, to prevent enemy troops from reaching military bases or important installations such as power stations or water supplies.

However, in the 1960s, AP mines were developed which could be delivered from the air, and which could be spread over wide areas. This meant that landmines could be used in a strategic and offensive manner: to cut armies off from their bases, to terrorise populations, to force whole areas to take flight, to make infrastructure such as bridges, water supplies or roads unusable, and so on.

The first time that the new AP mines were used was by the American army in the Vietnam War. But this also had a great drawback for the American troops. Many American soldiers stepped on landmines that had been dropped by their own army. 28% of the Americans killed during the war were the victims of landmines.

From the 1960s and 1970s onwards landmines were used more and more often by armies around the world, and also by paramilitary and guerrilla fighters. Landmines were cheap, very effective and easily accessible.⁵⁴

The most important producers and exporters of landmines over the last 25 years have been Italy, the former Soviet Union and the United States. In the same period, 200 million AP mines have been produced in 50 countries.⁵⁵ China, Russia and the United States belong to the 44 countries that have never signed the Ottawa Treaty on landmines.⁵⁶

Recent use of landmines

The United States has revealed that in 1991 it dropped 117,634 landmines in Iraq and Kuwait. Of these, 27,967 were AP mines, primarily dropped as part of GATOR cluster bombs.⁵⁷ In the same war, the British Air Force dropped cluster bombs that included 21,500 HB876 AP mines. Since then, the UK has signed the Ottawa Treaty and destroyed her stocks of HB876 mines.⁵⁸

The United States has apparently not used landmines in the recent wars in Afghanistan and Iraq. In Afghanistan, the American army has made use of mine fields from the Soviet era, in order to defend itself. The US has refused to rule out the use of landmines in the war against Iraq.⁵⁹ At least 90,000 landmines were held by the United States in Bahrain, Kuwait, Oman, Qatar and Saudi Arabia.⁶⁰

⁵⁴ "History of Landmines", <http://www.landmines.org.uk>

⁵⁵ "Landmines, The Problem", *International Campaign for a Ban on Landmines*, www.icbl.org

⁵⁶ <http://www.icbl.org/>

⁵⁷ "GAO-02-1003: MILITARY OPERATIONS: Information on US Use of Landmines in the Persian Gulf War", *US General Accounting Office, Washington DC, September 2002*, pp.8-9

⁵⁸ "Cluster bombs: the Military Effectiveness and Impact on Civilians of Cluster Munitions", *Rae Mc Grath, Landmine Action, August 2000*

⁵⁹ "Landmine Monitor Report 2003", *chapter United States of America*, <http://www.icbl.org/lm/2003/usa.html>

⁶⁰ "Off Target: The conduct of the War and Civilian Casualties in Iraq", *Human Rights Watch, November 2003*, p.99, <http://www.hrw.org/reports/2003/usa1203/>

Russia has admitted to having used landmines over the past 6 years in the conflicts in Chechnya and Tajikistan. Russia has denied allegations of the use of landmines in Georgia.⁶¹

Pakistan has admitted that mine fields have been laid for defensive purposes by both sides in their recent border conflict with India. It is claimed that everything possible is done to minimise the consequences for the civilian population. 'However, some minor incidents have been reported involving civilians living in the area.' (Quote from the Director General of the Strategic Plans Division of the Joint Staff Headquarters in a letter to the PCBL (Pakistani section of the Campaign for a Ban on Landmines) from March 2003).⁶²

International law

International Humanitarian Law

The use of landmines is a clear violation of International Humanitarian Law (IHL). This body of law, which governs the conduct of war, demands that parties to armed conflict are able to distinguish between military and civilian targets. It is clear that this is certainly not the case for landmines.

Belgium

Belgium is one of the countries that took the initiative in the struggle against landmines. On 9th March 1995, Belgium was the first country in the world to pass a law banning the production, sale, purchase, export or use of anti-personnel mines.

In 1996 this law was widened to ensure the existing stockpiles were destroyed within 3 years. In December 1996 the 313,472 anti-personnel mines possessed by Belgium were destroyed in Pinnow, Germany.⁶³

The Ottawa Treaty

In 1996, Canada started a process leading to an international ban on anti-personnel mines. In 1997, after a number of international conferences, the treaty was signed in Ottawa by 122 governments.

Each State Party to the Ottawa Treaty undertakes never under any circumstances:

- To use anti-personnel mines;
- To develop, produce, otherwise acquire, stockpile, retain or transfer to anyone, directly or indirectly, anti-personnel mines;
- To assist, encourage or induce, in any way, anyone to engage in any activity prohibited to a State Party under this Convention.
- Each State Party undertakes to destroy or ensure the destruction of all anti-personnel mines in accordance with the provisions of the treaty.⁶⁴

Belgium signed the Ottawa treaty immediately, and ratified it in 1998.

At the time of writing, 152 states have already signed the treaty. 44 states have not yet signed the treaty. These countries include China, Cuba, Iran, Iraq, Israel, Pakistan, Russia, Saudi Arabia and the United States.⁶⁵

⁶¹ "Landmine Monitor Report 2003", chapter Russia, <http://www.icbl.org/lm/2003/russia.html>

⁶² "Landmine Monitor Report 2003", chapter Pakistan, <http://www.icbl.org/lm/2003/pakistan.html>

⁶³ Information received from Handicap International Belgium

⁶⁴ Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction, Ottawa, 1997

⁶⁵ <http://www.icbl.org/ratification> en <http://www.icbl.org/treaty/nonsign.php3>

International campaigns

A large number of organisations are working on the subject of landmines: Human Rights Watch, Landmine Action, Diana –The Work Continues, Handicap International, and so on.

One important campaign is the International Campaign to Ban Landmines, a network of 1200 NGO's in 60 countries. In 1997, the campaign won the Nobel Peace Prize. Each year, this organisation publishes the Landmine Monitor Report, with up to date information on landmines covering the whole world.⁶⁶

The new landmine policy of the United States

Very recently, on 27th February 2004, the United States changed her landmine policy. President Bill Clinton had put in place a policy which would have led to a complete end to the use of landmines by the United States in 2006, as well as the signing of the Ottawa treaty. (At this moment, the US is the only NATO member state that has not signed the treaty). But President Bush has called a halt to this policy.

The United States will now support the use and production of "smart mines", those mines with a self-destruction mechanism built in.⁶⁷

According to Human Rights Watch, this decision is a great step backwards.

The United States will now be able to use "smart" mines around the world. And the US will only put an end to the use of "dumb" mines in Korea in 2010, rather than in 2006 as previously announced.

In making this change in policy, the United States is taking a very isolated position in the world. Not only is it refusing to join the group of 152 states who have signed the Ottawa treaty and declared landmines illegal. Of the 44 non-signatories to the treaty, it is the only country to oppose a possible future halt on its use of landmines.

This is also in complete opposition to many initiatives made over previous years by the US. Since the 1991 war in Iraq, the United States has not used landmines. Since 1992 they have no longer exported landmines, and since 1997 they have no longer been producing landmines. Furthermore, they have also destroyed 3 million AP mines.⁶⁸



Postcard used by Human Rights Watch to pressure the US to take steps towards a worldwide ban on landmines

⁶⁶ Website of the International Campaign to Ban Landmines, <http://www.icbl.org>

⁶⁷ "New United States Policy on Landmines: Reducing Humanitarian Risk and Saving Lives of United States Soldiers", Fact Sheet, Bureau of Political-Military Affairs, Washington DC, February 2004, <http://www.state.gov/t/pm/rls/fs/30044pf.htm>

⁶⁸ "New US Landmine Policy, Questions and Answers – What is New about this Policy?" Human Rights Watch, 2004, <http://hrw.org/english/docs/2004/02/27/usint7678.htm>

Technological advances have made landmines more dangerous for civilians and more difficult, if not impossible, to detect. Greater numbers of mines can be laid more rapidly than ever before.

Furthermore, as landmines have become more sophisticated, mine clearance technologies have developed very slowly. Plastic mines contain very little metal content, and are virtually impossible to detect with traditional metal detectors. Mines with electronic sensors are often capable of identifying the numbers of passers-by before they explode, but they do not distinguish between soldiers and civilians, and between children and adults.

Self-destructing mines are designed to automatically explode after a pre-set time. Civilians are frequently maimed or killed if they are near the epicentre of an explosion at the time of self-detonation.

Self-neutralising mines are mines that defuse themselves after a period of time without exploding. However, their neutralising mechanism is not 100 percent assured and individuals who locate these mines are unable to determine whether or not they have been neutralised.⁶⁹

The United States sells this policy change with humanitarian arguments.

Through only using "smart" mines, not only for AP mines but also for AT mines, they argue that they have removed the threat to civilians.⁷⁰

This is a heavy distortion of reality. While a "smart" mine may be safer than a "dumb" mine, it is certainly not a safe mine. "Smart" mines also represent a great danger to civilians. The period for which a mine remains active (before destroying itself) can be up to 19 weeks. During this 19 week period, civilians run the same risks as with "dumb" mines. But this is not all: the self-destruction mechanism in "smart" mines also has a failure rate. Much has already been made of the problems in the self-destruction mechanism. Mines can remain active and not self-destruct. During mine clearance, each mine must therefore be treated as a potentially dangerous mine. Furthermore, "smart" mines will be dropped in larger quantities (from the air or from artillery). The humanitarian impact of these mines is still present, despite the self-destruction mechanism.⁷¹

The decision of the United States will also cause other states to think twice about stopping the use of land mines. This is therefore a serious step backwards for those dreaming of a world without landmines.

2.2. Companies involved in the production of landmines

Top secret

The production of landmines is a secret business. Even in the defence sector, where companies are not normally shy about their products, companies involved in the production of landmines do not like to advertise this fact. In many countries that is logical. In the 152 countries that have signed the Ottawa treaty, it is forbidden to produce anti-personnel mines.

Even in countries that have not signed the treaty, companies do not boast about their involvement with landmines. You will not find this product advertised on their websites.

It is not surprising that it is very difficult to gather reliable and complete information about the production of these weapons. The 'Arms Project' of Human Rights Watch has carried out a full investiga-

⁶⁹ *History of Landmines*, <http://www.landmines.org.uk>

⁷⁰ *New United States Policy on Landmines: Reducing Humanitarian Risk and Saving Lives of United States Soldiers, Fact Sheet*, Bureau of Political-Military Affairs, Washington DC, February 2004, <http://www.state.gov/t/pm/rls/fs/30044pf.htm>

⁷¹ *New US Landmine Policy, Questions and Answers – What is New about this Policy?*, Human Rights Watch, 2004, <http://hrw.org/english/docs/2004/02/27/usint7678.htm><http://hrw.org/english/docs/2004/02/27/usint7678.htm>, and *Human Rights watch Position Paper on "Smart" (Self-Destructing) Landmines*, Human Rights Watch, 2004, http://hrw.org/english/docs/2004/02/27/7681_txt.htm

tion into the production of landmines. Many of the companies still producing AP mines are state-owned companies from non-Ottawa countries (Pakistan Ordnance Factories, the Romanian Romtecnica, the Chinese Norinco).

Now and again, scandals come to light. Pakistan Ordnance Factories and Romtecnica have both offered to sell landmines to undercover investigative journalists at the DSEi arms fair in London. This is an illegal activity on British territory, after the United Kingdom passed the UK Landmines Act in 1998, banning the production, sale, promotion and transfer of anti-personnel landmines. On 1st March 1999, the British parliament ratified the Ottawa treaty.

An even greater scandal occurred in Great Britain in April 2002, when an undercover journalist from the BBC received an offer from a manager of the British company PW Defence, a subsidiary of the Chemring group. Chemring claimed that it had not sold the product since 1997, and had completely removed the product from its catalogues since 1999.

Following each of these scandals, a political enquiry resulted in no penalties for the companies involved.⁷²

It is clear that within the defence industry, involvement in the production or sale of landmines is not something to be proud of.

Singapore Technologies Engineering

Singapore Technologies Engineering (STE) is a large publicly quoted company from Singapore. Shares in STE have been quoted since December 1997 on the Singapore stock exchange (SGX). It is also included in several stock market indexes, such as the Straits Time Index, DBS50, S&P Asia Pacific 100 and the MSCI Singapore Free Index. More than 50% of STE shares are owned by Singapore Technologies, a state-owned company.⁷³ In 2003, STE made a turnover of 2.82 million Singapore dollars (around 1.4 billion).⁷⁴ STE states that the military sector is its 'core business'. In 2002, this market generated 57% of its turnover.⁷⁵

Singapore Technologies is made up of four large divisions: aerospace, marine, land systems and electronics. It is the land systems division that is of interest in this report. This division takes the form of the 100% STE-subsiary Singapore Technologies Kinetics (STK). STK develops land platforms, weapons, munitions and 'automotive systems', and works for both defence and commercial clients around the world. The defence unit within STK is a very important producer of weapons for Singapore's Ministry of Defence, but its products are also exported to armed forces in 20 countries.⁷⁶



A poster from the public information campaign launched by the Think Centre in Singapore at the start of 2004.

Landmines!

STK is also a producer of landmines. These landmines cannot be found on their website, but various sources leave no room for doubt.

⁷² DSEi 2003: *International Arms Market, a report by Campaign Against Arms Trade, September 2003*

⁷³ <http://www.stengg.com/investorelations/shareholderinfo.aspx>

⁷⁴ *Annual report 2003 Singapore Technologies Engineering, Singapore, March 2004*

⁷⁵ <http://www.stengg.com/investorelations/financialinformation.aspx>

⁷⁶ <http://www.stengg.com/kinetics/ourbusiness.aspx>

In 2000 and 2001 it was confirmed in writing by the Singapore Ministry of Defence that STK is the only company in Singapore producing landmines. In 2001 this was confirmed by the Singapore ambassador to the United States.

In 2003 it was again confirmed that STK is the only company in Singapore that still produces anti-personnel mines. It produces a plastic mine (the VS-50), and a jumping fragmentation mine (the VS-69). The latter of these can be dropped in large quantities over a large area.⁷⁷

On 20th April 2001, the Norwegian Central Bank sent a letter to STE to ask if they produced landmines. A somewhat evasive answer was received 4 days later from the STK division, which stated that they "produced no landmines for export"⁷⁸.

The production of landmines is not illegal in Singapore, because the country has still not signed the Ottawa treaty. Since February 1998 it has not been allowed to export landmines from Singapore. The government agencies state that STK landmines are only produced for exercises and defensive use for their own army. Singapore has never taken part in any international humanitarian de-mining operation.⁷⁹

American producers

In 1997, Human Rights Watch issued a report concerning companies in the US involved in the production of landmines. In this report, they identified 47 American companies that were involved in one way or another with the production of anti-personnel mines, or components.

After president Clinton made a call in 1996 to work towards a worldwide ban on anti-personnel mines, Human Rights Watch sent a letter to each of these companies asking them to refrain from future involvement in the production of AP mines. 17 companies stated that they wished to fully withdraw from this involvement. The most well known example is Motorola.

The other American companies refused to rule out future involvement with landmines. Amongst these companies are three industry leaders: ATK (Alliant Techsystems), Lockheed Martin and Raytheon. We shall look a little closer into the case of ATK.

Alliant Techsystems (ATK)

ATK is the company that made the most out of the massive consumption of landmines by the US Army. During the period from 1985 to 1995, they received contracts worth \$336 million, while their subsidiary Accudyne Corp. obtained contracts worth \$150 million in the same period.

ATK was also the prime contractor for the most recent landmine contracts, the GATOR and VOLCANO mine systems.⁸⁰

GATORs are dropped from the air in the form of cluster munitions. There are two possible configurations⁸¹:

- The CBU-89 contains 72 AT mines and 22 AP mines and gives the air force the possibility to create a minefield from a fast flying aircraft.
- The CBU-78/B contains 45 AT mines and 15 AP mines.

⁷⁷ *Landmine Monitor Report 2001 and 2003, chapter Singapore*, <http://www.icbl.org/lm/2001/singapore> and <http://www.icbl.org/lm/2003/singapore.html>

⁷⁸ *Memorandum to the Ministry of Finance – Question of whether investments in Singapore Technologies Engineering can imply a violation of Norway's international obligations*, *The Petroleum Fund Advisory Commission on International Law*, Oslo, March 2002, <http://www.odin.dep.no/fin/engelsk/p10001617/p10001682/006051-990424/index-dok000-b-n-a.html>

⁷⁹ *Landmine Monitor Report 2003, chapter Singapore*, <http://www.icbl.org/lm/2003/singapore.html>

⁸⁰ *Exposing The Source: US Companies and the Production of Antipersonnel Mines*, Human Rights Watch, 1997, <http://hrw.org/campaigns/mines/index.html>

⁸¹ <http://www.globalsecurity.org/military/systems/munitions/cbu-78.htm>

The GATOR has two integrated kill mechanisms, a magnetic influence fuse to sense armour, and deployed trip wires that activate when personnel walk on or disturb it.

The GATOR mines are considered "smart" mines by the American government. You can imagine that the ATK headquarters are not dissatisfied with the new American policy in relation to landmines.

ATK informed HRW in 1997 that the production of GATOR mines was stopped at the end of 1996. ATK had most recently been producing GATORs only to replenish US stocks. GATOR mines were used during operation Desert Storm (Iraq 1991).

The Pentagon had meanwhile asked ATK to turn the VOLCANO landmine system into a purely anti-tank system.⁸² That has apparently happened. As of 2004, the VOLCANO anti-tank system is still on the catalogue of ATK. VOLCANO is a modular mine-launching system that can launch AT mines from special trucks, and also from a helicopter. The VOLCANO system has a capacity of up to 960 mines.⁸³

ATK is a company that possesses the know-how to produce anti-personnel mines. It is expected that the new landmine policy of the United States will benefit the company.

2.3. Who invests in these companies?

Investments in Singapore Technologies Engineering (anti-personnel mines)

The banks that are the subject of this report invest⁸⁴ the following amounts in Singapore Technologies.⁸⁵

INVESTMENTS IN SINGAPORE TECHNOLOGIES			
	<i>Number of shares</i>	<i>Value of shares in US dollar</i>	<i>Percentage of the shares</i>
<i>AXA Groep</i>	<i>3,029,829</i>	<i>3,702,185</i>	<i>0.10%</i>
<i>DEXIA Groep</i>	<i>70,000</i>	<i>85,534</i>	<i>0.00%</i>
<i>FORTIS Groep</i>	<i>1,376,600</i>	<i>1,682,084</i>	<i>0.05%</i>
<i>ING Groep</i>	<i>4,509,577</i>	<i>5,510,307</i>	<i>0.16%</i>
<i>KBC Groep</i>	<i>255,000</i>	<i>311,588</i>	<i>0.01%</i>
<i>TOTAAL</i>	<i>9,241,006</i>	<i>11,291,698</i>	<i>0.32%</i>

Furthermore, the five researched banks offer the following investment funds on the Belgian market that invest in Singapore Technologies Engineering⁸⁶ :

⁸² *Exposing The Source: US Companies and the Production of Antipersonnel Mines*, Human Rights Watch, 1997, <http://hrw.org/campaigns/mines/index.html>

⁸³ <http://www.atk.com/defense/descriptions/products/anti-tank/volcano.htm>

⁸⁴ *Both direct and indirect. Direct refers to investments in the bank's own portfolio. Indirect refers to investment funds offered to their clients.*

⁸⁵ *Shareworld databank, Accessed March 2004*

⁸⁶ *Shareworld databank, Accessed March 2004 and the ICB-wijzer on the website of the Belgische Vereniging van Instellingen voor Collectieve Belegging (BVICB), www.abopc-bvcib.be, Accessed April 2004*

**INVESTMENT FUNDS (OFFERED IN BELGIUM) THAT INCLUDE SHARES IN
SINGAPORE TECHNOLOGIES ENGINEERING:**

	Name of the fund	Management	Promotion
AXA	AXA L Fund Global Asset Neutral	AXA IM Benelux nv	AXA Bank Belgium nv
DEXIA	DEXIA Asia Premier	Dexia Asset Management Belgium	Dexia-BIL
Fortis	Fortis AG Fund L1 Equity World	Fortis Investment Management Belgium nv	Fortis Investment Management Belgium nv
	Fortis B Fund Equity Asia	Fortis Investment Management Belgium nv	Fortis Bank nv Fortis Investment Management Belgium nv AXA Bank Belgium nv KBC Bank nv
ING	ING/BBL (L) Invest Industrials	ING Investment Management Belgium nv	ING België nv
	ING/BBL (L) Invest Singapore & Malaysia	ING Investment Mangement Belgium nv	Unknown
KBC	KBC Equity Fund New Asia	KBC Asset Management nv	KBC Bank nv

Investments in ATK (anti-tank mines)

The banks that are the subject of this report invest⁸⁷ the following amounts in ATK⁸⁸

INVESTMENTS IN ALLIANT TECHSYSTEMS

	Aantal aandelen	Waarde van de aandelen in US dollar	Percentage van de aandelen
AXA Groep	2,538,900	144,971,190	6.6%
DEXIA Groep	0	0	0.0%
FORTIS Groep	3,625	206,988	0.0%
ING Groep	60,022	3,427,256	0.2%
KBC Groep	4,458	254,552	0.0%
TOTAAL	2,607,005	148,859,986	6.8%

2.4. Conclusion.

Despite

- the very controversial nature of anti-personnel mines,
 - the fact that landmines are illegal in 3/4 of the world ,
 - the fact that some banks (KBC, ING) declare that they will not invest in anti-personnel mines,
- all five of the banks that have been investigated invest in a company that produces anti-personnel landmines, Singapore Technologies Engineering.

⁸⁷ Both direct and indirect. Direct refers to investments in the bank's own portfolio. Indirect refers to investment funds offered to their clients.

⁸⁸ Shareworld databank, Accessed March 2004

Furthermore, all five banks offer funds on the Belgian market that contain shares in this landmine-producing company. Such activities on Belgian territory are completely in opposition to the policies on landmines that have been pursued by the Belgian government since the mid-1990s. Belgium was one of the most important international pioneers for the Ottawa treaty, which led to an international ban on anti-personnel mines. Belgium was, furthermore, the first country in the world to ban the production, sale, purchase, export and use of anti-personnel mines.

AXA, Fortis, ING and KBC also invest in ATK, a former producer of anti-personnel mines and current producer of anti-tank mines. In the case of AXA, this is a substantial investment of 6.6%. The new more flexible policy of the United States government in respect to anti-personnel mines makes it likely that American companies such as ATK (and also others) will begin once again to produce anti-personnel mines for the American army. In this way, the involvement of the banks in the production of anti-personnel mines could increase still further in the future.

The Norwegian Government Petroleum Fund halts investment in Singapore Technologies Engineering

This Norwegian state fund is a mixed fund, set up in 1990, in which all oil income from the Norwegian state is placed. The fund invests 40% of this in shares and 60% in bonds. Each year, the state uses part of this money in order to balance the budget. The fund is also seen in Norway as an important investment for future generations. The forecasts show that in the future the Norwegian government will be able to rely less and less on income from oil. It is argued that a large part of the current oil income must be put aside to deal with future difficult periods caused by an ageing population, and the decline of oil income in the future.⁸⁹

In January 2001, the Norwegian finance minister asked the "Petroleum Fund Advisory Commission on International Law", to investigate whether investments in Singapore Technologies Engineering could be in breach of the Norwegian government's international obligations.

The legal commission decided that indeed the investments of the Norwegian state fund in STE would be in breach of the Ottawa treaty, which Norway had signed. Even a small investment by a state that has signed the treaty in a company that only has part of its activities in landmines (and even then in a legal manner, as the production of landmines is currently not illegal in Singapore), is a breach of the Ottawa treaty.⁹⁰

In 2002, Norway decided to halt all Petroleum Fund investments in Singapore Technologies Engineering.⁹¹

⁸⁹ *The Norwegian Government Petroleum Fund, Norwegian Ministry of Finance, October 2003, <http://odin.dep.no/archive/finvedlegg/01/28/fakta046.pdf>*

⁹⁰ *Memorandum to the Ministry of Finance – Question whether Investments in Singapore Technologies Engineering can imply a violation of Norway's international obligations, The Petroleum Advisory Commission on International Law, Oslo, March 2002, <http://www.odin.dep.no/fin/engelsk/p10001617/p10001682/006051-990424/index-dok000-b-n-a.html>*

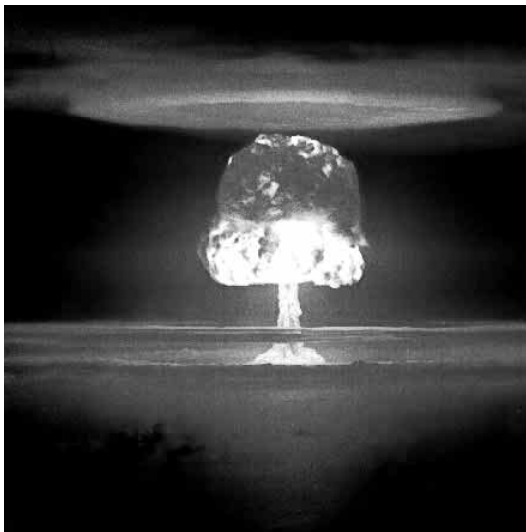
⁹¹ *Landmine Monitor Report 2003, chapter Norway, <http://www.icbl.org/lm/2003/norway.html>*

Chapter 3

Nuclear Weapons

3.1. Nuclear Weapons

(a contribution by Georges Spriet, Vrede vzw)



Nuclear weapons are back on the political agenda. This is in large part due to the discovery of the large scale trade in knowledge and material for the production of nuclear weapons by the network of Abdul Qadeer Khan, the 'father of the Pakistani bomb' and the revelation of the nuclear programmes in both Libya and Iran. North Korea has become the first country to withdraw from the nuclear Non-Proliferation Treaty, and has announced its intention to develop a nuclear weapon programme. It is clear that the non-proliferation regime is seriously shaken.⁹²

What are nuclear weapons?

There are two sorts of nuclear weapons. In the first "fission" or "atomic" bomb, atoms are split. This can only occur with very large atoms, such as uranium atoms. The nucleus of the atom is split into two smaller pieces, and a number of neutrons, and in this way energy is released.

The "fusion" or "hydrogen" bomb works by combining atoms of lighter elements, namely the isotopes of hydrogen (deuterium and tritium), to create helium. Through the destruction of matter in the nucleus, a phenomenal amount of energy is produced. The hydrogen bomb needs a fission reaction to generate the heat that is needed to create the fusion reaction. The hydrogen bomb tested on the Bikini atoll on 1st March 1954 released the same amount of energy as 16 million tonnes of TNT, equivalent to 1000 Hiroshima bombs. The Novazembla bomb (detonated in October 1961) was 3000 times as powerful as the Hiroshima bomb, with the equivalent of 57 million tonnes of TNT.⁹³

Why are nuclear weapons so controversial?

→ *The consequences of an atomic explosion are enormous.*

Nuclear weapons are different from other kinds of weapons. For a start, the explosive power can be thousands of times greater than the largest conventional high explosive bomb. In addition, they pro-

⁹² Hans Lammerant, www.vredesactie.be

⁹³ Goodwin Peter, *Als de bom valt, Rostrum Haarlem, 1982*

Heirman Marc, *Kernwapens, wie, wat, waarom. Reinaert uitgaven, Zele, 1980*

duce deadly radiation, a very powerful shock wave, and a fireball than burns hotter than the surface of the sun. In a nuclear explosion, half of the energy is released as mechanical energy (the speed of the wind created in the explosion is many times greater than the most powerful hurricanes), 75% of the remaining energy is released in the form of heat, and a little more than 10% is released in the form of radiation.⁹⁴

The atomic bomb has been used twice in war. On 6th August 1945, the United States dropped a nuclear bomb on the Japanese city of Hiroshima. This was followed on 9th August with the bombing of Nagasaki. Both weapons were fission bombs, the first uranium, and the second plutonium. Plutonium is not found in nature, but is a by-product of nuclear power. The uranium for these bombs came from the Belgian Congo.

➡ *Illegal*

Above all nuclear weapons are illegal (see legal aspects), the number of nuclear weapons states has grown to eight, possibly nine (North Korea), and the five recognised nuclear weapon states (US, Russia, Great Britain, France and China) are violating their obligations under the nuclear Non-Proliferation Treaty by continuing to modernise their nuclear arsenals, and refusing to begin serious negotiations for nuclear disarmament.

➡ *Statement by the president of the International Atomic Energy Agency, El Baradei*⁹⁵

"A fundamental part of the non-proliferation bargain is the commitment of the five nuclear states recognized under the non-proliferation treaty — Britain, China, France, Russia and the United States — to move toward disarmament. (...) We must also begin to address the root causes of insecurity. In areas of longstanding conflict like the Middle East, South Asia and the Korean Peninsula, the pursuit of weapons of mass destruction — while never justified — can be expected as long as we fail to introduce alternatives that redress the security deficit. We must abandon the unworkable notion that it is morally reprehensible for some countries to pursue weapons of mass destruction yet morally acceptable for others to rely on them for security — and indeed to continue to refine their capacities and postulate plans for their use."

Delivery systems

Nuclear weapons can be sent to their target as artillery, bombs or missiles. They can be fired from silos, by airplanes, submarines and missiles. A distinction is often made based on the range of the delivery system: short range weapons (including battlefield weapons) with a range up to 1000 km, intermediate range weapons with a range between 1000 km and 6000 km and strategic or intercontinental weapons with a range of more than 6000 km.

A further distinction can be made between land- air- and sea- launched weapons, and when combined with a range of different targets, it is possible to talk about ground-to-ground, air-to-air, ground-to-air and air-to-ground nuclear weapons. There are ballistic missiles, which are missiles that follow an arcing path (intercontinental ballistic missiles leave the earth's atmosphere) and there are cruise missiles, which follow a computer-programmed path at a low altitude to reach a target. There are missiles with a single warhead, and there are missiles with multiple warheads that can each be sent to a separate target.

Proliferation

A distinction is made in international treaties between nuclear weapons states and non nuclear

⁹⁴ Firket Henri, prof, *Atoombewapening, problemen en houding van België, Abolition 2000, 1998*

⁹⁵ *The New York Times, 12th February, 2004*

weapons states. The five "recognised" nuclear weapons states are China, France, Great Britain, Russia and the United States. They are also the five permanent members of the UN Security Council.

Next to these countries⁹⁶, India and Pakistan both certainly possess nuclear weapons, and have carried out nuclear weapon tests. They have both developed aeroplanes to launch these nuclear weapons as well as nuclear-capable missiles with a range of 1000 km: the Ghauri, Tarmuk and Shaheen missiles in Pakistan, the Prithvi and Agni types in India.

Since 1986 we have known that Israel has constructed around 200 nuclear weapons. This information was made public by nuclear technician Mordechai Vanunu, who served 18 years in an Israeli jail for releasing this information. Israel has Jericho land-based missiles, and Dolphin class submarines capable of launching these weapons.

Other countries stand on the blacklist as possible developers of nuclear weapons. In the first place is North Korea, which has announced that it has a nuclear weapon programme, and has possibly constructed one or two nuclear weapons⁹⁷. North Korea also has missiles that could be fitted with nuclear warheads. Indications also point to Iran. The New York Times has indicated that inspectors from the International Atomic Energy Agency have found traces of 90% enriched uranium, a purity that is normally only found in connection with nuclear weapons⁹⁸. Libya declared on 19th December 2003 that it is putting an end to its programmes to develop weapons of mass destruction.

According to SIPRI⁹⁹ at the start of 2003 the following nuclear weapons were in active stockpiles. Besides these active stockpiles, the United States and Russia have enormous stocks that are not yet dismantled.

Country	strategic	non-strategic	total
The five "recognised" nuclear weapons states			
USA	5948	1120	7068
Russia	4852	3380	8232
GB	185	-	185
France	348	-	348
China	282	120	402
The "unofficial" nuclear weapons states			
India			30-40
Pakistan			30-50
Israël			200

There are also a number of NATO countries that have US nuclear weapons on their territory, including Belgium, the Netherlands, Germany, Italy and Turkey. Until recently, nuclear weapons were also based at Araxos Air Base in Greece. NATO General Jones (head of NATO forces in Europe) has revealed that a number of these tactical nuclear weapons may be removed. However, NATO remains committed to a strategy that includes the possible first use of nuclear weapons.

New developments

In June 2002, Washington pulled out of the Anti Ballistic Missile Treaty¹⁰⁰. This fitted within the new Nuclear Posture Review, which was no longer based on direct (Cold-War) threats. It is based not simply on the ability to attack, but on a complete vision of deterrence, defence and attack. Above all, the policy is changed to allow a pre-emptive attack, which may include a nuclear first-strike. Work is

⁹⁶ *Nuclear Notebook, Bulletin of the Atomic Scientists* (www.thebulletin.org)

⁹⁷ *Vrede, tijdschrift voor internationale politiek, nrs 358, 359,361.* www.vrede.be

⁹⁸ www.fas.org

⁹⁹ *SIPRI Yearbook 2003, Oxford Press, 2003*

¹⁰⁰ *Treaty signed by the US and USSR in Moscow on 26th May 1972. The main purpose of the ABM treaty was to prevent the states developing missile defence systems to protect their entire territory from strategic nuclear weapons.*

starting on the development of a new generation of "mini-nukes", which have a more localised impact and so lower the threshold for their possible use, and "bunker-busters" which burrow deep underground before detonating.

On 16th May 2003, Russian president Vladimir Putin declared that he planned to modernise the Russian nuclear deterrent forces, including the construction of new strategic nuclear weapons, in order to guarantee the defence capabilities of the country and her allies for the future.

France is modernising its nuclear capabilities with new medium range air-to-ground cruise missiles, a third and fourth Triomphant class nuclear submarine, and the Rafale fighter plane.

China is also carrying out a gradual modernisation programme, such as the DF-31 long range missile.

Legal framework

1. *Comprehensive Test Ban Treaty (CTBT)*

The CTBT is designed to hinder the modernisation of nuclear arsenals, and the development of new types of nuclear weapons. Countries such as India, Pakistan, and Israel have never signed the treaty, while the US Senate has refused to ratify it.

2. *Nuclear Non Proliferation Treaty (NPT)*

The non nuclear weapon states, controlled by international inspections, have agreed not to develop or receive nuclear weapons. The countries in possession of nuclear weapons agree to negotiate for a treaty banning nuclear weapons. India, Pakistan and Israel have refused to sign the treaty, while North Korea has recently withdrawn from the treaty.

3. *Advisory Opinion of the International Court of Justice in The Hague, 8th July 1996*

In 1996, the International Court of Justice ruled that "the threat or use of nuclear weapons would be generally contrary to the rules of international law applicable in armed conflict, and in particular the principles and rules of humanitarian law". The court also stated that even in cases of self-defence, where the future of a state was in danger, the use of nuclear weapons would only be permitted in accordance with international law.

The court also ruled "There exists an obligation to pursue in good faith and bring to a conclusion negotiations leading to nuclear disarmament in all its aspects under strict and effective international control".

Opposition to nuclear weapons

➡ *New Agenda Coalition*¹⁰¹:

An international initiative that calls for countries to take steps towards nuclear disarmament, which was launched in 1998 by the governments of Brazil, Egypt, Ireland, Mexico, New Zealand, Slovenia (since withdrawn), South Africa and Sweden.

¹⁰¹ www.acronym.org.uk/nac

➡ *Parliamentary Network for Nuclear Disarmament*

A worldwide network of members of parliament from more than 40 countries that work to prevent nuclear proliferation and to promote nuclear disarmament ¹⁰²

➡ *Call of the Mayor of Hiroshima*¹⁰³

Tadatashi Akiba, Mayor of Hiroshima and chairman of "Mayors for Peace", calls on the United Nations to begin negotiations for a complete elimination of all nuclear weapons before the year 2020. He hopes that the presence of a large number of mayors from around the world at the NPT Review Conference in 2005, 60 years after the use of the atomic bomb, will achieve this.

➡ *Abolition 2000* ¹⁰⁴

Abolition 2000 is a network of over 2000 organisations in more than 90 countries world wide working for a global treaty to eliminate nuclear weapons. In Belgium around 60 organisations are part of the network.

"We recognize that a nuclear weapons free world must be achieved carefully and in a step by step manner. We are convinced of its technological feasibility. Lack of political will, especially on the part of the nuclear weapons states, is the only true barrier. As chemical and biological weapons are prohibited, so must nuclear weapons be prohibited.

We call upon all states particularly the nuclear weapons states, declared and de facto to take the following steps to achieve nuclear weapons abolition. We further urge the states parties to the NPT to demand binding commitments by the declared nuclear weapons states to implement these measures:

Initiate immediately and conclude negotiations on a nuclear weapons abolition convention that requires the phased elimination of all nuclear weapons within a timebound framework, with provisions for effective verification and enforcement.(...)"

➡ *Bombspotting in Belgium*¹⁰⁵

The Bombspotting campaign is a campaign of civil disobedience to put pressure on the Belgian government to come into line with its obligations under international law, and remove the US nuclear weapons from Kleine Brogel, Belgium. Citizens have carried out inspections of the airbase at Kleine Brogel to search for evidence of the storage of nuclear weapons. "As a citizen, I have used all legal instruments to ask successive governments to comply with international law. I have made official complaints, and asked the legal system to begin investigations into the illegal nuclear weapons in Belgium. Despite numerous parliamentary initiatives, the government refuses to enter into debate. Thousands of official complaints have been ignored by the legal system."

Bombspotting 'Get in SHAPE!':

Citizens plan to unmask the NATO nuclear planners: in a continuation of the bombspotting actions at Kleine Brogel, activists have also visited the NATO military headquarters at SHAPE, near Mons in Belgium.

"Judgements of the International Court of Justice must be respected. Despite numerous parliamentary initiatives, our government refuses to come into line with international law. Thousands of complaints regarding the crimes against humanity being committed by the government were systemati-

¹⁰² www.gsainstitute.org/pnnd

¹⁰³ <http://www.pcf.city.hiroshima.jp/mayors/english/>

¹⁰⁴ www.abolition2000.org

¹⁰⁵ www.bombspotting.be

cally ignored by the legal system. Our government is committing a crime, refuses to debate this in parliament and the legal system refuses to react. As citizens, we have the responsibility to act if our government is committing a crime."

3.2. Companies involved in nuclear weapons

Serco

Serco is a British company that describes itself as a key player in the worldwide defence sector. Most of the shares of Serco are owned by pension funds, insurance companies and banks. At the start of 2004 they had £2.5 billion (British pounds) of defence contracts (for army, navy, air and space technologies).¹⁰⁶

Serco forms the consortium AWE¹⁰⁷ Management Limited, together with Lockheed Martin and BNFL¹⁰⁸. This consortium is responsible for the daily management of the AWE Aldermaston Site.¹⁰⁹ AWE is responsible for the Trident nuclear warheads used on the four Vanguard-class nuclear submarines operated by the British navy. These are currently the only nuclear weapons owned by the British armed forces. Each of these British nuclear submarines has 48 nuclear warheads on board.

AWE covers the whole life cycle of nuclear warheads, in a single organisation. This includes initial concept, research and design, through component manufacture and assembly, to in-service support and, finally, decommissioning and disposal.¹¹⁰

AWE also has the responsibility to carry out research for the development of new nuclear weapons, in case the British government decides that a new generation of nuclear weapons is necessary.¹¹¹

At the start of 2003, Serco's contract was extended for 15 years. The extension of this contract is worth £1.7 billion, and represents the largest contract ever awarded to Serco.¹¹²

Lockheed Martin

Lockheed Martin, the largest weapon producer in the world, is not only in the same consortium as Serco for the management of the AWE Aldermaston Site, but is also involved in the production of British nuclear warheads.

Lockheed Martin also supplies the Trident II (D5) missiles that are used to launch these nuclear weapons from British nuclear submarines. Lockheed Martin began production of the D5 in 1988 and it will continue until at least 2005.¹¹³ These nuclear missiles are loaded onto the submarines in an American naval base. The nuclear warheads, produced by AWE, are loaded onto the submarines at Coulport in Scotland.¹¹⁴

¹⁰⁶http://www.serco.com/our_business/markets/defence/index.asp

¹⁰⁷Atomic Weapons Establishments

¹⁰⁸British Nuclear Fuels Limited, a British government owned company

¹⁰⁹http://www.serco.com/our_business/services/tom/awecasestudy.asp

¹¹¹http://www.awe.co.uk/main_site/about_awe/

¹¹²http://www.serco.com/our_business/markets/defence/index.asp

¹¹³<http://www.lockheedmartin.com/wms/findPage.do?dsp=fec&ci=11469&rsbci=13169&fti=0&ti=0&sc=400>

¹¹⁴http://www.awe.co.uk/main_site/about_awe/what_we_do/index.html

Lockheed Martin also supplies the Trident missiles for the US nuclear submarines. America has 18 Ohio-class nuclear submarines and four of these are being converted to fire conventional weapons. The 14 others remain loaded with nuclear weapons. At the present time, Lockheed Martin is replacing Trident I missiles with the more up to date Trident II missiles on the four oldest Ohio-class submarines. This process started in 2000 and should be finished by 2008. Lockheed Martin has received an order for 12 new Trident missiles for these four submarines.¹¹⁵

A Trident nuclear missile, launched from an Ohio-class US nuclear submarine



The Weir Group

The Weir Group¹¹⁶ is a multinational with roots in Glasgow, Scotland. One of the activities of the group is involvement in Devonport Management Limited.

This consortium was formed by Weir Group (24.5% of the shares), together with Brown and Root (subsidiary of Halliburton) and BICC.

It is owner and manager of the Devonport Dockyards in Plymouth, England. In these dockyards, the British nuclear submarines are refitted and refuelled with new nuclear fuel plates. This process takes up to 2 years per submarine.¹¹⁷

Halliburton

Brown and Root, a subsidiary of the Halliburton group, is the majority shareholder of the Devonport Management Limited consortium, owning 51% of the shares. Brown and Root is one of the 'top 5 contractors' for the British army.¹¹⁸

Rolls-Royce

Rolls-Royce is no longer the producer of British luxury cars. Rolls-Royce is amongst other things now the 2nd largest producer of engines for military planes. Rolls-Royce is also the producer of propulsion systems for military ships. Rolls-Royce not only produces these systems for 'prime contractors' such as BAE Systems, Boeing and Lockheed Martin. They also deliver support for these systems on the front line, to the 100 armies and 30 navies who they supply.

In 2002, 32% of the profit from the turnover for the company was military. This is part of a trend in recent years where military production is becoming more important than civil projects.¹¹⁹

Rolls-Royce built the nuclear reactors that power the British nuclear submarines, as well as constructing the nuclear fuel used in the reactors. An important aspect of the maintenance of the submarines is the replacement of these fuel plates.

¹¹⁵<http://www.naval-technology.com/projects/ohio>

¹¹⁶<http://www.weir.co.uk>

¹¹⁷Detailed information on the refitting of the nuclear submarines can be found on http://www.devonport.co.uk/submarines/01_subs-intro.htm

¹¹⁸http://www.devonport.co.uk/company/company/01_company-frameset.htm

¹¹⁹<http://www.caat.org.uk/information/publications/companies/rolls-royce.php>

EADS

EADS is the second largest weapons producer in Europe.¹²⁰

France also has nuclear submarines, namely the Triomphant. DCN (Direction des Constructions Navales, a department of the Ministry of Defence) is currently finishing production of the third submarine. A fourth Triomphant-class submarine is also in production. The nuclear warheads for these submarines are produced by the Commission for Atomic Energy of the French government.

The EADS division "EADS Space Transportation" produces the M45 missile that is used to launch these nuclear weapons. EADS is currently working on an improvement to this nuclear missile, the M51.¹²¹

MBDA

MBDA is a European defence company specialising in missile systems. MBDA is a joint venture of EADS (37.5%), BAE Systems (37.5%) and Finmeccanica¹²² (25%).¹²³

MBDA developed and produced the ASMP missile, with a nuclear payload, for the French Air Force. It is designed for the Mirage 2000N fighter plane. In October 2003 MBDA received a new contract to produce an updated version, the ASMPA, for the new Mirage 2000NK3 fighter plane for the French Air Force.¹²⁴

The Rafale fighter plane can also be used by the French Air Force to fire these nuclear weapons produced by MBDA.¹²⁵

Final remarks

There are naturally many other companies involved in nuclear weapons. A full overview of this sector falls outside of the scope of this report.

We shall mention a few other companies:

The Trident missiles produced by Lockheed Martin contain guidance systems made by Raytheon and motors from ATK.

The British Vanguard-class nuclear submarines were produced by VSE, a company that has since been taken over by BAE Systems.

The American Ohio-class nuclear submarines were produced by General Dynamics. The nuclear reactors that drive these submarines are made by General Electric. Bechtel Bettis, a division of Bettis, is responsible for the US Navy Nuclear Propulsion Program.

The French submarines have a great deal of equipment from Thales on board (including guidance systems). The nuclear missiles produced by MBDA also contain guidance systems from Thales.

There are also producers of fighter and bomber planes designed to drop nuclear weapons: the B2 bombers from Northrop Grumman, the B52-H bombers from Boeing, the F16 fighters from General Dynamics (also found at Kleine Brogel, Belgium), the Rafale and the Mirage from Dassault Aviation.

¹²⁰<http://www.eads.com>

¹²¹<http://www.naval-technology.com/projects/triomphant/index.html>

¹²² *Finmeccanica is a large Italian high technology company that has 75% of its turnover from the defence and aerospace markets.*

¹²³<http://www.mbda.net>

¹²⁴<http://www.airforce-technology.com/projects/mirage/> and

http://www.mbda.net/site/FO/scripts/siteFO_publications.php?page=1&lang=EN&sel_rub=#

¹²⁵<http://www.airforce-technology.com/projects/rafale/>

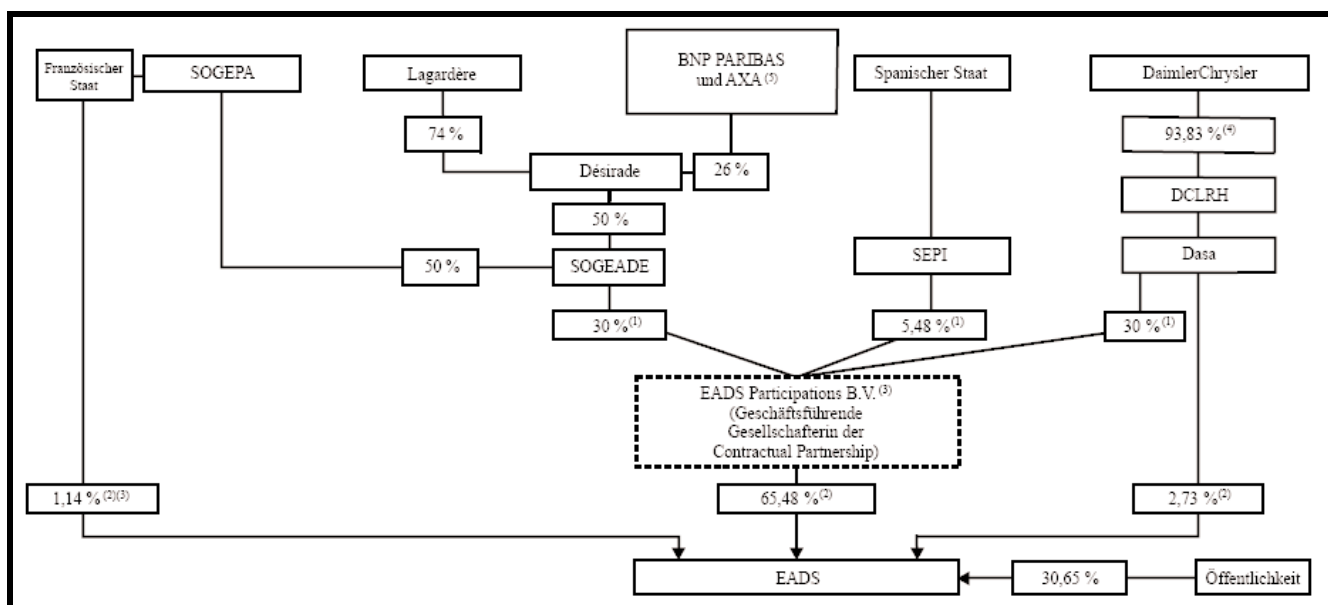
3.3. The financial links between producers of nuclear weapon and the banks

A credit facility from ING for EADS¹²⁶

In July 2002, EADS received a credit facility of 2,850 million Euro from an international banking syndicate led by BNP Paribas (France), Deutsche Bank (Germany) and JP Morgan (US). ING was one of 30 banks in this syndicate, which contributed between 50 million and 100 million Euro. One part of the credit was valid for one year, and a larger part was valid for 5 years. The credit was used as working capital and as back up for the issuing of bonds.¹²⁷

AXA, one of the most important shareholders in the establishment of EADS¹²⁸

At the time of the merger that created the company, EADS shares were issued on the stock exchanges of Frankfurt, Paris and Madrid. Through a complicated structure, AXA became a shareholder in the new company (see figure below).¹²⁹



As the figure shows, the French holding Sogead and the German/American company DaimlerChrysler were the most important shareholders in EADS, each with 30% of the shares. The situation has hardly changed, with both large shareholders in possession of 30.1% of the shares.¹³⁰ Half of the shares of Sogead are in the hands of the French state, and the other half in the hands of French holding Désirade. The majority shareholder (74%) of Désirade was the French company Lagardère, while the French banks BNP Paribas and AXA held 26% of the shares. It was agreed that in July 2003 both of these banks would sell their shares to Lagardère.¹³¹ It is not known if this happened.

¹²⁶ See also the chapter on cluster munitions

¹²⁷ Netherlands –Loans, Euroweek, London, 19th July 2002

¹²⁸ See also the chapter on cluster munitions

¹²⁹ Verkaufsprospekt European Aeronautic Defence and Space Company EADS N.V., Amsterdam, July 2000

¹³⁰ Aero-notes nr. 9, EADS, Amsterdam, December 2003

¹³¹ Verkaufsprospekt European Aeronautic Defence and Space Company EADS N.V., Amsterdam, 7th July 2000

Investments of the 5 researched banks

The banks that were investigated for this report invested¹³² the following amounts in the following producers of nuclear weapons.¹³³

INVESTMENTS IN NUCLEAR WEAPONS PRODUCERS (NUMBER OF SHARES)

Company	AXA Group	DEXIA Group	Fortis Group	ING Group	KBC Group	Total	%
EADS	208,167	172,047	791,760	606,646	58,817	1,837,437	0.23%
Lockheed Martin	9,307,995	32,049	49,240	1,447,879	127,716	10,964,879	2.45%
Serco	49,923	232,500	15,147	0	169,947	467,517	0.11%
The Weir Group	9,233,624	62,500	0	0	0	9,296,124	4.54%
Halliburton	878,634	98,846	819,567	3,515,058	146,194	5,458,299	1.25%
Rolls Royce	10,491,707	116,239	12,956	522,359	1,289,984	12,433,245	0.74%
BAE Systems	42,635,183	2,366,481	1,653,043	2,175,372	7,352,777	56,152,856	1.84%
Finmeccanica	477,287	832,493	769,161	403,172	464,131	2,946,244	0.03%

INVESTMENTS IN NUCLEAR WEAPONS PRODUCERS (VALUE OF SHARES IN US \$)

Company	AXA Group	DEXIA Group	Fortis Group	ING Group	KBC Group	Total
EADS	4,787,559	3,956,848	18,209,408	13,952,036	1,352,711	42,258,562
Lockheed Martin	430,774,009	1,483,228	2,278,827	67,007,840	5,910,696	507,454,600
Serco	195,717	911,490	59,382	0	666,258	1,832,847
The Weir Group	43,739,121	296,059	0	0	0	44,035,180
Halliburton	28,081,143	3,159,118	26,193,361	112,341,254	4,672,360	174,447,236
Rolls Royce	42,883,891	475,116	52,956	2,135,095	5,272,691	50,819,749
BAE Systems	150,928,548	8,271,143	5,851,772	7,700,817	26,028,831	198,781,111
Finmeccanica	406,817	709,579	655,597	343,645	395,604	2,511,242

¹³²Both direct and indirect. Direct refers to investments in the bank's own portfolio. Indirect refers to investment funds offered to their clients

¹³³Shareworld databank, Accessed March 2004

3.4. Conclusion

Despite the highly controversial character of nuclear weapons, none of the banks that were researched have any problems investing in their production.

The Norwegian Government Petroleum Fund

This Norwegian state fund is a mixed fund, set up in 1990, in which all oil income from the Norwegian state is placed. The fund invests 40% of this in shares and 60% in bonds. Each year, the state uses part of this money in order to balance the budget. The fund is also seen in Norway as an important investment for future generations. The forecasts show that in the future the Norwegian government will be able to rely less and less on income from oil. It is argued that a large part of the current oil income must be put aside to deal with future difficult periods caused by an ageing population, and the decline of oil income in the future.¹³⁴

In 2002, the Norwegian government gave a mandate to a Commission to propose ethical guidelines for this fund. This commission submitted the report to the Ministry of Finance in June 2003. On the basis of this report, the government will make a proposal to the Norwegian parliament on an ethical policy.¹³⁵

In its report, the commission proposed that the Petroleum Fund should no longer invest in producers of nuclear weapons. Also, there should be no investments in companies that make key components for these weapons.¹³⁶

For the past five decades, Norway has taken a clear stand in favour of nuclear disarmament. The commission also pointed to the unsettling news that the American congress is proposing the development of smaller yield "mini-nukes". The Petroleum Fund would make a clear signal by refusing to participate in the funding of companies involved in the production of nuclear weapons.

¹³⁴The Norwegian Government Petroleum Fund, Norwegian Ministry of Finance, October 2003, <http://odin.dep.no/archive/finvedlegg/01/28/fakta046.pdf>

¹³⁵<http://www.odin.dep.no/fin/engelsk/p10001617/p10002777/index-b-n-a.html>

¹³⁶Report from the Government Commission on Ethical Guidelines for the Government Petroleum Fund, June 2003, <http://odin.dep.no/fin/engelsk/p10001617/p10001682/006071-220009/index-dok000-b-n-a.html>

Chapter 4

Depleted Uranium

4.1 Weapons with Depleted Uranium

(a contribution by David Heller, For Mother Earth)

What is depleted uranium?

Depleted uranium is chemically toxic. It is an extremely dense, hard metal, and can cause chemical poisoning to the body in the same way as lead or any other heavy metal. However, depleted uranium is also radiologically hazardous, as it spontaneously burns on impact, creating tiny aerosolised glass particles that are small enough to be inhaled. These uranium oxide particles emit all types of radiation: alpha, beta and gamma, and can be carried in the air over long distances. Depleted uranium has a half-life of 4.5 billion years, and the presence of depleted uranium ceramic aerosols can pose a long-term threat to human health and the environment.¹³⁷

Depleted uranium is a by-product after enriched uranium is separated from natural uranium in order to produce fuel for nuclear reactors. During this process, the majority of the fissionable isotope Uranium 235 is removed. The remaining uranium, which is 99.8% Uranium 238, is called 'depleted uranium'.

While the term "depleted" implies it isn't dangerous, depleted uranium is still radioactive and chemically toxic. There is also a growing concern that a portion of the depleted uranium may have been obtained from spent nuclear fuel, and is contaminated with fission products such as plutonium and other isotopes of uranium, including Uranium 236, which are far more radioactive and carcinogenic than Uranium 238. Another development may be the use of "undepleted" uranium in weapons.¹³⁸

What's wrong with depleted uranium?

The military use of depleted uranium is the source of much controversy.

Following the use of depleted uranium in the first Gulf War, Iraq has suffered a significant increase in the number of babies being born with birth defects, and the number of cancers has dramatically increased. New previously unseen cancer types have appeared. Depleted uranium remains dangerous long after the war because of its chemical and radioactive toxicity.

The effects of DU weapons can also be observed in Gulf War veterans (the so-called Gulf War syndrome). A survey made by the Veterans' Administration of 251 Gulf War Veterans' families in Mississippi showed that 67% of children conceived and born since the war had rare illnesses and genetic problems.¹³⁹

NATO troops and United Nations peacekeepers who served in the Balkans have suffered similar problems, known as "Balkan syndrome". An estimated 6,000 Belgian soldiers are affected by Balkan syndrome.

¹³⁷ Much of the material in this section comes from the Campaign Against Depleted Uranium:
<http://www.cadu.org.uk>

¹³⁸ Uranium weapons & US war plans - Warnings to the UK Government, Dai Williams,
<http://www.stopnato.org.uk/du-watch/williams/du-dangers.htm>

¹³⁹ "Depleted Uranium- silent killer" FOE Australia, April 8, 2003
http://www.foe.org.au/mr/mr_8_4_03.htm

In the majority of cases, veterans of these conflicts have been denied compensation, as their employers (chiefly the US and British Ministries of Defence) have refused to acknowledge a relationship between depleted uranium and the illnesses suffered by the soldiers or peacekeepers.¹⁴⁰

A sub-commission of the United Nations Commission on Human Rights appointed a 'rapporteur' to investigate the use of depleted uranium weapons among other types of weapons, after passing a resolution which categorised depleted uranium weapons alongside nuclear, chemical and biological weapons, napalm, and cluster bombs as a 'weapon of indiscriminate effect'.

The testing of depleted uranium ammunition has also been linked to serious consequences for the health of people living downwind from firing-ranges.



The child of a US Gulf War veteran. Thousand of Iraqi children have been born with similar birth defects since the use of depleted uranium in the Gulf War.

Depleted Uranium at War

In the 1950s the United States Department of Defense became interested in using depleted uranium metal in weapons because of its

extremely dense, pyrophoric qualities and because it was cheap and available in huge quantities. It is now given practically free of charge to the military and arms manufacturers, and is used both as tank armour and in armour-piercing shells. Over 15 countries are known to have depleted uranium weapons in their military arsenals - UK, US, France, Russia, Greece, Turkey, Israel, Saudi Arabia, Bahrain, Egypt, Kuwait, Pakistan, Thailand, Iran and Taiwan - with depleted uranium rapidly spreading to other countries.¹⁴²

The physical properties of depleted uranium mean that it can penetrate armour more effectively than virtually any other material, although tungsten alloys are replacing depleted uranium in some types of ammunition.

The first suspected use of Depleted Uranium weapons was by Israel during the Yom Kippur War in 1973. Other possible conflicts in which depleted uranium could have been used include the Israeli invasion of South Lebanon (1982), the Falklands conflict (1982) and the US invasion of Panama (1989).¹⁴³

The first confirmed large scale use of depleted uranium in military combat was during the 1991 Gulf War, and it has since been used in Bosnia in 1995, and again in the Balkans war of 1999. It was also used during the US-led war in Afghanistan in 2001, and the second Gulf War in 2003.

¹⁴⁰ "First award for depleted uranium poisoning claim", *The Herald*, 3/2/2004
<http://www.theherald.co.uk/news/9272.html>

¹⁴² Campaign Against Depleted Uranium website
<http://www.cadu.org.uk/intro.htm>

¹⁴³ Henk van der Keur, *Laka Foundation*, "Where and how much depleted uranium has been fired?"
<http://www.laka.org/teksten/Vu/where-how-much-01/main.html>

The following types of depleted uranium have been used in war:

US:

M919 25mm ammunition is used in the Bradley Fighting Vehicle¹⁴⁴. It went into production in 2003, and is currently produced by General Dynamics Ordnance and Tactical Systems. The Bradley Fighting vehicle fired DU ammunition during the war against Iraq in 2003.¹⁴⁵

PGU/20-U 25mm ammunition is in use by the US Marines in Harrier jets.¹⁴⁶ The equivalent of 10 tons of depleted uranium was used in the form of this ammunition during the first Gulf War.¹⁴⁷ It is currently produced by General Dynamics Ordnance and Tactical Systems.

PGU-14 30mm ammunition is used by the A-10 Thunderbolt II (also known as the "Warthog"). The equivalent of 260 tons of depleted uranium was used in the form of this ammunition during the first Gulf War.¹⁴⁸ Aircraft fired approximately 10,000 30mm DU rounds (3.3 tons of DU) at 12 sites in Bosnia-Herzegovina in 1994-1995. In 1999, they fired nearly 31,000 DU rounds (10.2 tons of DU) at 85 sites in Kosovo.¹⁴⁹ There are reports of the Warthog being used during the war against Iraq in 2003.¹⁵⁰

The ammunition was developed for the US Army AH-64 Apache helicopter,¹⁵¹ but there is no evidence that Apache helicopters have ever fired DU ammunition.¹⁵² It is currently produced by Alliant Techsystems.¹⁵³

M900 105mm tank round is in use with the US Army and Marine Corps. General Dynamics Ordnance and Tactical Systems currently produce the ammunition.¹⁵⁴

M829A1 120mm ammunition is used by the M1 Abrams Main Battle Tank. This ammunition was nicknamed the "Silver Bullet" by Operation Desert Storm tank crews, and is widely regarded as the most effective tank-fired anti-armour weapon in the world.¹⁵⁵

The ammunition is currently produced by Alliant Techsystems.¹⁵⁶ It was previously manufactured by

¹⁴⁴ Federation of American Scientists, Military Analysis Network

<http://www.fas.org/man/dod-101/sys/land/m919.htm>,

General Dynamics website

http://www.generaldynamics.com/news/press_releases/2003/January%20,%202003%20News%20Release.htm

¹⁴⁵ BBC News website, "Shooting a path to Baghdad"

http://news.bbc.co.uk/1/hi/world/middle_east/2920131.stm

¹⁴⁶ Observatoire des armes nucléaires français, "La production des armes à l'uranium appauvri"

<http://www.obsarm.org/publications/cahiers-obsnuc/cahier-en-ligne/cahier5.pdf>

¹⁴⁷ DU Library "DU in the Gulf War"

http://www.deploymentlink.osd.mil/du_library/gulfwar.shtml

¹⁴⁸ DU Library "DU in the Gulf War"

http://www.deploymentlink.osd.mil/du_library/gulfwar.shtml

¹⁴⁹ DU Library "DU in the Balkans"

http://www.deploymentlink.osd.mil/du_library/balkans.shtml

¹⁵⁰ USA Today website "Air campaign shifts aim to Guard"

http://www.usatoday.com/news/world/iraq/2003-04-01-airwar-usat_x.htm

¹⁵¹ Global Security website

<http://www.globalsecurity.org/military/systems/munitions/pgu-14.htm>

¹⁵² Anne Gut and Bruno Vitale, 2003, *Depleted Uranium: Deadly, Dangerous and indiscriminate*, Spokesman books, p 50.

¹⁵³ Alliant Techsystems website

<http://www.atk.com/defense/descriptions/products/munitioncards/pgu-14.htm>

¹⁵⁴ General Dynamics website

http://www.gd-ots.com/site_pages/directf/M900_scroll.htm

¹⁵⁵ Global Security website

<http://www.globalsecurity.org/military/systems/munitions/m829a1.htm>

¹⁵⁶ Alliant Techsystems website

<http://www.atk.com/defense/descriptions/products/120mm-tank-ammo.htm>



KFOR soldiers measure the radiation levels of a tank destroyed by depleted Uranium in Kosovo

General Dynamics Ordnance and Tactical Systems.¹⁵⁷

M829A2 120mm armour piercing tank round is also in use with the US Army in the M1 Abrams Main Battle Tank. General Dynamics Ordnance and Tactical Systems currently produce this ammunition.¹⁵⁸

MK149 20mm ammunition, previously used by the US Navy's Phalanx Anti-Ship Missile Defense System, has been replaced by a non-DU version with a Tungsten penetrator.¹⁵⁹

It is also possible, but not confirmed, that depleted uranium is used in US air-launched and sea-launched cruise missiles, produced by Boeing¹⁶⁰ and Lockheed Martin,

as well as in the GBU-28 "Bunker Buster" produced by Raytheon.¹⁶¹ These weapons were used extensively in the war in Afghanistan, and the second Gulf War. Both Raytheon and Lockheed Martin hold patents on missiles containing depleted uranium.¹⁶²

UK:

120mm CHARM 3 APFSDS L27 ammunition is the only depleted uranium ammunition in use with the British Army. It was fired by the British Challenger II tank, in both Gulf Wars.¹⁶³ It is produced by Royal Ordnance Defence, a part of BAE Systems.

¹⁵⁷ General Dynamics website

http://www.gd-ots.com/site_pages/directf/m829a1.html

¹⁵⁸ Federation of American Scientists, Military Analysis Network

<http://www.fas.org/man/dod-101/sys/land/m829a1.htm>

¹⁵⁹ Global Security website

<http://www.globalsecurity.org/military/systems/munitions/mk149.htm>

¹⁶⁰ Pacific Life Research Centre "Conventional ALCMs"

<http://www.plrc.org/docs/990628A.pdf>

¹⁶¹ Dai Williams "Depleted Uranium weapons in 2001-2002"

<http://www.eoslifework.co.uk/pdfs/DU2102A3b.pdf>

¹⁶² Dai Williams "United States Patent Office references to conventional guided weapons with suspected Uranium warhead components"

<http://www.eoslifework.co.uk/pdfs/USpats.pdf>

¹⁶³ Daily Record "War in the gulf: 'Our guards were superb but it ended in a bloody great turkey shoot'

" <http://www.dailyrecord.co.uk/news/page.cfm?objectid=12784536&method=full&siteid=89488>

Approximate Amount of Depleted Uranium Released During Operation Desert Storm: ¹⁶⁴

Branch	Weapon System	Ammo Type	Quantity of Rounds	Weight (pounds)
US Army	M1 Tank	105mm	504	4,254
	M1A1 Tank	120mm	9,048	82,243
US Air Force	A-10	30mm	783,514	521,655
US Navy	Phalanx CIWS	20mm	Not Available	Not Available
US Marine Corps	AV-8B Harrier	25mm	67,436	22,003
	M60 Tanks/	105mm	Not Available	Not Available
	M1 Tanks		Not Available	Not Available
United Kingdom	Challenger Tanks	120mm	88	900
Totals (approximate)			Tanks- 9,640	Tanks - 87,397
			Aircraft- 850,950	Aircraft-543,658
				Total - 631,055

Depleted Uranium and Law

The particular characteristics of depleted uranium (most importantly the toxic and radioactive effects of uranium which continue to have an effect after the end of armed conflict, and the production of fine particles which could potentially spread across international borders) mean that the use of depleted uranium weapons could be outlawed under international treaties which are binding on the US and other states with stockpiles of these weapons:

The Hague Convention(s), 1907, explicitly forbid(s) the use of poison, and guarantee(s) the protection of neutral nations.

The Geneva Gas Protocol, 1925 outlaws "... asphyxiating, poisonous or other gases, and all analogous liquids, materials or devices."

Geneva Convention Relative to the Protection of Civilians in Time of War, 1949 ensures the protection of the wounded, the sick, the infirm, expectant mothers, civilian hospitals and health workers. The 1977 Protocols Additional to the Geneva Conventions protects against incidental loss of civilian lives and widespread, long-term and severe damage to the environment.

NATO spokesperson Francois Le Blevennec stated that depleted uranium "has never been declared illegal by any war convention." However, the US Air Force law manual (issued in 1976) declares unequivocally: "Any weapons may be put to an unlawful use.... A weapon may be illegal per se if either international custom or treaty has forbidden its use under all circumstances. An example is poison to kill or injure a person." Depleted Uranium clearly fits into the definition of poison as it is provided by the Air Force manual, "biological or chemical substances causing death or disability with permanent effects when, in even small quantities, they are ingested, enter the lungs or bloodstream, or touch the skin."¹⁶⁵⁻¹⁶⁶

Opposition to Depleted Uranium

In February 2003, the European Parliament passed a resolution on the harmful effects of unexploded ordnance (landmines and cluster sub-munitions) and depleted uranium ammunition. This resolution, inter alia, "Calls on the Council and the Member States, as well as on NATO and the members thereof which are not EU Member States, to make a public declaration guaranteeing that they will not use weapons or weapons systems that have been banned or are deemed to be illegal under international law in present or future armed conflicts." and "Requests the Member States - in order to play their leadership role in full - to immediately implement a moratorium on the further use of cluster ammunition and depleted uranium ammunition (and other uranium warheads), pending the conclu-

¹⁶⁴ Henk van der Keur, Laka Foundation, "Where and how much depleted uranium has been fired?"
<http://www.laka.org/teksten/Vu/where-how-much-01/main.html>

¹⁶⁵ John La Forge, Nukewatch, "US Dirty Bombs: Radioactive Shells Spiked with Plutonium"
<http://www.zmag.org/ZMagSite/oct2002/laforge1002.htm>

¹⁶⁶ Karen Parker, "The Illegality of DU Weaponry"
http://www.traprockpeace.org/karen_parker_du_illegality.pdf

sions of a comprehensive study of the requirements of international humanitarian law."¹⁶⁷

The Belgian Minister of Foreign Affairs has stated, "Our country is seriously concerned about the possible consequences of the use of these weapons, and takes part in the many discussions and investigations currently underway at an international level. I can assure you that our country does not produce or possess these weapons, and that we have never tested or used them, nor will we acquire these weapons in the future." The Minister of Defence gave a similar answer. Neither ministry gave an answer on the question of whether the United States stores DU ammunition in Belgium, or transported DU ammunition through Belgium in the run-up to Gulf War.¹⁶⁸

Internationally, opposition to the use of Depleted Uranium has focussed on the impact on the health of those soldiers and civilians exposed to debris contaminated with depleted uranium after the end of the armed conflicts in Iraq and the Balkans. Several veterans' organisations, and citizens' groups have been formed to lobby and offer support on this issue.

There are also campaigns to ensure that the contamination of land used for testing depleted uranium is cleared up. The US navy used the Puerto Rican island of Vieques as a testing range for depleted uranium, until their withdrawal in May 2003.¹⁶⁹ There have also been campaigns against the testing of depleted uranium on land belonging to indigenous peoples in the US¹⁷⁰, as well as in Scotland¹⁷¹ and Italy.¹⁷²

Other campaigns have brought attention to the military bases where depleted uranium is stored, and where aircraft using depleted uranium are based.¹⁷³

In recent years there has also been an increasing focus on the companies involved in the production of depleted uranium. Notable here is the long running campaign against the ATK depleted uranium production plant at Arden Hills, Minnesota, and at the headquarters of the company.¹⁷⁴

In Belgium, a coalition for a ban on uranium weapons has been set up, to bring together groups and individuals to campaign for a global ban on the use of weapons containing depleted uranium (as well as natural uranium and uranium contaminated with fission products).¹⁷⁵ The Belgian coalition has links with the International Coalition for a Ban on Uranium Weapons.¹⁷⁶

¹⁶⁷ European Parliament resolution on the harmful effects of unexploded ordnance (landmines and cluster sub-munitions) and depleted uranium ammunition <http://www.idust.net/Law/EU2003.htm>

¹⁶⁸ Both letters dated 27/10/2003, reference KAB/BZ/MVDV/48034 and MLV:DV/03-017909

¹⁶⁹ Vieques Libre website

<http://www.viequeslibre.org/>

¹⁷⁰ Lou Nicholas, IDUST, "Heavy Metal or Death Metal?"

<http://www.idust.net/Docs/Docs002.htm>

¹⁷¹ Campaign Against Depleted Uranium website "The Second International Day of Action Against Depleted Uranium Goes with a bang!" <http://www.cadu.org.uk/action/>

¹⁷² Campaign Against Depleted Uranium website "DU in Sardinia, Italy, near a NATO firing range" http://www.cadu.org.uk/info/countries/10_3.htm

¹⁷³ Nuclear resister website

<http://www.serve.com/nukeresister/nr119/nr119plowvsdu.html>

¹⁷⁴ Veterans for Peace "DU protesters found NOT GUILTY of trespass at weapons assembler"

http://www.veteransforpeace.org/DU_protesters_102203.htm

¹⁷⁵ Belgian Coalition Stop Uranium Weapons website

<http://www.motherearth.org/du>

¹⁷⁶ ICBUW website

<http://www.bandepleteduranium.org/>

4.2. Companies involved in the production of weapons with depleted uranium

(a contribution by David Heller, For Mother Earth)

ATK

Alliant Techsystems Corporation (ATK) manufactures medium and large calibre depleted uranium munitions.¹⁷⁷ This includes the 30mm PGU-14 and the 120mm M829A1, which were both used extensively in the first Gulf War. The company also used small quantities of depleted uranium in its ADAM (area denial artillery munition) and M-86 PDM (pursuit deterrent munition) landmines.¹⁷⁸ Ammunition containing DU produced by ATK has also been exported to Thailand (150,000 rounds of 30mm ammunition) and Kuwait (11,336 rounds of 120mm ammunition). ATK's ADAM landmines containing depleted uranium have also been exported to Greece, South Korea, Turkey and Taiwan.¹⁷⁹

General Dynamics

General Dynamics is an American multinational with an important position in air, land and amphibious vehicles, fighter planes, munitions and other military equipment. Their activities are 63% military.¹⁸⁰

General Dynamics Ordnance and Tactical Systems (formerly Olin Ordnance Co., and then later Primex Technologies) produces the 25mm M919 ammunition for use in the Bradley Fighting Vehicle¹⁸¹, the 25mm PGU/20-U ammunition used by the US Marines in Harrier jets¹⁸², the M900 105mm tank round¹⁸³, the M774 105mm round, and the M829A2 120mm armour piercing tank round.¹⁸⁴

The company was also responsible for the production of the now obsolete 105mm M833 anti-tank ammunition¹⁸⁵, which has been exported to several countries including Bahrain, Israel, Jordan, Pakistan, Saudi Arabia, and Turkey under the US Department of Defense "Excess Defense Articles" scheme.¹⁸⁶⁻¹⁸⁷ M833 ammunition can be exported to NATO states, Taiwan, Major Non-NATO Allies (including Argentina, Australia, Egypt, Israel, Japan, Jordan, the Philippines, South Korea and since March 2004, Pakistan), as well as any country for which presidential permission is granted. They also previously produced the 20mm MK149 ammunition for the US Navy's Phalanx Anti-Ship Missile Defense System, which has since been replaced by a non-DU version with a Tungsten penetrator.¹⁸⁸

¹⁷⁷ Alliant Action website <http://www.circlevision.org/alliantaction.html>

¹⁷⁸ Observatoire des armes nucléaires français, "La production des armes à l'uranium appauvri" <http://www.obsarm.org/publications/cahiers-obsnuc/cahier-en-ligne/cahier5.pdf>

¹⁷⁹ Countries which purchased weapons containing depleted uranium, September 13th 1995, released under the Freedom of Information Act (95-F-1794).

¹⁸⁰ www.generaldynamics.com

¹⁸¹ Federation of American Scientists, Military Analysis Network

<http://www.fas.org/man/dod-101/sys/land/m919.htm>,

General Dynamics website

http://www.generaldynamics.com/news/press_releases/2003/January%20,%202003%20News%20Release.htm

¹⁸² Observatoire des armes nucléaires français, "La production des armes à l'uranium appauvri"

<http://www.obsarm.org/publications/cahiers-obsnuc/cahier-en-ligne/cahier5.pdf>

¹⁸³ General Dynamics website

http://www.gd-ots.com/site_pages/directf/M900_scroll.htm

¹⁸⁴ Federation of American Scientists, Military Analysis Network

<http://www.fas.org/man/dod-101/sys/land/m829a2.htm>

¹⁸⁵ Observatoire des armes nucléaires français, "La production des armes à l'uranium appauvri"

<http://www.obsarm.org/publications/cahiers-obsnuc/cahier-en-ligne/cahier5.pdf>

¹⁸⁶ Henk van der Keur, Laka Foundation, "Where and how much depleted uranium has been fired?"

<http://www.laka.org/teksten/Vu/where-how-much-01/main.html>

¹⁸⁷ Department of the Army Historical Summary: FY 1994

<http://www.army.mil/cmh-pg/books/DAHSUM/1994/ch06.htm>

¹⁸⁸ Global Security website

<http://www.globalsecurity.org/military/systems/munitions/mk149.htm>

¹⁸⁹ SIPRI yearbooks 1988 – 1999

¹⁹⁰ Army Technology website

General Dynamic Land Systems Division produced the M60 Main Battle Tank, equipped with Depleted Uranium armour, for over 20 countries including Austria, Bahrain, Bosnia, Brazil, Egypt, Greece, Iran, Israel, Italy, Jordan, Morocco, Oman, Portugal, Saudi Arabia, Spain, Sudan, Taiwan, Thailand, Turkey and the United States.¹⁸⁹ The M60 is no longer in production.

The company continues to produce the M1, M1A1 and M1A2 Abrams main battle tank for the US Army and Marines, as well as the armed forces of Egypt, Saudi Arabia and Kuwait.¹⁹⁰

BAE Systems

BAE Systems is the new name for British Aerospace (BAe). The company has the largest military turnover of any weapon producer in Europe, and is the number 3 worldwide.¹⁹¹

Royal Ordnance Defence, (part of BAE Systems), produces DU components for 120mm CHARM 3 APFSDS L27 projectile tank ammunition.¹⁹² It has a DU production and handling site at Featherstone, near Wolverhampton in the UK. In 1999 it was the scene of a serious fire, involving DU, which led to widespread fears of local contamination.¹⁹³ Although this DU ammunition is designed for use with Challenger II tanks, which are in service with armies of Jordan and Oman, there is no clear evidence that the DU ammunition is being exported.

<http://www.army-technology.com/projects/abrams/index.html>

¹⁹¹ www.baesystems.co.uk

¹⁹² *Janes Defence News*, 23 May 2001 "RO Defence 120mm CHARM 3 APFSDS L27 projectile"

http://www.janes.com/defence/land_forces/news/misc/jah_charm3_apfsds_l27.shtml

¹⁹³ *Campaign Against Depleted Uranium*

¹⁹⁴ *Both direct and indirect. Direct refers to investments in the bank's own portfolio. Indirect refers to investment funds offered to their clients*

4.3. The links between the producers of weapons with depleted uranium and the banks

The researched banks invest¹⁹⁴ the following amounts in companies involved in the production of weapons with depleted uranium.¹⁹⁵

INVESTMENTS IN PRODUCERS OF WEAPONS WITH DEPLETED URANIUM (NUMBER OF SHARES)

Company	AXA Group	DEXIA Groep	Fortis Group	ING Group	KBC Group	Total	%
ATK	2,358,900	0	3,625	60,022	4,458	2,607,005	6.8%
BAE Systems	42,635,183	2,366,481	1,653,043	2,175,372	7,352,777	56,152,856	1.84%
General Dynamics	921,329	18,515	15,488	2,069,240	38,938	3,063,510	1.55%

INVESTMENTS IN PRODUCERS OF WEAPONS WITH DEPLETED URANIUM (VALUE OF THE SHARES IN US \$)

Company	AXA Group	DEXIA Group	Fortis Group	ING Group	KBC Group	Total
ATK	144,971,190	0	206,988	3,427,256	254,552	148,859,986
BAE Systems	150,928,548	8,271,143	5,851,772	7,700,817	26,028,831	198,781,111
General Dynamics	84,872,827	1,705,602	1,426,755	190,618,389	3,586,969	282,210,542

4.4. Conclusion

Despite the very controversial character of weapons with depleted uranium, none of the banks surveyed have any problem investing in companies that produce these weapons.

¹⁹⁵ Shareworld databank, Accessed March 2004

¹⁹⁶ Sources and detailed information on the investments and companies can be found in chapters 1 to 4 of this report.

Chapter 5

The controversial weapon profile of the banks

In the preceding chapters, the links were outlined between the 5 researched banks and the producers of 4 controversial sorts of weapons. It is remarkable that all 5 of the banks feature in each of the chapters. At present, there seem to be no ethical boundaries for these banks as far as weapons are concerned.

To summarise, we shall give a short overview for each bank¹⁹⁶.

5.1. AXA

AXA has investments in all 13 researched companies, and is involved in the 4 controversial weapons.

Notable are the important investments of the bank group in ATK (6,6%). ATK is a producer of weapons with depleted uranium, and cluster bombs with anti-tank mines. Until 1997, ATK was also active in the production of anti-personnel mines for cluster bombs. ATK was the most important supplier of anti-personnel mines for the American army. With the new US policy regarding land mines, there is a great chance that ATK will be able to resume production of anti-personnel mines in the future.

AXA was also an important shareholder in the establishment of EADS, the European producer of, amongst other things, cluster bombs and nuclear weapons.

AXA also offers 2 investment funds on the Belgian markets that invest in Singapore Technologies Engineering, a producer of anti-personnel mines. One of the 2 funds is also under its own management.

The fact that AXA has no ethical objections to these controversial weapons systems is unfortunate enough, but not surprising. The spokesperson for AXA Bank Belgium informed us on 29th October 2003 that AXA has no codes concerning investments in the weapon industry, and that they never will have. Up until now, this is the last that the campaign has heard from AXA.

5.2. Dexia

Dexia is involved in the 4 researched controversial weapons. Dexia has investments in 12 of the 13 researched companies.

Artesia Bank, a subsidiary of the Dexia group, has given bank guarantees worth \$1.9 million to Forges De Zeebrugge. This Belgian company develops, produces and tests missile systems, including cluster bombs and cluster munitions.

Dexia also offers an investment fund on the Belgian market that invests in Singapore Technologies Engineering, a producer of anti-personnel mines. This fund is managed by Dexia Asset Management Belgium.

In discussion with Dexia, as part of the campaign 'My Money. Clear Conscience?' by Netwerk Vlaanderen, it appeared that there was a certain openness on the part of the bank to work on a more peaceful credit and investment policy. Dexia is wondering where they must draw the line. A minimum first step would seem to be the exclusion of nuclear weapons, cluster bombs, land mines and weapons with depleted uranium. There is still a task for Dexia, if they are to live up to their slogan of "the bank of sustainable development".

5.3. Fortis

Fortis is involved in the 4 researched controversial weapons. Fortis has investments in 12 of the 13 researched companies.

Fortis Bank has given bank guarantees of 900,000 Euro and \$137,000 to Forges De Zeebrugge. This Belgian company develops, produces and tests missile systems, including cluster bombs and cluster munitions.

Fortis also offers two investment funds on the Belgian market that invest in Singapore Technologies Engineering, a producer of anti-personnel mines. These funds are managed by Fortis Investment Management Belgium.

Fortis has until now always claimed to pursue an "extremely restrictive and careful" policy with respect to weapons producers. The involvement of Fortis in the most controversial weapons such as cluster bombs, nuclear weapons, land mines and depleted uranium, makes this claim pretty meaningless. Does Fortis really want to pursue an "extremely restrictive and careful" policy? If so, they must withdraw from this kind of investment.

5.4. ING

ING is involved in the 4 researched controversial weapons. ING has investments in 11 of the 13 researched companies.

As part of an international banking syndicate, ING has given EADS a credit facility of between 50 million and 100 million Euro. EADS is a European producer of, amongst other things, nuclear weapons and cluster bombs.

ING also offers 2 investment funds on the Belgian market that invest in Singapore Technologies Engineering, a producer of anti-personnel mines. ING has both funds under their own management.

In response to the campaign "My Money. Clear Conscience?", ING has attempted to convince Netwerk Vlaanderen of its restrictive policy in respect of weapon producers. According to ING, financing of military equipment can only be carried out under strict conditions. ING claims that the classification and potential impact of the weapons are taken into account.

In the ING in Society Report from 2002, ING says that it will act when a company appears to be involved in weapons of mass destruction, land mines and cluster bombs.

The investment of ING in cluster bombs, nuclear weapons, landmines... and a financing of EADS (cluster bombs and nuclear weapons) stands in sharp contrast with these declarations from ING. There is no sign of the restrictive policy here.

5.5. KBC

KBC is involved in the 4 researched controversial weapons. KBC has investments in 12 of the 13 researched companies.

CBC, subsidiary of the KBC group, has given bank guarantees of 156,000 Euro and \$5,000 to Forges De Zeebrugge. This Belgian company develops, produces and tests missile systems, including cluster bombs and cluster munitions.

KBC offers 2 investment funds on the Belgian market that invest in Singapore Technologies Engineering, a producer of anti-personnel mines. One of these funds is also managed by KBC.

KBC also talks of a very cautious policy regarding investments in the arms industry. KBC does not want to be involved in financing criminal or socially unacceptable activities. Investments in anti-personnel mines are also ruled out.

This report poses great questions about this cautious policy. There are apparently no weapons that seem socially unacceptable for KBC. Offering a fund that invests in a producer of anti-personnel mines is in complete opposition to their own investment rules.

Chapter 6

Conclusion

This report deals with 4 different sorts of weapons that are highly controversial. Each of the banks is involved in each of these weapons. Landmines, cluster bombs, nuclear weapons and weapons with depleted uranium have devastating power, and have claimed innumerable civilian casualties. AXA, DEXIA, FORTIS, ING and KBC apparently know no borders regarding weapons. We find this a simply shocking observation.

The fact that all banks in Belgium also offer investment funds that invest in producers of anti-personnel mines is above all a direct attack on the pioneering policy that Belgium has pursued in the last decade.

In the worst case, the banks were aware that STE was involved in producing landmines. In the best case, the banks knew nothing. But this just goes to show what Netwerk Vlaanderen has been saying to the banks for 6 months. Step completely out of the arms industry. Investment in the arms industry is not only ethically unacceptable, but also exposes banks to irresponsible social risks. You cannot know where the weapons will turn up, and in which conflict they will be used. Perhaps you cannot tell which sort of weapons you are investing in. Put simply, the weapons industry is a hornets' nest that is best to keep well away from.

Netwerk Vlaanderen, Forum voor Vredesactie, For Mother Earth and Vrede vzw maintain their demand that the bank sector should completely withdraw from the weapons industry. As a first step in this direction, these organisations insist that the banks:

- Halt all investments and financing of companies that are involved in landmines, cluster bombs, nuclear weapons and/or weapons with depleted uranium;
- Develop and implement a policy that prohibits future links between banks and companies involved in these weapons;
- Make their policy in relation to these weapons clear, honest and fully accessible to customers, the government and other stakeholders;
- Make the policy controllable, by making their investment and financing portfolio open to customers, government and other stakeholders.

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Netwerk Vlaanderen vzw promotes an alternative approach to money.

Money is a tool that, if used well, can promote a sustainable and honest society. Netwerk Vlaanderen has an annual campaign with the slogan "My Money. Clear Conscience?" to make public the investment policies of banks, and to encourage the participation of savers and investors in deciding how their money is used.

Netwerk Vlaanderen provides information on sustainable investment and savings products, and supports and advises organizations and companies who (wish to) have a socially and environmentally friendly approach to money. Netwerk Vlaanderen vzw – Vooruitgangstraat 333 b9 – 1030 Brussel, Belgium– 0032 (0)2/ 201 07 70 – www.netwerk-vlaanderen.be



Het Forum voor Vredesactie

(Forum for Peace Action) is a pacifist peace organization. Forum voor Vredesactie is pluralistic and politically independent. It is a campaigning organization that brings people into action: Bombspotting, Trainstopping, Barco: "your share in the arms trade", Security: "not a military question", Get in Shape, ... Campaigns where pacifism is put into practice. Forum voor Vredesactie – Patriottenstraat 27 – 2600 Berchem, Belgium – 0032 (0)3/281.68.39 – www.vredesactie.be



Vrede vzw (Peace) With a name like this, you couldn't be anything other than a peace movement. We work around international politics, development issues and questions

of peace. Our central demand: less military expenditure, more social justice. You can summarise our work in these five words: study, information, solidarity, action, cooperation. We have a library, a bi-monthly magazine, and peace-books. Political mobilisation is done in coalitions with other groups, and in this way we can increase the pressure on decision makers. Check out www.vrede.be for more information.

Vrede vzw - Filips Van Arteveldestraat 35 - 9000 Gent, Belgium – 0032 (0)9/233.46.88 – www.vrede.be

Voor Moeder Aarde v.z.w. (For Mother Earth) is a pluralistic environmental organisation. We pay special



Voor Moeder Aarde vzw

attention to the links between the environment and issues of human rights and disarmament, and emphasise the need for international cooperation. We use research, education & awareness raising, policy work and nonviolent direct action as ways to

reach our goals.

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The campaign "My money. Clear Conscience?" is run by Netwerk Vlaanderen, together with Forum voor Vredesactie, For Mother Earth and Vrede vzw.



*mijn geld.
goed geweten?*

The campaign makes the financial world aware of its responsibilities. Banks work with your money. They invest in many different companies, including arms companies. We demand that banks are open about which companies they invest in, and stop their investments in the arms industry!

www.mijngeldgoedgeweten.be