

## CBRN terrorism: threats and the EU response

### SUMMARY

Chemical, biological, radiological and nuclear (CBRN) terrorism is a form of terrorism involving the use of weapons of mass destruction (WMD).

Following 11th September 2001, the international community came to believe there was a high probability that terrorists would make use of such weapons.

The growing number of people familiar with CBRN warfare techniques and the spread of scientific knowledge, coupled with poor security of relevant facilities, could facilitate terrorists in getting hold of CBRN weapons. Terrorist groups have already shown interest in acquiring them.

However, so far, there have been very few successful CBRN attacks and the number of casualties remains relatively low. This is partly due to the fact that obtaining or creating WMD is challenging, while conventional weapons can be more easily acquired.

The international community has reacted to CBRN threats through a series of instruments, most of them under the aegis of the UN. The EU has also been gradually building its counter-terrorism capacity. The 2010 CBRN Action Plan – the core element of the Commission's new policy package – has been extensively commented on by the European Parliament.

*This is an updated version of a [briefing](#) published in February 2011.*



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There is no universally agreed definition of **terrorism**, partly due to the fact that the term is politically and emotionally charged. The common element in existing definitions is the use of violence, or the threat of violence, driven by political, social or religious motives. Perpetrators also have an interest in producing psychological effects far beyond the attack's immediate victims.<sup>1</sup>

**CBRN terrorism** involves the use of unconventional weapons referred to as 'weapons of mass destruction' (**WMD**). The latter term can be misleading as the definition of WMD has evolved to include any mine, bomb, or device that releases chemicals, biological organisms, or radiation in sufficient quantity to cause loss of life,<sup>2</sup> but not necessarily mass destruction. It is the substance released, rather than the scale of the effect, that is important. However, high-grade WMD could kill thousands of people and cause long-lasting contamination of vast areas. Their use by terrorists would potentially have a profound psychological impact on the public and lead to serious economic and political instability.

#### The aftermath of 11th September

11th September was a turning point in the global perception of terrorist capabilities. Even though those attacks did not involve the use of WMD, the vision of a CBRN terrorist incident has, since then, been considered by the international community as an imminent threat. The 'anthrax letters' attacks, which happened shortly after, as well as the 2004 Madrid and 2005 London attacks have solidified this outlook. In 2008 the 9/11 Commission established by the US Congress claimed that it was 'more likely than not that a weapon of mass destruction (would) be used in a terrorist attack somewhere in the world by the end of 2013'.<sup>3</sup> At that time, some commentators estimated the likelihood of a nuclear terrorist attack happening within ten years at 50%.<sup>4</sup>

This belief in a quasi-inevitable CBRN terrorist attack is shared by European policy-makers. It has led to the adoption of a variety of international and EU counter-terrorism initiatives and measures.

#### The history of WMD use

WMD were initially developed for military use. For example, chemical agents were widely used in Europe during World War I and plague was used by the Japanese against China during World War II.

The most significant chemical terrorism incident was the 1995 [sarin gas attack](#) on the Tokyo underground, by Aum Shinrikyo sect. The attack resulted in 13 fatalities and about 6 300 casualties.

As far as bioterrorism is concerned, there have been three confirmed incidents which had or were designed to have a large-scale impact:

- The 1984 contamination of food in local restaurants with salmonella by the Rajneesh cult in Oregon; led to no fatalities but 751 casualties, 45 of whom were hospitalised.

#### CBRN weapons

**Chemical weapons** make use of chemical nerve agents (e.g. sarin), blister agents (sulphur mustard) and choking agents (chlorine). The definition does not cover riot control agents or herbicides.

**Biological weapons** release or disseminate biological agents, such as bacteria (e.g. anthrax, plague or salmonella), viruses (smallpox), or toxins (botulinum toxin).

**Radiological weapons**, also known as radiological dispersion devices, injure or kill by spreading radioactive material. They include so called 'dirty bombs' which do so using conventional explosives.

**Nuclear weapons** derive their destructive power from nuclear reactions.

- Unsuccessful attempts in 1990-1995 to use botulinum toxin and anthrax, by the Aum Shinrikyo sect in Tokyo.
- The 2001 '[Anthrax letters attacks](#)', when letters containing dry-powder anthrax spores were sent to two US Senators and several media offices. 22 people contracted anthrax and five of them died. This incident – attributed to the biological weapons researcher Bruce Ivins – was the only bioterrorism attack involving pathogens of very high quality.<sup>5</sup>

No similar cases of radiological or nuclear terrorism have been reported.

### Is the threat real?

#### The availability of WMD and related expertise

##### *Biological weapons*

During the Cold War, extensive bioweapons programmes were developed in the US and the Soviet Union. An estimated 25 000 to 60 000 people worked for state-sponsored programmes of this kind in the Soviet Union.<sup>6</sup> There is a risk of these scientists being recruited by states suspected of developing 'aggressive' bioweapons programmes prohibited by international law, or by terrorist organisations. The US and some EU Member States have made efforts to guard against such recruitment. In particular, they have set up cooperative research programmes with these scientists and facilities. However, the risk is still present and cases of Iran and Al-Qaeda approaching Russian scientists have been reported.

Moreover, **national biodefence programmes**, which are not banned by international law, have been rapidly expanding in the last decade, with a growing number of people having access to biowarfare knowledge.

Finally, as a result of **scientific advances in biotechnology**, the civilian use of dangerous pathogens has become more widespread. At the same time, the security level of civilian research facilities does not match that of military ones.

##### *Chemical weapons*

The stockpiles of chemical weapons existing since World War II may be insufficiently controlled in some countries.<sup>7</sup> Furthermore, there is a whole range of so-called dual-use chemicals – destined for civilian use – that could be converted for terrorist purposes.

##### *Nuclear weapons*

In 2007 at least 25 000 nuclear weapons, as well as 1 400-2 000 tonnes of highly enriched uranium and plutonium capable of producing another 200 000 weapons were known to exist worldwide.<sup>8</sup>

Nuclear weapons are held not only by the five permanent members of the UN Security Council, but also by India, Israel, Pakistan, and North Korea. The nuclear material is spread through 40 different countries, while 36 countries possess enough material to construct a nuclear device. Iran is suspected of intending to divert its civilian nuclear technology to a weapons programme. In such a global nuclear market there is a risk of further proliferation of nuclear weapons.

Two other factors are also considered to make a nuclear terrorism incident likely:

- inadequate security conditions for storing nuclear weapons and fissile materials in Russia and Pakistan, and fissile materials in civilian reactors all over the world.
- the fact that a nuclear weapon can be made with relative ease.

*Terrorists in pursuit of WMD*

Some experts confirm that the threat of a CBRN attack comes mainly from Islamist organisations, such as Al-Qaeda. Firstly, they have already tried to acquire nuclear weapons and have sought contact with Russian biodefence specialists. Secondly, the characteristics of these organisations, including experience and international connections, allegedly make them more likely to search for and make use of WMD. Numbers are quoted in support of this hypothesis: whereas between 1998 and 2005 Islamist organisations represented just over 27% of terrorist organisations analysed, they represented more than 60% of those which have pursued CBRN materials or used them as weapons.<sup>9</sup>

**Technical hurdles**

Despite the above-mentioned vulnerabilities, experts seem to agree that at present terrorist groups are not capable of acquiring and deploying a mass-casualty **biological weapon**, and are unlikely to develop this capability in the near future.<sup>10</sup>

Some of them argue that the process of turning a bacterium or a virus into a weapon is technically very difficult. Therefore even if a bioterrorism attack happens, it is likely to use a 'sub-optimal' pathogen disseminated through crude delivery methods and therefore have only limited impact.<sup>11</sup>

As to **nuclear** or **dirty bombs**, it is argued that they can be made with relative ease. However, at present terrorists are not able to produce fissile material. They have no other choice than to acquire it or steal it from state sources, which raises the chance of interception by law enforcement agencies.

In this context, most experts agree that the probability of a CBRN attack remains much smaller than that of a comparably damaging attack with conventional arms. These are easier to acquire, use and their deployment has instantaneous consequences. Some experts go as far as to claim that the ease of using conventional weapons so heavily outweighs the potential benefits of using unconventional ones that it makes CBRN terrorism unlikely.<sup>12</sup>

One analysis notes that of the 11 992 terrorist attacks between 1997 and 2004, 11 884 involved conventional weapons. Fewer than ten people were killed as a result of the 108 CBRN incidents.<sup>13</sup>

**International counter-terrorism efforts****International legal framework***Biological weapons*

The ban on the use of biological weapons dates back to the 1925 [Geneva Protocol](#). The most comprehensive instrument concerning this type of weapon is, however, the 1972 [Biological and Toxin Weapons Convention](#) (BTWC). The Convention, due for its seventh review in 2011, prohibits developing, producing, stockpiling, acquiring and retaining:

- microbial or other biological agents, or toxins in quantities that have no justification for prophylactic, protective or other peaceful purposes;
- Weapons, equipment or means of delivery designed to use them for hostile purposes or in armed conflict.

*Chemical weapons*

The preamble to BTWC describes it as the first step towards a similar agreement on chemical weapons. In 1993, the [Chemical Weapons Convention](#) (CWC) was signed, aimed at eliminating this type of weapon. CWC criminalises their development,

production, acquisition, stockpiling, transfer and use. Moreover, it requires that party states possessing chemical weapons ensure their security while these weapons are awaiting destruction, and keep informed of activities on their territories involving certain chemicals that could be converted for chemical weapons purposes.

CWC established the [Organisation for the Prohibition of Chemical Weapons](#) (OPCW) as its implementing body.

#### *Nuclear weapons*

The UN's 1969 [Non-Proliferation Treaty](#) (NPT) remains the principal legal instrument concerning nuclear weapons. Overseen by the [International Atomic Energy Agency](#) (IAEA), the convention deals with the proliferation of nuclear weapons, promotes nuclear disarmament and encourages the peaceful use of nuclear technology.

NPT limits the number of states that can possess nuclear weapons, as well as the parties to which fissile material may be transferred. It also restricts non-nuclear states from developing nuclear weapons. However, it does not mention the theft of nuclear weapons, nor does it mandate the criminalisation by national legislatures of persons trafficking in or stealing nuclear weapons. Moreover, lacunae persist in international law concerning the security of nuclear material in storage, and the prosecution of non-state actors attempting to carry out acts of nuclear terrorism.<sup>14</sup>

#### **After 11th September**

While these conventions remain the principal instruments for CBRN-related issues, the 11th September events led to new international counter-terrorism instruments and initiatives, including:

- UN Security Council Resolutions [1373](#) and [1540](#)
- [The Global Initiative To Combat Nuclear Terrorism](#)
- The draft [International Convention on the Suppression of Acts of Nuclear Terrorism](#) (CNT), designed to remedy the NPT's inadequacies. CNT defines and criminalises acts of nuclear terrorism and mandates the establishment by national legal systems of jurisdiction over these crimes.

#### **EU policy**

Counter-terrorism is in general a national domain. However, as terrorist attacks may have cross-border implications, there is much room for coordinating actions at EU level. This may concern law enforcement, civil protection or chemical safety, to name but a few areas. Moreover, the emergence of the Common Security and Defence Policy paves the way for a new EU role in foreign policy aspects of counter-terrorism, a domain historically regulated by bi- or multilateral agreements between states.

#### **Policy guidelines**

In the wake of 11th September, the 2001 Laeken European Council asked the Council and the Commission to prepare a programme to improve cooperation in the area of chemical and biological terrorism.

The 2003 Brussels European Council adopted the [European Security Strategy](#), in which it stated that the proliferation of WMD was the greatest threat to EU security, and their use by terrorists was 'the most frightening scenario'. It emphasised the link between external and internal aspects of security, and proposed addressing what it considered 'key threats', through international cooperation and promotion of universal adherence to relevant multilateral treaties.

The external aspects of security were stressed in the [EU strategy against proliferation of WMD](#) – adopted by the same Brussels European Council – which emphasised:

- effective multilateralism
- promotion of a stable international and regional environment
- close cooperation with key partners including the US, Russia, Japan and Canada.

The 2005 [EU Counter-Terrorism Strategy](#) proposed four strands of counter-terrorism work, namely to 'prevent', 'protect', 'pursue' and 'respond'. The strategy supported international efforts towards non-proliferation of CBRN materials, and listed tackling terrorist access to them as a key priority under the 'pursue' strand.

### Programmes and plans

The Council and the Commission responded to the Laeken European Council's request by adopting a [joint CBRN programme](#) in December 2002. Following the terrorist attacks in Madrid, it was widened and updated by the 2004 [EU Solidarity Programme on the consequences of terrorist threats and attacks](#). The 2005 London attacks led to the adoption of the [Action Plan on Combating Terrorism](#).

The 2007 [Green Paper on bio-preparedness](#) launched a consultation process on how to improve the EU's preparedness and response to biological threats. The Green Paper stressed the need for an 'all-hazards approach' taking into account risks of both non-terrorist and terrorist origin. This approach was corroborated by the 2007 Council conclusions on addressing CBRN risks and on bio-preparedness.

In 2008 the **CBRN Task Force** was established, to prepare a list of measures to be taken at both EU and MS level to lower the risk of a CBRN terrorist attack. On the basis of their recommendations the Commission adopted a policy package, the core of which is the [CBRN Action Plan](#). The plan identified three main areas of CBRN security work:

- prevention: ensuring that unauthorised access to CBRN materials is as difficult as possible
- detection of CBRN materials
- preparedness and response: efficient response to and recovery from CBRN incidents.

The measures included in the EU CBRN Action Plan are implemented mainly through existing national, EU and international structures. Up to €100 million can be assigned from existing financial programmes to support the implementation process over the period 2010-2013. The implementation would include setting up a European network of CBRN law enforcement units and a law enforcement early warning system at Europol for incidents related to CBRN materials, as well as strengthening the dual-use export control system.<sup>15</sup>

The Commission presented a [progress report](#) on the action plan's implementation in May 2012, noting that actions had been implemented in all areas but that there were significant differences between Member States in the level of progress. Given the extent of the action plan – with some 124 initiatives – the reports acknowledges the challenges for Member States and the Commission in its full implementation.

In its [conclusions of 29 November 2012](#) the Council of the European Union recalled the report of the EU CBRN-E (CBRN + explosives) Conference in Malmö in October 2012 which, in its recommendations, called for consideration to be given to a comprehensive approach to CBRN-E incidents including crimes and terrorism, and for the establishment



of a structured approach to prevention, detection and response, focusing on enhanced inter-agency collaboration in particular between law enforcement, military, civil protection and other competent authorities, as well as for ongoing development of close interaction on CBRN-E between the public sector and private actors.

In May 2014, the commission adopted a [communication](#) setting out a new approach to mitigating CBRN-E risks, combining policy on CBRN materials with that concerning explosives. The focus of the new approach is on stepping up capabilities to detect CBRN-E risks and putting in place measures to mitigate such risks.

### European Parliament position

In its recent [resolution on the CBRN action plan](#) the Parliament pointed to the new division of competences between the EU and MS set by the Lisbon Treaty and reflected in the plan. It called for the EU common approach to CBRN issues to be strengthened by creating a mechanism for compulsory assistance in case of a CBRN disaster. MS should do more than just sharing best practices, and pool their technologies and infrastructures to avoid wasting resources.

Furthermore, a European civil protection force should be established based on the existing EU [Civil Protection Mechanism](#).

According to the EP, the Commission has failed to ensure that the industry replaces high-risk chemicals with alternatives of lower risk. Nor has it adopted measures to safeguard the security of nuclear facilities and materials.

### Main references

[Bio-preparedness: responding to the threat of biological weapons](#) / DG IPOL Study, April 2009.

[Nuclear terrorism in a globalising world: assessing the threat and the emerging management regime](#) / Joyner CC & Parkhouse IA, June 2009.

### Endnotes

<sup>1</sup> [The Logic of Suicide Terrorism](#) / Hoffman B, *The Atlantic Magazine*, June 2008.

<sup>2</sup> [CBRN Incidents: Political Regimes, Perpetrators, and Targets](#) in *Terrorism and Political Violence* / Ivanova K & Sandler T, 2006. p 426.

<sup>3</sup> [World at Risk: The Report of the Commission on the Prevention of WMD Proliferation and Terrorism](#), December 2008, p XV.

<sup>4</sup> [Testimony of Gary Anthony Ackerman, Research Director, National Consortium for the Study of Terrorism and Responses to Terrorism](#) / Start, April 2008. p 12.

<sup>5</sup> [Bio-preparedness: responding to the threat of biological weapons](#) / DG IPOL Study, April 2009, pp 7-8.

<sup>6</sup> Ibid, pp 13-14.

<sup>7</sup> [Possible Responses to Global Terrorist Threats](#) / OPCW, 2002.

<sup>8</sup> [Nuclear terrorism in a globalizing world \(...\)](#) / Joyner CC & Parkhouse IA, June 2009.

<sup>9</sup> [Islamist Use and Pursuit of CBRN Terrorism](#) / Asal VH & Rethemeyer RK, p 346.

<sup>10</sup> [Bio-preparedness: \(...\)](#) / DG IPOL Study, April 2009, p 10.

<sup>11</sup> Ibid, p 18. See however also [Small-scale Terrorist Attacks \(...\) Using Biological and Chemical Agents: An Assessment Framework and Preliminary Comparisons](#) / Congressional Research Service, May 2004, pp 11–12.

<sup>12</sup> [Small-scale Terrorist Attacks \(...\)](#) / pp 5-6.

<sup>13</sup> [Bio-preparedness: \(...\)](#) / DG IPOL Study, April 2009, p 5.

<sup>14</sup> [Nuclear terrorism in a globalising world \(...\)](#) / Joyner CC & Parkhouse IA, June 2009.

<sup>15</sup> [Communication on the 2010 EU Internal Security Strategy](#), COM(2010)673 / European Commission, November 2010, p 8.

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