

MSCI

A Clear View of
Risk and Return



Consultation on MSCI ACWI ex Controversial Weapons Index

May 2011

Contents

- I. Overview
- II. Proposed Screens Methodology
- III. Proposed Index Methodology

Appendix

- List of Excluded Companies
- Controversial weapons: Background & overview
- Treaties and Conventions
- Sources

I. Overview

Overview

- Based on conversations with asset owners and managers, MSCI is consulting on the creation of an index for investors who want to avoid investments in controversial weapons which are subject to international treaties or conventions
- The proposed index would exclude companies involved in cluster bombs, landmines, depleted uranium weapons, and chemical and biological weapons from the MSCI All Country World Index (ACWI)
- This document provides background on controversial weapons, proposed definitions for the weapons screens, and an index methodology proposal
- The purpose of this document is to solicit feedback from market participants regarding an index excluding controversial weapons
- This consultation may or may not lead to the creation of an index for investors who want to avoid investments in controversial weapons

MSCI ESG Research

- Established in 2010 following the acquisition of RiskMetrics Group, based on the legacy of IRRC (1972), KLD (1988) and Innovest (1998)
- Conducted comprehensive weapons research since 1995
- Staff of 120, including >80 research and data analysts
- Provides ESG research, ratings, screening and compliance data to more than 500 asset managers and asset owners worldwide
- Supplies the research and data for the MSCI ESG Indices

Summary of Proposed Index Methodology

- Screening issues
 - Cluster bombs
 - Landmines
 - Depleted uranium weapons
 - Chemical and biological weapons
- Involvement criteria
 - Producers of the weapons
 - Producers of key components of the weapons
 - Ownership of 20% or more of a weapons or components producer
 - Owned 50% or more by a company involved in weapons or components production
- Revenue limits: Any identifiable revenues, i.e. zero tolerance
- MSCI ACWI would be the basis of the MSCI ACWI ex Controversial Weapons Index
 - Except for the controversial weapons screening, the proposed index would be maintained following the standard methodology for MSCI ACWI

Weapons Research Process

- Annual updates
 - MSCI ESG Research updates the information on all weapons companies in its reports annually
- Monthly monitoring
 - MSCI ESG Research monitors various sources for additions to and deletions from its weapons research list each month
- Monthly maintenance
 - The weapons research universe is updated monthly through the tracking and processing of corporate events, including name changes, divestments, mergers and acquisitions, delistings, IPOs, and other corporate actions

Impact of Exclusions relative to MSCI ACWI

Excluded Market Cap by Country

	Market Cap	Nb of Sec	% of Market Cap
US	91,704	6	0.31%
GB	18,631	1	0.06%
IN	10,276	2	0.03%
SG	3,730	1	0.01%
JP	3,170	1	0.01%
KR	1,911	1	0.01%
	129,422	12	0.44%

Note: Data as of May 20, 2010 based on the pro forma MSCI ACWI as of June 1, 2011. All M caps in USD million

Excluded Market Cap by Sector

	Market Cap	Nb of Sec	% of Market Cap
Industrials	124,837	10	0.42%
Utilities	2,674	1	0.01%
Materials	1,911	1	0.01%
	129,422	12	0.44%

Note: Data as of May 20, 2010 based on the pro forma MSCI ACWI as of June 1, 2011. All M caps in USD million

Excluded Market Cap by Controversial Weapon

	Market Cap	Nb of Sec	% of Market Cap
Cluster Bombs	129,422	12	0.44%
Depleted Uranium	23,136	1	0.08%
Landmines	10,928	3	0.04%
Chemical and Biological Weapons	9,454	1	0.03%

Note: Data as of May 20, 2010 based on the pro forma MSCI ACWI as of June 1, 2011. All M caps in USD million. Companies may be included in several categories.

- 0.44% of the market capitalization of MSCI ACWI, corresponding to USD 129 billion, would be excluded due to companies' involvement in controversial weapons

II. Proposed Screens Methodology

Controversial Weapons: Involvement Criteria

- MSCI proposes excluding publicly traded companies involved in the following **weapons or key component production**:
 - Cluster Bombs
 - MSCI's cluster bomb research identifies all public companies that are involved in the production of cluster bombs and munitions, or the essential components of these products.
 - Landmines
 - MSCI's landmines research identifies all public companies that are involved in the production of anti-personnel landmines, anti-vehicle landmines, or the essential components of these products. In addition, as a positive component of this screen, MSCI identifies companies that manufacture landmine deactivation and clearance equipment on an "as discovered" basis.
 - Depleted Uranium Weapons
 - MSCI's depleted uranium weapons research identifies all public companies involved in the production of depleted uranium weapons, ammunition, and armor. Depleted uranium is a by-product of the uranium-enrichment process used to make nuclear weapons and nuclear-reactor fuel.
 - Chemical and Biological Weapons
 - MSCI's chemical and biological weapons research identifies all public companies that are involved in the production of chemical and biological weapons, or the essential components of these products.

Controversial Weapons: Revenue Limits & Ownership Criteria

- MSCI proposes using a “zero tolerance” standard to exclude companies involved in controversial weapons or components production.
 - Using this standard, all companies with identifiable revenues tied to controversial weapons or components production would be excluded from the index.
- **Ownership of a Controversial Weapons Company**
 - Companies that own 20% or more of a company that manufactures controversial weapons or key components of controversial weapons
 - The minimum limit is raised to 50% for financial companies having an ownership in a company that manufactures controversial weapons or key components of controversial weapons
- **Ownership by a Controversial Weapons Company**
 - Companies that are 50% or more owned by a company involved in controversial weapons production or key components production

Cluster Bombs – Types and components

- **Incendiary cluster bombs** are intended to start fires using white phosphorus or napalm. They contain submunitions of either white phosphorus or napalm and often include anti-personnel and anti-tank submunitions to hamper firefighting efforts.
- **Anti-personnel cluster bombs** use explosive fragments to kill troops or destroy unarmored or "soft" targets.
- **Anti-tank cluster bombs** have explosive warheads in order to pierce through vehicle armor. Some may use guidance systems in order to increase the accuracy of hitting vehicles.
- **Anti-runway cluster bombs** are designed to shatter runway surfaces or create craters. Anti-runway cluster submunitions are often mixed with anti-personnel and anti-vehicle submunitions to delay repairs on the runways.
- **Chemical cluster bombs** are designed to carry chemical weapons as submunitions. The 1993 Chemical Weapons Convention banned the use of such weapons. Six nations, including the U.S. and Russia, declared themselves to be in possession of chemical weapons. The U.S. and Russia are currently in the process of destroying their stockpiles, although they have been given extensions.
- **Mine-laying cluster bombs** designed to disperse conventional land mines. This refers to the dispersal mechanism itself, not the platform involved in firing the cluster bomb.

Landmines – Types and components

- All types of **anti-personnel landmines**
- All types of **anti-vehicle landmines**
- **Components of landmines** including, but not limited to:
 - Tilt-rod fuses consist of a vertical pole connected to the top of a landmine. When a vehicle passes over the mine, the rod tilts and activates the detonation. The delay allows the vehicle to continue over the mine before detonating, exposing more of it to the blast.
 - Pressure sensitive fuses activate the mine as soon as certain pressure is exerted over a point/area. The International Committee of the Red Cross recommends 150 kg as the minimum pressure threshold.
 - Magnetic fuses activate mines by the presence of metallic objects and change in magnetic field around the mine.
 - Landmine clearing equipment includes, but is not limited to:
 - Metal detectors specifically geared towards finding buried mines;
 - Mine rollers or mine flails; and,
 - Mine clearing vehicles such as mine plows and demining bulldozers.

Depleted Uranium Weapons – Types and components

■ Depleted Uranium Ammunition

- Companies that manufacture depleted uranium penetrators for Kinetic Energy Missiles
- Companies that manufacture DU ammunition, including armor piercing, fin stabilized, discarding sabot tracer rounds (APFSDS-T) and Kinetic Energy Missiles made with DU penetrators

■ Depleted Uranium Armor

- Companies that manufacture DU-enhanced tank armor, including composite tank armor

■ The Depleted Uranium weapons category does not include:

- Companies that own/operate nuclear fuel enrichment or fabrication facilities
- DU ammunition delivery platforms, such as tanks and guns
- Kinetic Energy Missiles made with tungsten penetrators

Chemical and Biological Weapons – Types and components

- **Chemical and Biological Weapons Systems** – Companies that manufacture biological or chemical weapons, which are defined as weapons that use pathogens such as viruses, bacteria, and disease-causing biological agents, toxins, or chemical substances that have toxic properties that kill, injure, or incapacitate. This category includes, but is not limited to:
 1. Diseases or biological agents used in biological weapons such as anthrax, Ebola, Marburg virus, tularemia, brucellosis, Q fever, Bolivian hemorrhagic fever, smallpox, coccidioides mycosis, glanders, melioidosis, shigella, psittacosis, and Japanese B encephalitis;
 2. Toxins or agents used in biological or chemical weapons such as ricin, SEB, botulism toxin, saxitoxin, and mycotoxins; and
 3. Chemical weapon agents (CWA), such as:
 - I. Blood agents, including cyanogens chloride and hydrogen cyanide;
 - II. Blister agents, including ethyldichloroarsine, sulfur and nitrogen mustard gas, and methyldichloroarsine;
 - III. Nerve agents, including tabun (GA), sarin (GB), soman, and cyclosarin;
 - IV. Pulmonary agents, including chlorine, chloropicrin, and phosgene;
 - V. Incapacitating agents, including Agent 15, EA-3167, and Kolokol-1; and
 - VI. Other lethal agents.
- **Chemical and Biological Weapons Components** – Companies that manufacture critical components for chemical or biological weapons systems.

III. Proposed Index Methodology

Proposed Index Methodology

- The Indices would be derived from MSCI ACWI by excluding index constituents that are involved in controversial weapons.
 - Constituents included in the indices would be float market capitalization weighted and would have the same security level data (e.g., number of shares, inclusion factors) as in MSCI ACWI.
- The Indices would be reviewed on a quarterly basis coinciding with the regular Index Reviews of the MSCI Global Investable Market Indices. The changes would be effective at the open of the first business day of March, June, September and December unless otherwise specified by MSCI.
- The MSCI Corporate Events Methodology would be applied for the maintenance of the index between Index Reviews. New additions to MSCI ACWI due to corporate events would not be added simultaneously to the Index, but would be considered for inclusion at the following Index Review. However, companies deleted from MSCI ACWI between Index Reviews would also be deleted at the same time from the Index.

Proposed Screening Process

- The research would be conducted by MSCI ESG Research, based on the earlier definitions of cluster bombs, landmines, depleted uranium weapons, and chemical and biological weapons.
- The eligibility of securities composing the Index would be reviewed on a quarterly basis, and resulting changes in the composition of the Indices would be implemented at the time of the regular MSCI Index Reviews.
- The eligibility of the securities would not be re-assessed in between regular reviews.

Appendix

List of Excluded Companies

Company	Country	Sector	Market Cap	Involvement			
				Cluster Bombs	Landmines	Chem & Bio Weapons	Depleted Uranium
Lockheed Martin Corp	US	Industrials	23,716	1			
General Dynamics Corp	US	Industrials	23,136	1			1
BAE Systems	GB	Industrials	18,631	1			
Raytheon	US	Industrials	17,787	1			
Goodrich Corp	US	Industrials	11,268	1			
L-3 Communications Hldgs	US	Industrials	9,454	1		1	
Larsen & Toubro	IN	Industrials	7,602	1			
Textron	US	Industrials	6,343	1	1		
Singapore Tech Engr.	SG	Industrials	3,730	1			
Ihi Corp	JP	Industrials	3,170	1			
Tata Power Co	IN	Utilities	2,674	1	1		
Hanwha Corp	KR	Materials	1,911	1	1		

Note: Data as of May 20, 2010 based on the pro forma MSCI ACWI as of June 1, 2011. All M caps in USD million

Data as of Nov 18, 2010

Background – Cluster Bombs

Cluster munitions consist of a hollow shell or canister that contains at least three smaller submunitions or bomblets and are either launched from the ground or are dropped from aircraft (cluster bomb). Some of these shells are simply distributors that drop their bomblets from the air, but stay with the aircraft. Cluster munitions come in anti-personnel, anti-runway, anti-armor, and mine-scattering varieties and many contain a mixture of these submunitions. The nature of the munitions is to scatter its contents across a wide area or "footprint". This lack of focus translates into higher enemy casualties, but also higher civilian casualties. Roughly 10,000 civilians have been maimed or killed by cluster munitions, according to those who have registered with Handicap International.

There has been some effort to minimize civilian casualties from cluster munitions, such as painting the submunitions in bright colors so they cannot be missed. Some submunitions are "smart" and use guidance circuitry to locate and attack particular targets, such as armored vehicles; these include the U.S. CBU-97 sensor-fused weapon. In addition, the U.S. military has been working on developing submunitions that diffuse within four to 48 hours, with a battery life of 14 days maximum.

This definition is based on the Convention on Cluster Munitions, which prohibits all cluster munitions. The definitional clause under Article 2(c) excludes from the category of "cluster munitions," weapons that employ submunitions but which should not have the humanitarian effects of cluster munitions. As discussed in the briefing paper published by the Cluster Muniton Coalition (CMC) on the Convention, "In order to be permitted, a weapon should not create indiscriminate area effects and unexploded ordnance risks and must meet a cumulative series of five technical characteristics. These include the capacity for each sub-munition to individually seek out and engage a single target such as a vehicle; minimum weight and maximum number of submunitions criteria; electronic self-destruction mechanisms; and, electronic self-deactivating features." (CMC, 2009)

Background – Landmines

Landmines are self-contained explosive devices that are either buried or laid on the ground, and explode when triggered by an operator or by pressure, movement, sound, magnetism, vibration, or tripwire. Landmines are typically laid in one of two ways: they are either carefully planted individually, which takes more time, but allows for more effective concealment, or they are scattered from the air by artillery fire or aircraft through the means of cluster munitions or cruise missiles.

There are two types of landmines:

1. **Anti-personnel landmines (APLs)** are aerial denial weapons designed to be initiated by the presence, proximity, or contact of a person or persons, causing death or injury. APLs usually employ pressure or tripwire devices, and are often intended to maim rather than kill, since this increases the enemy's logistical burden of having to remove the injured. Many mines also employ technology that prevent their removal or defusing, such as a touch or tilt trigger, and are made with plastic shells rather than metal ones, as they are cheaper and more difficult to detect for clearance.

According to Landmine Monitor, an organization that provides information and monitors progress in eliminating landmines, cluster munitions, and other explosive remnants, the new landmines in development could have different ways of being initiated, including command-detonation (that is, when a soldier decides when to explode the mine, sometimes called "man-in-the-loop" or "soldier-in-the-loop") and traditional victim-activation. Victim-activated anti-personnel landmines are incompatible with the Mine Ban Treaty. U.S. officials have noted that self-destruct features will limit the time that landmines will be in a victim-activated mode.

- **MATRIX:** One of the new U.S. mine systems is called Matrix. Matrix is a soldier-in-the-loop system that is designed to allow an operator equipped with a laptop computer to remotely detonate lethal and non-lethal Claymore mines by radio signal from a distance. Matrix is an adaptation of the technology developed under the Spider program (see below), modified in order to get it deployed in the field rapidly. According to the Director of the U.S. Department of State for the Bureau of Political-Military Affairs, Office of Weapons Removal and Abatement, Matrix is a command and control system rather than a landmine.
- **SPIDER:** Spider is an aerial denial munition with operator command and control capabilities. The Spider system's control unit monitors unattended munitions that deploy a web of tripwires across an area. Once a combatant touches a tripwire, a man-in-the-loop control system allows the operator to activate the munition with either lethal (e.g. M18 Claymore mines, etc.) or non-lethal effects (e.g. rubber pellets, etc.).

Background – Landmines

- 2. Anti-vehicle landmines (AVLs):** aerial denial weapons designed to be initiated by a heavy vehicle and thereby destroy or immobilize it. AVLs are relatively large (between twenty to thirty-five pounds) and often require hundreds to thousands of pounds of pressure to trigger detonation.

AVLs are not restricted under the Ottawa Convention. However, certain types of AVLs such as those equipped with anti-handling devices (AHD) are considered de facto APLs. These are equipped with sensitive triggering mechanisms intended to injure personnel that attempt to tamper them. Some sensitive fuses integrated into AVLs include: tilt-rod, pressure sensitive, and magnetic.

- **Volcano:** Volcano anti-vehicle mines appear to be compatible with the Mine Ban Treaty. Previous versions of the Volcano were produced as mixed systems, packaging anti-personnel and anti-vehicle mines together, but the Pentagon developed a strictly anti-vehicle version in order to comply with the one-year anti-personnel landmine use moratorium scheduled to take effect in February 1999, but subsequently annulled. Landmine Monitor reported that "191,000 M87A1 Volcano anti-vehicle mines were produced in the United States between 1996 and 2004," and "an additional 2,000 canisters, each containing six anti-vehicle mines, are currently being produced at the Lone Star Army Ammunition Plant in Texarkana, Texas, which is a government-owned facility operated by the Day and Zimmerman Company (private)."
- **Claymore:** Claymore mines are among the most common types of mines. When used in command-detonated mode, as opposed to victim-activated mode, they are compatible with the Mine Ban Treaty. Landmine Monitor 2005 reported, "In February 2004, the Pentagon requested USD 20.2 million to produce 40,000 M18A1E1 Claymore mines. Mohawk Electrical Systems, Inc., in Milford, Delaware, is scheduled to produce the munitions between June 2005 and March 2006. The M18A1E1 will incorporate a new triggering system that does not rely on either the victim-activated mechanical tripwire fuse or the command-detonated electrical initiation provided with the M18A1. Instead, the Claymores will be command detonated by a new generation of modernized demolition initiators that use explosives to trigger the mine." Mohawk Electrical Systems, Inc. is a privately held company.

Background – Landmines

Some examples of landmines are listed in the table below.

AVM Type	Sensitive Fuses	Origin
PD-Mi-PK	Tripwires	Ch Rep
MIAACAH F1	Breakwires	France
MIAACAH F2	Breakwires	France
TM-57	Tilt Rods (MVSh-57)	Mali
UKA 63	Tilt Rods	Hungary
PT-Mi	Tilt Rods	Ch Rep
PT-Mi-U	Tilt Rods	Ch Rep
PT-Mi-p	Tilt Rods	Ch Rep
AT2	Scratch Wires	
Barmine System	Full Width Attack Mine fuse (Scratch Wires)	UK and Denmark
PT-Mi-D1 M	Scratch Wires	Ch Rep
M87A1 Volcano	Magnetic Influence	US
L35A1 Shielder	Magnetic Influence	UK
FFV-028 (DM-31)	Magnetic Influence	Canada
MIFF	Magnetic Influence	Germany
HPD F2	Magnetic Influence	France
HPD F3	Magnetic Influence	France
Disp F1	Magnetic Influence	France
MUSPA	Acoustic and Seismic	Germany

Background – Landmines

At present, few countries or companies are actively involved in the production of landmines. As of 2009, 156 countries had signed or acceded to the 1997 Mine Ban Treaty, which prohibits the use, manufacture, and export of anti-personnel landmines. Forty countries have not signed the treaty. According to Landmine Monitor 2009, the following thirteen countries that have not signed the 1997 Mine Ban Treaty are involved in landmine production, either currently producing or having reserved the right to produce in the future.

- Burma
- China
- Cuba
- India
- Iran
- Nepal
- North Korea
- Pakistan
- Russia
- Singapore
- South Korea
- United States
- Vietnam

Only the U.S., South Korea, and Singapore appear to purchase landmines from private industry. The remaining countries rely on state-owned manufacturing facilities. Landmine Monitor 2009 reported that in the most current reporting period (since May 2008), there was confirmed use of anti-personnel mines by two governments (Burma and Russia).

Background – Depleted Uranium Weapons

Depleted uranium (DU) is a byproduct of the nuclear fuel cycle, primarily consisting of the U-238 isotope, that is used in ammunition and tank armor due to its high density. DU is used in the class of weapons known as kinetic energy penetrators and in tank armor.

The use of DU on the battlefield is controversial due to long-term toxicity and radiation hazards. Upon combustion of a DU missile or DU armored tank, DU particles disseminate over a wide area and potentially affect civilians and military personnel through inhalation. If inhaled, the radioactive particles lodge in the lungs and are allegedly carcinogenic. Additionally, DU is a toxic metal that can contaminate water and food sources. Studies have indicated that exposure to DU in this manner can lead to the development of various types of cancers and birth defects.

Background – Chemical and Biological Weapons

Chemical and biological weapons are designed to kill, injure, or incapacitate enemy targets, or deny unrestricted use of a particular area. Together with nuclear weapons, these three form the pillars of NBC warfare or nuclear, biological, and chemical warfare. They are classified as weapons of mass destruction (WMD) along with landmines and cluster bombs. WMDs can kill, injure, incapacitate, and significantly harm large numbers of humans and other life forms and/or cause significant damage to man-made structures, natural structures, and the biosphere. Because of the indiscriminate impact of WMDs to civilian lives and public infrastructure, its development and use are governed by international conventions and treaties.

The Geneva Protocol of 1925, also called Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or other Gases, and of Bacteriological Methods of Warfare, is the first arms control agreement prohibiting the use of chemical and biological weapons.

Chemical weapons use chemical agents and substances, the most dangerous have been identified to be nerve and blister agents. The scope of these chemical weapons includes toxic chemicals and their precursors, munitions and devices that use toxic chemicals, and any equipment that are used with the specified munitions and devices. There have been approximately 70 different chemicals used or stockpiled as chemical warfare agents during the 20th century. The entire class, known as Lethal Unitary Chemical Agents and Munitions, has been identified for elimination by the Chemical Weapons Convention of 1993 (CWC).

The CWC aims for the general and complete disarmament, under international control, of all types of chemical weapons. State Parties that have ratified are prohibited to use, develop, produce, acquire, stockpile, and transfer chemical weapons. State Parties are also obliged to destroy all chemical weapons stockpiles and production facilities on its territory. As of May 2009, there were 188 State Parties to the convention including two signatories (i.e. Israel and Myanmar) that have not yet ratified it. There are also five states that have neither signed nor agreed to it, namely Angola, Egypt, North Korea, Somalia, and Syria.

Background – Chemical and Biological Weapons

Biological weapons use disease-causing organisms or toxins, which reproduce or replicate within their host victims. Toxins are defined as any toxic substance that can be produced by an animal, plant, or microbe. There is an overlap between biological warfare and chemical warfare, because the use of toxins produced by living organisms is considered under the provisions of both the CWC and the Biological Weapons Convention of 1972 (BWC).

The BWC bans the development, production, stockpiling, acquisition, and retention of biological agents and toxins that have no justification for preventive, protective, or other peaceful purposes. The convention also bans weapons equipment and other means of delivery used for bacteriological agents in hostile purposes during armed conflicts. The Convention's general criterion states that the objects themselves (biological agents or toxins) are not prohibited; only their purpose. Also, each State Party must comply with the Convention's requirement to destroy or divert into peaceful purposes all agents, toxins, weapons, equipment, and means of delivery no later than nine months upon entry into the Convention. State Parties are also required to execute national measures that would prohibit the misuse of the bacteriological and toxin weapons within their territories. As of July 2008, 176 states had signed the BWC, 163 of which have ratified or acceded.

Treaties and Conventions – Cluster Munitions and Landmines

- Cluster Munitions

The **Convention on Cluster Munitions** (CCM) prohibits all use, stockpiling, production and transfer of Cluster Munitions. Separate articles in the Convention concern assistance to victims, clearance of contaminated areas and destruction of stockpiles. The Convention was adopted in Dublin by 107 states on 30 May 2008 and signed on 3 December the same year. The Convention became binding international law for the States Parties when it entered into force on 1 August 2010. <http://www.clusterconvention.org/index.php>

- Landmines

The Ottawa Treaty or the **Mine Ban Treaty**, formally the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction, completely bans all anti-personnel landmines (AP-mines). As of April 2010, there were 156 States Parties to the treaty. Two states have signed but not yet ratified while thirty-seven states are non-signatories to the Convention, making a total of 39 states not party. Besides stopping the production and development of anti-personnel mines, a party to the treaty must destroy all the anti-personnel mines in its possession within four years. Just a small number of mines is allowed to remain for training (mine-clearance, -detection, etc.). Within ten years after signing the treaty, the country should have cleared all of its mined areas. http://www.un.org/Depts/mine/UNDocs/ban_trty.htm

Treaties and Conventions – Chemical Weapons

- Chemical Weapons

The Chemical Weapons Convention (CWC) prohibits all development, production, acquisition, stockpiling, transfer, and use of chemical weapons...The verification provisions of the CWC not only affect the military sector but also the civilian chemical industry, world-wide, through certain restrictions and obligations regarding the production, processing and consumption of chemicals that are considered relevant to the objectives of the Convention.

<http://www.un.org/Depts/dda/WMD/cwc/>

Treaties and Conventions – Biological Weapons

- Biological Weapons

The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction (more commonly known as the Biological and Toxin Weapons Convention (BTWC)) was simultaneously opened for signature in Moscow, Washington and London on 10 April 1972.

The Convention bans the development, production, stockpiling, acquisition and retention of microbial or other biological agents or toxins, in types and in quantities that have no justification for prophylactic, protective or other peaceful purposes. It also bans weapons, equipment or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict. The actual use of biological weapons is prohibited by the 1925 Geneva Protocol and Article VIII of the BTWC recognizes that nothing contained in the Convention shall be construed as a derogation from the obligations contained in the Geneva Protocol. As of November 2001, 162 states had signed the BTWC and 144 of these had ratified it. <http://www.opbw.org/>

Treaties and Conventions – Depleted Uranium Weapons

- Depleted Uranium Weapons

While depleted uranium weapons are not prohibited by international treaty, the use of weapons that cause indiscriminate suffering and widespread, long-term damage to civilians and the natural environment are prohibited by the general principles of International Humanitarian Law and the Geneva Conventions.

Additionally, countries have begun addressing the issue of depleted uranium through domestic legislation. In 2007, Belgium passed a law banning the use of depleted uranium in all conventional ammunition and armor. Costa Rica followed Belgium's example in April 2011, passing a law that prohibits the use, trade, transit, production, distribution, and storage of uranium weapons in the country. Two other countries, Ireland and New Zealand, have bills on the same topic.

Belgian Law [C 2007/- 07156] N. 2007 —2588 MAY, 11, 2007. - Law enabling the completion of the conventional arms law, with regard to the prohibition of weapons systems containing depleted uranium

<http://www.bandepleteduranium.org/en/docs/69.pdf>

Costa Rican Amendment <http://www.bandepleteduranium.org/en/docs/162.pdf>

Ireland [No. 48a of 2009] PROHIBITION OF DEPLETED URANIUM WEAPONS BILL 2009

<http://www.bandepleteduranium.org/en/docs/154.pdf>

New Zealand Depleted Uranium (Prohibition) Bill <http://www.bandepleteduranium.org/en/docs/119.pdf>

Sources

Research Process

In order to confirm a company's involvement in an issue, MSCI uses a wide range of information tools and sources, including:

- Proprietary web-crawling technology
- Company websites
- Annual Reports, 10-ks, etc
- LexisNexis
- Business directories
- NGO reports
- Government agencies
- Financial data providers
- Company engagement (as necessary)
- Additional sources specific to military weapons:
 - Jane's Information Group
 - Eagle Eye (U.S. Government contracts related to weapons production)

The annual update process involves confirming involvement and updating all companies with the most recent fiscal year revenue information, as well as conducting a systematic new company search.

On a monthly basis, relevant corporate actions, IPOs, name changes, and other corporate activities are monitored and companies are updated where necessary. In addition, news feeds and financial data are actively monitored to ensure companies entering and exiting controversial business areas are captured and documented.

MSCI 24 Hour Global Client Service

Americas

Americas	1.888.588.4567 (toll free)
Atlanta	+1.404.551.3212
Boston	+1.617.532.0920
Chicago	+1.312.706.4999
Monterrey	+52.81.1253.4020
Montreal	+1.514.847.7506
New York	+1.212.804.3901
San Francisco	+1.415.836.8800
São Paulo	+55.11.3706.1360
Stamford	+1.203.325.5630
Toronto	+1.416.628.1007

Europe, Middle East & Africa

Amsterdam	+31.20.462.1382
Cape Town	+27.21.673.0100
Frankfurt	+49.69.133.859.00
Geneva	+41.22.817.9777
London	+44.20.7618.2222
Madrid	+34.91.700.7275
Milan	+39.02.5849.0415
Paris	0800.91.59.17 (toll free)
Zurich	+41.44.220.9300

Asia Pacific

China North	10800.852.1032 (toll free)
China South	10800.152.1032 (toll free)
Hong Kong	+852.2844.9333
Seoul	+827.07688.8984
Singapore	800.852.3749 (toll free)
Sydney	+61.2.9033.9333
Tokyo	+81.3.5226.8222

clientservice@msci.com

www.msci.com | www.riskmetrics.com

Barra Knowledge Base – Online Answers to Barra Questions: www.barra.com/support

Notice and Disclaimer

- This document and all of the information contained in it, including without limitation all text, data, graphs, charts (collectively, the “Information”) is the property of MSCI Inc. or its subsidiaries (collectively, “MSCI”), or MSCI’s licensors, direct or indirect suppliers or any third party involved in making or compiling any Information (collectively, with MSCI, the “Information Contributors”) and is provided for informational purposes only. The Information may not be reproduced or disseminated in whole or in part without prior written permission from MSCI.
- The Information may not be used to create derivative works or to verify or correct other data or information. For example (but without limitation), the Information may not be used to create indices, databases, risk models, analytics, software, or in connection with the issuing, offering, sponsoring, managing or marketing of any securities, portfolios, financial products or other investment vehicles utilizing or based on, linked to, tracking or otherwise derived from the Information or any other MSCI data, information, products or services.
- The user of the Information assumes the entire risk of any use it may make or permit to be made of the Information. NONE OF THE INFORMATION CONTRIBUTORS MAKES ANY EXPRESS OR IMPLIED WARRANTIES OR REPRESENTATIONS WITH RESPECT TO THE INFORMATION (OR THE RESULTS TO BE OBTAINED BY THE USE THEREOF), AND TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, EACH INFORMATION CONTRIBUTOR EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES (INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF ORIGINALITY, ACCURACY, TIMELINESS, NON-INFRINGEMENT, COMPLETENESS, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) WITH RESPECT TO ANY OF THE INFORMATION.
- Without limiting any of the foregoing and to the maximum extent permitted by applicable law, in no event shall any Information Contributor have any liability regarding any of the Information for any direct, indirect, special, punitive, consequential (including lost profits) or any other damages even if notified of the possibility of such damages. The foregoing shall not exclude or limit any liability that may not by applicable law be excluded or limited, including without limitation (as applicable), any liability for death or personal injury to the extent that such injury results from the negligence or willful default of itself, its servants, agents or sub-contractors.
- Information containing any historical information, data or analysis should not be taken as an indication or guarantee of any future performance, analysis, forecast or prediction.
- None of the Information constitutes an offer to sell (or a solicitation of an offer to buy), any security, financial product or other investment vehicle or any trading strategy.
- MSCI’s indirect wholly-owned subsidiary Institutional Shareholder Services, Inc. (“ISS”) is a Registered Investment Adviser under the Investment Advisers Act of 1940. Except with respect to any applicable products or services from ISS (including applicable products or services from MSCI ESG Research Information which are provided by ISS), none of MSCI’s products or services recommends, endorses, approves or otherwise expresses any opinion regarding any issuer, securities, financial products or instruments or trading strategies and none of MSCI’s products or services is intended to constitute investment advice or a recommendation to make (or refrain from making) any kind of investment decision and may not be relied on as such.
- The MSCI ESG Indices use ratings and other data, analysis and information from MSCI ESG Research. MSCI ESG Research is produced by Institutional Shareholder Services Inc. (an indirect, wholly-owned subsidiary of MSCI and referred to as “ISS”) or its subsidiaries. Issuers mentioned or included in any MSCI ESG Research materials may be a client of MSCI, ISS, or another MSCI subsidiary, or the parent of, or affiliated with, a client of MSCI, ISS, or another MSCI subsidiary, including ISS Corporate Services, Inc. which provides tools and services to issuers. MSCI ESG Research materials utilized in any MSCI indices or other products have not been submitted to, nor received approval from, the United States Securities and Exchange Commission or any other regulatory body.
- Any use of or access to products, services or information of MSCI requires a license from MSCI. MSCI, Barra, RiskMetrics, ISS, CFRA, FEA, and other MSCI brands and product names are the trademarks, registered trademarks, or service marks of MSCI or its subsidiaries in the United States and other jurisdictions. The Global Industry Classification Standard (GICS) was developed by and is the exclusive property of MSCI and Standard & Poor’s. “Global Industry Classification Standard (GICS)” is a service mark of MSCI and Standard & Poor’s.

© 2011 MSCI Inc. All rights reserved.