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ASSESSING THE THREAT OF TERRORIST USE OF CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR WEAPONS IN THE SOUTH-EAST EUROPEAN COUNTRIES

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Abstract. Many scientists and politics argued that 'tomorrow's threat may include the use of chemicals, bacteriological agents, radioactive materials and even nuclear technology. In the present paper we describe the Risk Assessment Analysis of Chemical, Biological, Radiological and Nuclear (CBRN) threat in the EU emphasised in South-east European countries. This paper draws upon material available in the public domain to address three questions: What are chemical, biological, radiological and nuclear weapons, and how available are they?; What could terrorists do with CBRN?, and Why and how serious is the danger overall? Nowadays, the most serious threats considered to be, firstly, the chemical and biological, and secondly the nuclear. The dissemination of CBRN as weapons of mass destructioon (WMD) is one of the most crucial issues of international security. The vivid effusion of this phenomenon in the region of Middle East and North Africa has possible consequences limited within the boundaries of this particular region. The terrorist organisations considered to be, by governments and the international community, a possible threat. In such a framework of the international environment, South-east European countries seems to live in. These countries, through their participation in international organisations exercise pressure for the termination, reduction and control of the accession of CBRN weapons. In this paper, are presented the most crucial proposals that could offer solutions to the present institutional framework which rules the risk assessment procedure on European, regional and national level.

Keywords: chemical, biological, radiological nuclear threats, assessment.

AIMS AND BACKGROUND

Risk assessment is a tool used in risk management to help understand risks and inform the election and prioritisation of prevention and control strategies[1]. The

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aim of this paper is to account for the 'CBRN threat' to the South-east European countries (SEEC). The paper does not attempt a comprehensive analysis of all of the states, organisations and individuals who possess and might be inclined to use such weapons against the SEEC. The premise is that the availability and effect of CBRN are reasonably knowable, as is – in a very general sense – the vulnerability of the SEEC to such use. The outline of the paper is a follows. The geopolitics analysis and what are chemical, biological, radiological and nuclear weapons and how available are they, are presented. The paper continues by showing the evolution of the EU interest in and sensitivity to the dangers of CBRN proliferation and use. Moreover, there is a brief discussion of the notion of 'threat'. According to the traditional rules of threat assessment, 'capabilities' alone are insufficient, and focusing on them in isolation can only lead to worst-case analysis, rather than a balanced assessment. Finally, our main conclusion is summarised.

Chemical, biological, radiological and nuclear (CBRN) weapons pose the one of the most serious threats to the SEEC and their foreign interests (see Fig. 1). Ballistic and cruise missiles, aircraft, covert forces, and terrorist groups are considered possible means of delivering these weapons of mass destruction. The total number of chemical, biological, radiological and nuclear weapons stockpiled throughout the world is decreasing as the major powers scale back their inventories, but some additional countries and groups are trying to acquire these weapons. The EU and SEEC and allied policy-makers debate the rate of proliferation and the nature and extent of the threat to the EU–SEEC and their allies, and the weapons effects on international stability. These issues and the policy preferences of various segments of the security policy communities in the SEEC and overseas have led to markedly different approaches to countering CBRN weapons and missile threats. The purpose of this paragraph is to assemble compendiously current information on the status of weapons programs around the globe and analyse patterns regarding the threats posed by these weapons.

Fig. 1. South-east European trans-border crime threats

China, France, Russia, the United Kingdom and the United States have well established arsenals of nuclear weapons and are considered nuclear-weapon states under the Nuclear Non-proliferation Treaty (NPT). India and Pakistan tested nuclear weapons in 1998; Israel is believed to have numerous nuclear weapons; and North Korea is thought to have one or two. The US intelligence officials predict more countries will acquire them in the next decade or so. About a dozen countries have offensive biological weapons programs, and about 17 countries were reportedly known or likely to have had chemical weapons when the Chemical Weapons Convention went into effect. The number of countries and subnational groups that will be able to produce at least small quantities of chemical weapons (CW) and biological weapons (BW) weapons is likely to grow as new technologies are developed and the international flow of goods, people, and technology continues to increase. The number that will produce and stockpile CBRN as WMD may decrease if diplomatic efforts, arms control treaties, non-proliferation regimes, and security strategies are effective. While the United States and Russia are reducing their intercontinental missile inventories and have eliminated intermediate-range missiles, China is modernizing and expanding its missile force, and North Korea, Iran, Israel, India, and Pakistan are building short- and medium-range missiles and are developing longer-range missiles. Dozens of countries have or are developing ballistic missiles and more are likely to acquire them.

From the United States and Europe, across North Africa and the Middle East, through South Asia to North-east Asia, nuclear, biological, or chemical weapons and missiles will probably be a potential threat for the foreseeable future. More countries and groups will have the ability to inflict mass casualties and mass destruction on their adversaries within their country, within their region, and even those at a great distance.

While the threats of nuclear, biological, and chemical warfare associated with the Cold War are greatly diminished, new threats have emerged and more may develop in the coming decade as elements in North Korea, Russia, China, and other countries continue to export weapons technology.

CHEMICAL WEAPONS

Chemical weapons (CW) are usually described as agents, which can attack the body in various ways[2–5]. In many cases, chemical weapon ingredients are ‘dual use’ in that they have legitimate non-military industrial applications. Many other industrial chemicals are also highly toxic, are relatively easy to acquire and would need minimal processing and preparation before use. The public vulnerability to lethal chemical weapons – particularly nerve agents such as sarin – has been apparent since the terrorist attacks in Japan in the mid-1990’s. The fact that sudden death could come from colourless and (in some cases) odourless liquids and gases released covertly would add to uncertainty and could prompt panic. The possi-

bility that a small-scale chemical weapon attack might trigger an immediate and disproportionately terrified response on the part of the target population could be seen by some terrorist groups as outweighing the difficulties, dangers and costs of developing chemical weapons.

BIOLOGICAL WEAPONS

Biological warfare agents comprise micro-organisms and toxins. Micro-organisms depend for their effect on survival and multiplication within a target body and can be both contagious (e.g. smallpox and Ebola) and non-contagious (e.g. anthrax). Biological weapons (BW) would be much easier to acquire or manufacture than nuclear weapons, and could have a bigger impact on public and political consciousness than CW (Fig. 2). For these reasons, many argue that bio-weapons are becoming the terrorist 'weapon of choice'. Although casualty estimates vary widely, the political, psychological and economic impact of a bio-terror attack would be profound, even in the event of a low-level or bungled attack.

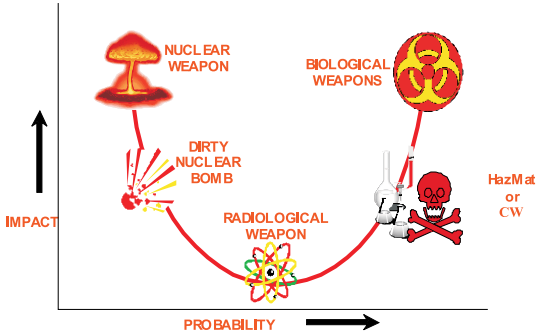

Fig. 2. Level of impact (highest for nuclear events) and the probability (highest for explosive attacks)

RADIOLOGICAL WEAPONS

The purpose of radiological weapons (RW) would be to spread radioactive material over a wide area using either an explosive device, sometimes described as a 'dirty bomb', or some other means of dispersal. The use of these weapons could have serious political and economic consequences; the immediate effects of a RW attack would be limited. Analysts are divided as to the effect of even a large-scale explosive RW attack, with some arguing that a victim close enough to the centre of the explosion to receive a serious radiation dose would be more likely to be killed promptly by the bomb blast than through radiation sickness. Yet while the physical harm from a RW attack might be limited, the blast could provoke panic and the prospect of radiological contamination could cause widespread anxiety. The assembly and handling of a RW would pose significant technical challenges to

a terrorist group, and very severe health hazards. The technical challenges would not, however, be insurmountable.

NUCLEAR WEAPONS

A nuclear attack could be achieved in one of four ways[5,6]:

- by acquiring and using a complete nuclear weapon;
- by building a nuclear weapon;
- by constructing an improvised nuclear device (IND) with much larger quantities of lower grade, power reactor-quality uranium;
- by attacking a nuclear power station, using conventional means (such as a large proximate explosion or the direct impact of a missile) to cause catastrophic breakdown of the reactor and its subsequent destruction.

For terrorist individuals and groups driven by some religious, millennial or apocalyptic visions, the massive and hugely symbolic impact of a nuclear strike could be precisely their goal.

WHAT IS THE DIFFERENCE BETWEEN A CHEMICAL, BIOLOGICAL, OR RADIOLOGICAL EVENT?

Chemical, biological, and radiological material as well as industrial agents can be dispersed in the air we breathe, the water we drink, or on surfaces we physically contact. Dispersion methods may be as simple as placing a container in a heavily used area, opening a container, using conventional (garden)/commercial spray devices, or elaborate as detonating an improvised explosive device. Chemical incidents are characterised by the rapid onset of medical symptoms (minutes to hours) and easily observed signatures (coloured residue, dead foliage, pungent odour, and dead insect and animal life). In the case of a biological incident, the onset of symptoms requires days to weeks and there typically will be no characteristic signatures. Because of the delayed onset of symptoms in a biological incident, the area affected may be greater due to the migration of infected individuals. In the case of a radiological incident, the onset of symptoms requires days to weeks and there typically will be no characteristic signatures. Radiological materials are not recognisable by the senses, and are colourless and odourless. Specialised equipment is required to determine the size of the affected area and if the level of radioactivity presents an immediate or long-term health hazard. Because of the delayed onset of symptoms in a radiological incident, the affected area may be greater due to the migration of contaminated individuals.

DISCUSSION

A detailed threat assessment, addressing intentions and capabilities, would require access to intelligence not available to the public domain, therefore beyond the reach

of the authors. Secondly, the increasingly diffuse nature of the CBRN problem suggests that an approach concentrating on capabilities (what is knowable) rather than of what is not (intentions) might be more appropriate, shifting the traditional EU and SEEC policy for CBRN from the traditional military approach which was dominant during the cold war.

THE EUROPEAN UNION AND CBRN

The Common Foreign and Security Policy (CFSP) established by 1991 Maastricht Treaty, by acknowledging the danger of CBRN proliferation committed the EU to an ever closer involvement in non-proliferation policy. In the wake of the terrorist attacks in the United States on 11 September 2001 the risk that such weapons and their delivery vehicles could fall into the hands of non-state-actors became a prominent theme[7,8]. The tone and the substance of the EU interest in non-proliferation changed dramatically. Speeches and declarations became far more urgent, while substantially the threat of terrorist use of WMD, which had always been widely acknowledged within the EU and elsewhere, albeit largely in terms of a 'nightmare scenario', now came to the fore. The changing mood within the EU is most clearly revealed in a series of key documents. Shortly after 11 September 2001, the EU General Affairs Council made an explicit connection between non-proliferation, disarmament and arms control and the 'global fight against terrorism'. In order to reduce the 'risk of non-state actors gaining access to weapons of mass destruction, radioactive materials and means of delivery', the Council launched a 'targeted initiative' to address the implications of the terrorist threat on the non-proliferation, disarmament and arms control policy of the EU (Ref. 9). Recent documents of the European Union suggest that a more modern approach has being adopted in light of the need to combat current security concerns[7–10]. The EU non-proliferation agenda includes measures aimed to address problems of the traditional kind, notably by actions intended to strengthen regimes and export controls. However, the WMD Strategy and the statements and declarations which precede it suggest that the CBRN proliferation threat to the EU is regarded as complex and multifaceted, with different aspects of the threat requiring different levels and styles of policy response. Based on an assessment of existing statements and documents, it can be argued that from the EU perspective, elements of the CBRN threat are as follows[10].

Global/general threat. At the most general level, the proliferation, illegitimate possession and use of CBRN can be understood to represent a latent or actual threat to international peace and security, with implications for the EU as a large and active element of the international political and economic system.

Threat to norms and regimes of non-proliferation. There are now a significant number of cases where states have carried out activities that are prohibited in arms

control treaties and agreements to which they are parties. Moreover, in a number of cases these prohibited activities have gone undetected over an extended period. For example, Soviet non-compliance with the Biological and Toxin Weapons Convention (BTWC) was not confirmed for many years in spite of the massive cold war intelligence effort. In other cases – such as North Korean non-compliance with the (nuclear) Non-proliferation Treaty (NPT) – the exposure of the violation and its subsequent discussion in the UN Security Council did not lead to any satisfactory resolution of the compliance problem. CBRN proliferation provides compelling evidence of the inadequacy of non-proliferation regimes and the need to reinforce them. In this regard, a 'worst-case analysis' might run as follows: if regimes and norms can not be reinforced, and if their value as a source of security becomes progressively more questionable, then at some point the norms against proliferation might be reversed, with states arguing that the norm for security in a world with CBRN is proliferation, rather than non-proliferation.

Neighbourhood/regional threat. CBRN proliferation, and associated concerns, could give rise to a threat to peace and stability in certain regions bordering or close to the EU, such as the Mediterranean littoral, inviting the EU interest and involvement, certainly diplomatic and economic and perhaps also military.

Direct/physical threat. The EU member states could face a specific threat of CBRN use (or blackmail) either from state or non-state actors, as a result of past or present policies, current political loyalties and trading ties. The institutions of the EU could be said to be threatened for broadly similar reasons.

Remote/physical threat. The EU representatives and personnel (civilian and military) deployed on mission could face the direct threat of low-level CBRN use against their facilities, installations and positions, or could be threatened indirectly by damage and pollution through unintended proximity to CBRN use.

Indirect threat to the EU interests. The institutions and member states of the EU have a range of political and economic interests around the world, which could be disturbed or undermined by instability associated with CBRN proliferation.

Reputation threat. Having for several years had the goal of becoming a more coherent and effective actor in matters of foreign, security and defence policy, having described themselves as threatened by CBRN, and having committed themselves publicly, in documents and declarations, to countering that threat, the institutions and member states of the EU run the risk of having their reputation and credibility as actors in the field of international security undermined.

Threat of accident. Unsafe storage and management of NBC facilities and material could represent a general hazard to which the EU citizens might be exposed. Such accidents could occur during attempted terrorist attacks or as a result of efforts to steal or smuggle material.

The traditional approach to threat assessment based on evaluating the capabilities and intentions of known adversaries has serious limitations under the current circumstances.

The near impossibility of knowing the antagonist reduces the opportunity to try and understand and analyse intentions. The fact that 'weapons' as that term has come to be understood are no longer the only (and may not be the most important) capability in the hands of adversaries further complicates applying the traditional approach. The question of vulnerability has always been a component of 'threat perception' in that it has been taken into account (sometimes implicitly) as an aspect of enemy capability. To illustrate, an antagonist missile capability is only a concern to the extent that there would be undefended cities that could be hit by them. However, in present conditions this problem is of a different scale in that modern societies might have what can be termed 'structural vulnerability' because recent events suggest that anyone with the intent and the basic commodities could mount a CBRN attack somewhere in the EU. The decision about how to approach reducing the risk of such attacks is important because the wrong strategy could lead to the squandering of huge amounts of resources or to failure to prevent a high-impact attack or both. At the same time, the fact that the elements needed to mount an attack are dual-use in nature means that a strategy based on complete denial of access to them is neither feasible nor desirable.

The dual-use character of proliferation-sensitive materials and technologies. Dual-use technologies are the main concern since transfers of complete, operational CBRN weapons are highly unlikely to occur. However denial of access to dual-use technology is only sought where the risk that it may be misapplied is unacceptably high[11,12]. Otherwise the result will be continuous tension because many of the technologies themselves can not be banned and their control is inherently difficult.

Chemical weapons and terrorism: *Assessment*. Although the military significance of chemical weapons has decline dramatically through training and preparation, and through the provision of protection and decontamination equipment and antidotes. However this is not the case when considering the use in a non-military environment, against an unprotected civilian population. The lethality of CW (particularly nerve agents such as zarin) is widely perceived to be so extreme, the availability of CW (or TIH) so widespread, and the vulnerability of any single, unprotected person so complete, that the working assumption is that a chemical attack is both possible and certain to lead to near-instant death for its victims.

In addition, the fact that sudden death could come from colourless and (in some cases) odourless liquids and gases released covertly adds to the fear of an unknown and unknowable danger. In other words, whatever the battlefield utility

of CW, and whatever the qualities of the different agents, as far as public opinion is concerned CW is a terrorist weapon *par excellence* – an observation that is not likely to have been lost on terrorist groups. To produce CW in large-scale quantities is challenging scientifically and technologically, and the handling and weaponising of CW are generally understood to be very hazardous. For terrorist groups seeking a weapon of extreme mass effect, against unprotected populations in towns and cities, either biological or nuclear weapons (discussed below) might, therefore, be of more interest than CW. But for a very committed and well-funded terrorist group the difficulties associated with CW might not be thought insurmountable. However, terrorist groups vary enormously in size, sophistication and capability, and in the effect being sought. It could be that a small terrorist group – or even one part of a much larger organisation – might have as its objective a Tokyo-scale attack on public transport, for which CW (or TIH) could be the ideal means, delivered simply. The knowledge that such an attack could trigger an immediate and disproportionately terrified response on the part of the structurally vulnerable target population could persuade some terrorist groups in the future to take the CW path.

Biological weapons and terrorism: Assessment. The acquisition, production, weaponisation and delivery of BW are all sufficiently difficult and dangerous to maintain a high threshold to BW use, at least for the present. However, there can be little doubt that the impact of terrorist use of BW could be profound. Bioterror even at a low level would certainly make a deep and lasting impression on public psychology[13,14]. The international BW problem is driven both by 'supply push' and 'demand pull'. Commercial research and development are proceeding apace (in pesticides and anti-virals, for example); there could well be too many unscrupulous micro-biologists and research scientists willing to work for the highest bidder; and an increasing amount of BW-related technology and equipment is dual-use. The principal framework for the regulation of this ever increasing activity is, however, the inadequate Biological Weapons Convention. On the demand side, there is some evidence that terrorist groups intend to acquire BW. Even if the evidence has been exaggerated the possibility of BW-equipped malign intent can not be discounted altogether. The global BW-related research and development cycle could simply be moving too fast for governments to keep pace. Governments and international health bodies might work to develop countermeasures and health management plans for terrorist attacks using, say, anthrax or Ebola. These mass vaccination and disease control plans could take several more years to develop and establish. And during that time, the global BW network/laboratory might well have come across wholly new ideas and techniques which could be developed and deployed by terrorist groups while their target governments are still putting the finishing touches to the previous generation of countermeasures. This presents the greatest possible challenge for governments, health bodies and security forces: to prepare for and

deal with both the current BW danger, which to the extent that it is known must inevitably be understood and described as massive, as well as the prospective BW danger, which is largely unknown. In other words, while understandably distracted by the possibility of an imminent, large-scale anthrax attack, governments must also draw upon the patchiest of information to construct countermeasures that will be relevant and effective ten or more years in the future, against agents and techniques, which at present reside largely in the imagination. All this suggests that where BW are concerned, the traditional intelligence-driven, threat-based approach, where a premium is placed on assessments of malign intent and of capabilities, might not be all that useful[15].

Radiological weapons and terrorism: Assessment. The physical harm from a RW attack would be limited, but the political and economic damage could be severe[16]. As a fairly novel national security scenario, it is difficult to assess how any government might respond to the enormity of large-scale, explosive RW use, other than to focus on immediate decontamination and public health, and on re-building economic confidence. Planning ahead more could and should be done to restrict access to radiological material, particularly the so-called 'orphan sources' – poorly controlled radioactive sources with industrial or therapeutic applications. Decontamination systems could also be improved, and the public tendency to panic could be diminished through public education and reassurance as to the actual hazards involved. Similarly, the economic consequences of RW use could be moderated through careful business continuity planning. All these measures and preparations might have a passive deterrent effect on the terrorist, who might perceive the likely effects of a RW attack to be increasingly contained. Yet there is little by way of active or punitive deterrence on offer, focusing specifically on groups contemplating RW use. Simple cost-benefit analysis suggests that for terrorist groups and individuals – particularly those for whom personal safety when handling radioactive material is not a priority – the acquisition and use of a radiological weapon will remain a tempting prospect.

Nuclear weapons and terrorism: Assessment. A nuclear attack using even a relatively small and straightforward gun-type device would cause very extreme harm; the exposure pathways for modern Western societies with their heavily developed and complex cities appear almost limitless. Of course, risk is assessed in terms not only of consequences but also of probability. Yet with consequences on a scale described above, assessments of the probability of such an attack seem almost superfluous; it might be *improbable* that a terrorist organisation could either design and manufacture, or acquire a nuclear weapon, and then deliver it, but even the slightest *possibility* that this could happen would entail massively disproportionate consequences. In other words, the risk of terrorist use of nuclear weapons, as traditionally calculated, could scarcely be higher. For Western governments the

risk is of such a magnitude that worst-case analysis seems not only unavoidable but also appropriate. But it might even be that too much is made of the scientific and engineering difficulties associated with acquiring and using a nuclear weapon. Perhaps these constraints do not, after all, limit the probability of terrorist use of a nuclear weapon, or at least not sufficiently? Many scientists and analysts have expressed the concern that nuclear weapon design, materials and engineering have all become commodities, more or less available to those determined enough to acquire them. If this concern is well-grounded, the prospect of terrorist acquisition of a nuclear weapon becomes less a matter of risk assessment than of threat in the more traditional sense, with a nuclear weapon representing a capability waiting to be used, the vulnerability to which would be very high. As well as capability, threat assessment is a calculation of intention; it is known that al-Qaeda has long been interested in acquiring or developing a functioning nuclear weapon, and that Osama bin Laden has declared it a 'religious duty' for al-Qaeda to acquire nuclear weapons[5,17]. By one account, had the Taliban regime not been ejected from Afghanistan, and had al-Qaeda managed to remain relatively unmolested in that country, they would 'eventually' have acquired nuclear weapons. On these grounds, and in spite of any technical and engineering difficulties, nuclear terrorism might best be described as a 'realistic threat'[16]. Other analysts describe this possibility in even starker terms: 'Terrorist acquisition of nuclear weapons poses the greatest single threat to the United States'[18].

CONCLUSIONS

This paper has discussed the need to focus on the hazard or risk associated with certain materials in conditions where it is known that non-state actors are thinking about how to carry out acts of mass-impact terrorism. This approach needs to become an important supplement to the more traditional notion of analysing the threat posed by militarily significant quantities of weapons held by the armed forces of states. Nevertheless, this paper has put forward evidence that this traditional approach can not yet be abandoned.

Approaches to non-proliferation threat assessment must combine a range of different factors to make a modern and sophisticated analysis. The need for a new approach to threat assessment also stems from the growing evidence of illicit trafficking in proliferation-sensitive items (knowledge, materials and equipment). Illicit trafficking networks are operated by criminals who are mainly motivated by commercial considerations. Therefore, the networks could be exploited by either state or non-state procurement efforts. It has further been argued that this effort to make a new kind of assessment must distinguish between speculation concerning terrorists *intentions*, disquiet over society own *vulnerability* to such attacks, and hard analysis of terrorists *capabilities* in the CBRN field.

Excluding the factor of intentions from the assessment leads to the discussion of worst-case scenarios whose distinctive feature is quite often that they are so awful or complex as to be unmanageable, and thus in a perverse way discourage activity when it is most needed. However, little if anything is known about the real intentions of groups such as al-Qaeda, and what is known suggests that there is not much that could be done to modify their intentions. The 'new terrorism'/CBRN nexus embodies very complex policy challenges, but perhaps also represents something of an opportunity. Policy based on wild speculation about terrorists intentions, even if responsive to public fears, is likely to be reactive and incoherent and ultimately mistaken.

As part of the wide debate that has started over the intentions of sub-state actors, the assessment of the likely damage from attacks is one factor that has a direct bearing on the approach to threat assessment? It might be possible to do more to address society vulnerability – but not much, since Western societies are in effect structurally vulnerable. However, without the capability, the intention alone can not constitute a threat, and vulnerability can not be exploited in the way societies and governments most fear. This changes the perception process massively from the cold war mind-set, and invites a different sort of response. Perhaps the new thinking that is needed could lie somewhere in the old idea of 'deterrence by denial'. The central element in such an approach should be to do what can be done to deny unauthorised access to materials, and at the same time make clear that consequence management and disaster and business recovery processes will make any attack pointless. Increase resilience, in other words, and reduce brittleness.

The argument of this paper is therefore that the EU should not focus on the notion of 'CBRN threat' if this means making an attempt to sum up all of the capabilities and intentions that identified or possible adversaries are known to have. Instead the EU should use a different approach, based upon the notion of 'CBRN risk'. This approach invites, first, an objective assessment of hazard – the *potential for harm* to the EU represented by CBRN, based on the characteristics and availability of the weapons and the vulnerability of the EU to them. Rather than make CBRN policy contingent upon the identification of potential assailants – whose grievance might be unsuspected and who might be able to exploit the availability of CBRN with relative ease and with little evidence of having done so – the concern of policy-makers should then be to reduce the *likelihood* of such harm, by seeking, for example, to limit the availability of CBRN weapons and technology, or by improving response to and recovery from CBRN use.

This is not only a more accurate and realistic approach to the CBRN problem as it has evolved in recent years; it is also more compatible with the EU and its attempts to position itself as a responsible and effective actor in this field. After all, although some of the CBRN hazards, risks and threats to the EU still retain a broadly military character, many of them have nothing at all in common with

earlier military/defence thinking on this subject. It could be suggested, therefore, that the best type of international organisation to deal with the evolving, very broad-spectrum CBRN security problem is not a politico-military alliance but a civil organisation such as the EU which has competence and confidence (albeit inchoate) across the political spectrum, from diplomatic to economic to scientific to – if and when necessary – the military.

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