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**on Strengthening Chemical, Biological, Radiological and Nuclear Security in the European  
Union – an EU CRBN Action Plan**

**IMPACT ASSESSMENT**

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## **1. INTRODUCTION**

In accordance with the December 2007 Council Conclusions on addressing chemical, biological, radiological and nuclear (CBRN)<sup>1</sup> risks and on bio-preparedness<sup>2</sup>, which invited the Commission to continue its work in the CBRN field and agreed with its intention to propose relevant policy measures in 2009, the Commission intends to adopt a package of proposals on CBRN in June 2009.

The overall objectives of the CBRN policy package are to fight terrorism through complementing relevant measures that are being taken at Member State level, to address gaps in the field and to promote the sharing of information and exchanges of best practices between Member States. The policy package should also assist in the identification of measures to reduce the terrorist threat that apply horizontally, as well as individually across the chemical, biological, radiological and nuclear domains. The focus of the package will be on tangible deliverables within the "prevent, protect and respond" strands of the EU Counter-terrorism Strategy adopted by the Council on 1 December 2005.<sup>3</sup>

## **2. PROCEDURAL ISSUES AND CONSULTATION OF INTERESTED PARTIES**

### **2.1. Organisation and timing**

The EU has already taken numerous measures to help protect the populations of its Member States against accidents, pandemics or natural events involving CBRN substances. The Ghent European Council in 2001 instigated the first steps at the EU level in countering the CBRN threat.<sup>4</sup> The Ghent conclusions were followed by the adoption of the "Programme to improve cooperation in the European Union for preventing and limiting the consequences of chemical, biological, radiological or nuclear terrorist threats" in December 2002<sup>5</sup>. The 2004 progress report on this Programme<sup>6</sup> confirmed that the threat of CBRN terrorism justified continued attention at EU level. The Programme was superseded by the Council and Commission's EU Solidarity Programme of 3 December 2004 on the consequences of terrorist threats and attacks that widened, revised and replaced the 2002 CBRN-Programme.<sup>7</sup> The relevant elements of the Solidarity Programme were included in the overall Strategy and Action Plan on Combating Terrorism established in 2005 after the London attacks.<sup>8</sup>

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<sup>1</sup> A CBRN glossary can be found in Annex 1.

<sup>2</sup> 16589/07, of 17 December 2007

<sup>3</sup> 15708/03.

<sup>4</sup> SN 4292/01 REV 2.

<sup>5</sup> 14627/02.

<sup>6</sup> 8988/05.

<sup>7</sup> 15480/04.

<sup>8</sup> 14469/4/05, paras 20 and 31.

Tackling terrorist access to CBRN material is currently considered a key priority under both the European Union Counter-Terrorism Strategy and the EU Strategy against proliferation of weapons of mass destruction and their means of delivery (WMD) adopted by the European Council on 12 December 2003<sup>9</sup>. More specifically, the JHA Council Conclusions of 6 December 2007 on "addressing Chemical, biological, radiological and nuclear risks and on bio-preparedness" provide the most recent EU-level overview of the ongoing activities.

## **2.2. The Impact Assessment Board**

On 3 April 2009, the Impact Assessment Board of the European Commission (IAB) delivered its opinion regarding a preliminary version of this Impact Assessment report. The Board stressed that although the Impact assessment report is a long document, this is understandable due to the complexity of the subject raised. Furthermore, the IAB stressed the positive aspect of the thorough consultation process.

The Board further stated that:

- the types of actions proposed should be better categorised in terms of type of instrument, priority and responsible actors;
- the expected take-up by Member States and their support to the Action plan should be better explained;
- the costs and economic impacts of identified actions should be assessed not only qualitatively but also quantitatively.

In addition the IAB stated that the IA report would be usefully complemented by including a more thorough analysis of those actions that might result in high costs or explaining whether these actions will be subject to further feasibility studies or impact assessments.

The present version of the Impact Assessment report has been revised with a view to taking these recommendations into account. Additional information and modifications have been introduced to this end in all relevant sections.

## **2.3. Consultation process**

The development of the CBRN policy package was supported by a long and extensive consultation process. Initially, two green papers, on Detection<sup>10</sup> in 2006 and on Bio-preparedness<sup>11</sup> in 2007 were issued. More than 120 replies from Member States' authorities, third countries, representatives of regional authorities, the private sector, and research and academia were received. A synthesis of the replies to both green papers has

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<sup>9</sup> SN 400/03, no 68. See also *infra*, para 6.

<sup>10</sup> COM(2006) 474 final.

<sup>11</sup> COM(2007) 399 final.

been published in 2008.<sup>12</sup> The results of the consultation on the green papers were used as the departing point for further discussions in the CBRN Task force.

The main driving force behind the formulation of the specific CBRN activities to be undertaken has been the CBRN Task force. The Task force, which was established in February 2008, consisted of more than 200 members that arrived from national authorities and organisations, ranging from many different Ministries such as Internal Affairs, Justice, Defence and Health, to representatives of national response organisations, civil defence and other first responders, as well as forensic institutes and nuclear safeguards authorities. Representatives of the private sector, academia and international organisations also participated, in particular Europol and Eurojust. The participation demonstrated the strong interest of many stakeholders in being involved in the development of further policy measures at the European level.

Furthermore, several Commission services have been actively involved in the work of the CBRN Task force. Among all the DGs involved in this exercise, DG ENTR, DG SANCO and DG TREN/JRC played a particularly active role in the chemical, biological and radiological/nuclear fields, respectively.

Under the auspices of the CBRN Task Force, a series of meetings was organised within each sub-group addressing different CBRN strands:

- The biological sub-group held a series of meetings between April and September 2008 which focused on four main components of bio-preparedness: threats to humans, threats to animals, and food and feed for animals, threats to crops, food and feed and biological detection;
- The radiological/nuclear sub-group held a series of seminars and workshops throughout 2008 dedicated to radiological/nuclear prevention, detection and response;
- The chemical sub-group held a series of seminars and workshops throughout 2008 dedicated to chemical prevention, detection and response issues.

The work of all groups was based on discussion documents put forward by the Commission, which included possible recommendations to improve the existing situation. These documents were adapted through an interactive process. The final report of the Task Force was published in January 2009 and discussed at a comprehensive conference in Prague that officially concluded the work of the CBRN Task Force, held under the auspices of the Czech Presidency of the EU. The final report contains 264 separate recommendations, confirming not only that there is still a lot of work to be done, but also that there is a strong consensus amongst experts on how the existing issues could best be tackled.

In addition, 6 meetings of the CBRN Inter-service group meetings have been held within the Commission, starting in November 2008 and concluding in March 2009. The

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<sup>12</sup> SEC(2008)1957 and SEC(2008)2373.

Commission services which participated regularly at the Inter-service consultations and contributed to the development of actions to be undertaken are: SANCO, ENTR, TREN, JRC, ENV, TRADE, TAXUD, and SG. Their opinions have been taken on board already at the preparation phase of the CBRN package. This broad consultation process and its input form the basis for this Impact Assessment, as well as for the CBRN Package itself.

### 3. PROBLEM DEFINITION

When defining the CBRN related problem in the EU, a series of variables, including the overall level of the CBRN threat and the potential cost of using CBRN materials have to be taken into consideration.

#### 3.1. The overall level of threat associated with CBRN materials

Historically, most terrorist activities have been conducted using conventional explosives and arms.<sup>13</sup> While prior to the 9/11 attacks, a wide consensus amongst experts existed that terrorists were far less likely to resort to such weapons of mass destruction,<sup>14</sup> these arguments were revised after evidence on efforts from terrorist organisations, notably *Al-Qaeda*, to use CBRN materials came to light.<sup>15</sup>

The range of possibilities for terrorist attacks involving CBRN materials is wide. Possible scenarios include for example:

- introducing toxic chemical or biological agents into the human food chain: infecting crops and animals; poisoning food or liquids during manufacturing, in storage or in retail stores with toxic chemicals or biological agents;
- spreading chemical or biological agents on surfaces to poison via skin contact;
- releasing gaseous chemicals, vaporised biological agents or radiological sources in buildings or public transport infrastructure;

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<sup>13</sup> Only a fraction of over 36,000 terrorist incidents between 1972 and 2008 recorded in RAND Worldwide Terrorism Incident Database concerned the actual use or serious attempts to use CBRN material in terrorist attacks: <http://www.rand.org/ise/projects/terrorismdatabase/>.

<sup>14</sup> E.g. Brian Michael Jenkins, "International Terrorism: A New Mode of Conflict" in: *International Terrorism and World Security* (London, 1975), or Walter Laqueur, "Terrorism" (London, 1977) - cited in: Bruce Hoffman, "CBRN Terrorism Post-9/11" ([http://fletcher.tufts.edu/jebsoncenter/researchbriefs/JCCTS\\_Hoffman\\_CBRN\\_01-2007.pdf](http://fletcher.tufts.edu/jebsoncenter/researchbriefs/JCCTS_Hoffman_CBRN_01-2007.pdf)).

<sup>15</sup> In a recent report from the UK Cabinet Office on its proposed new external borders organisation ("Security in a Global Hub: Establishing the UK's New Border Arrangements") of November 2007, it is said that "the UK faces threats, such as from organised crime and terrorism, of an unprecedented level of virulence, sophistication and variety. The determination and capability of such groups are greater than ever before and the potential consequences more serious." [http://www.cabinetoffice.gov.uk/media/cabinetoffice/corp/assets/publications/reports/border\\_review.pdf](http://www.cabinetoffice.gov.uk/media/cabinetoffice/corp/assets/publications/reports/border_review.pdf).

- releasing large quantities of high-risk substances (gaseous or liquid) into the environment via an attack on a production plant, a facility where dangerous substances are stored and/or used, or on a transport of chemical, biological or radiological/nuclear material;
- exposing population to radiation by hiding unsealed radioactive or nuclear material in public places (passive dispersion);
- contaminating areas with radioactive material by using an explosive radiological dispersion device (RDD, or ‘dirty bomb’);
- triggering a nuclear explosion by using a (stolen) nuclear weapon or an improvised nuclear device (IND)<sup>16</sup>.

Incidents involving the use of CBRN materials for malicious purposes have already occurred in Europe and in third countries. One example for each of the three strands of CBRN materials is given in Table 1.<sup>17</sup>

**Table 1: Examples of malicious use of CBRN materials**

C	On 20 March 1995, probes of the chemical weapon <i>Sarin</i> (NATO designation: ‘GB’) were released at different locations within the Tokyo underground system by five members of the Aum Shinrikyo cult. The Sarin was contained in plastic bags which were punctured with umbrellas to release the evaporated toxin. 12 people died and over five thousand were injured as a result of the attack.
B	<p>In October 2001, envelopes containing <i>bacillus anthracis</i> (anthrax) spores were dispatched through the US postal system to the US Senate as well as to New York media offices. The spores, upon opening the letters, infected 22 people, 5 of whom died. Dozens of buildings had to be cleaned up, putting huge costs on the government.</p> <p>The incident caused great public turmoil; about 300 additional locations were tested and thousands were treated as precautionary measure. Some harmless hoax ‘anthrax letters’ were sent to government and private persons in the aftermath, inflicting panic and disruption of day-to-day work.</p>
RN	<p>On 1 November 2006, the former Russian secret service agent Alexander Litvinenko who lived in London was killed by poisoning his tea with the highly radioactive isotope Polonium-210.</p> <p>The use of radioactive material caused fear amongst the public. Several locations and vehicles through which the material travelled had to be temporarily closed down and decontaminated. According to British health officials, some 128 people were discovered to have had "probable contact" with the material.</p>

<sup>16</sup> The latter may or may not achieve nuclear yield. To build an IND, one would require parts of a nuclear weapon or at least a critical mass of weapon-grade nuclear material (HEU or plutonium) and a very sophisticated explosive device to trigger the fission. If nuclear yield is not achieved, the effects would be the same as for RDDs: the dispersal of nuclear material would render the public space a “no go” area for a considerable amount of time

<sup>17</sup> A non-exhaustive list of more incidents involving CBRN material can be found in Annex 2.



### 3.2. The potential costs of CBRN attacks

Whilst the occurrence and probability of CBRN attacks might be limited, the social, environmental and economic costs incurred in case of an incident would be severe and would persist over several years, especially if major transport nodes (such as ports or airports) or centres of economic activity are targeted (financial and commercial centres). The main cost factors in case of a major incident are usually:

- the value of loss of life and temporary or persistent health conditions leading to lower employability and a lower quality of life;
- effects of the disruption of economic activities and destruction and/or contamination of infrastructure;
- social disruption and an overall public perception of being unsafe, also having an effect on overall public health and wellbeing.

Many analyses examined the costs of simulated terrorist CBRN events. A review of these studies dimensioning the costs of one single incident led to estimates ranging from 4.6 billion EUR to up to 7.4 trillion EUR.<sup>18</sup> It is also worth mentioning that such estimates

<sup>18</sup>

For a detailed analysis, see for example:

Kaufmann, Arnold F. et al., “The Economic Impact of a Bioterrorist Attack: Are Prevention and Post-attack Intervention Programs Justifiable?” (Analysis of large scale aerosol releases of *Bacillus anthracis*, *Brucella melitensis*, and *Francisella tularensis* in a suburb of a major city. Costs calculated range from approx. \$500 million to approx. \$25 billion per 100,000 persons exposed) In: *Emerging Infectious Diseases*, Vol. 3, No. 2, April–June 1997, <http://www.cdc.gov/ncidod/eid/vol3no2/kaufman.htm>;

Abt, Clark C. et al., “The Economic Impacts of Bioterrorist Attacks on Freight Transport Systems in an Age of Seaport Vulnerability”. The analysis of the clandestine release of aerosols of weaponised deadly contagious disease (smallpox, plague) in crowded air, sea, rail, or subway terminals arrived to an estimated cost of 153 billion EUR to 9.6 trillion EUR (value of loss of life: \$90-9,000 billion; property damage: \$1-10 billion; trade disruption: \$20-200 billion; indirect costs: \$42-420. billion [http://abtassociates.com/reports/ES-](http://abtassociates.com/reports/ES-Economic_Impacts_of_Bioterrorist_Attacks.pdf)

[Economic\\_Impacts\\_of\\_Bioterrorist\\_Attacks.pdf](http://abtassociates.com/reports/ES-Economic_Impacts_of_Bioterrorist_Attacks.pdf);

Fields, Gary, “An Ominous Outcome—Outcome of Dirty Bomb Scenario Is an Economic Catastrophe”. Press report estimating that the use of a radiological weapon to close shipping facilities would produce a loss of approximately \$60 billion. *Wall Street Journal*, December 4, 2002, p. A4;

ICF Consulting, “Measuring the Economic Costs of Terrorist Attacks” Simulations of attacks on the state of California’s electrical power grid and the deliberate release of foot and mouth disease in the state of Iowa: calculated total economic costs of approx. \$18 billion and \$6 billion, respectively. [http://www.icfi.com/Markets/Homeland-Security/doc\\_files/costs\\_terrorist.pdf](http://www.icfi.com/Markets/Homeland-Security/doc_files/costs_terrorist.pdf)

United States Center for Homeland Security and Defence (CDHS). According to estimates, a terrorist attack on a major port could result in losses of \$1.5-2.7 billion per day for the first few days, \$5 billion a day for the next two weeks, and could then rise exponentially thereafter. Cited in the NATO Special Report “Chemical, biological, radiological or nuclear (CBRN) detection: A technological overview”

([http://www.europarl.europa.eu/meetdocs/2004\\_2009/documents/dv/nato\\_report\\_2005\\_/nato\\_report\\_2005\\_en.pdf](http://www.europarl.europa.eu/meetdocs/2004_2009/documents/dv/nato_report_2005_/nato_report_2005_en.pdf);

Brookings Institution (Michael E. O’Hanlon, et. al.), “Protecting the American Homeland: A Preliminary Analysis” The paper estimated that a successful terrorist attack with a weapon of mass

generally focus on very large scale CBRN incidents. Consequently, estimates at the upper end of the spectrum may not adequately reflect the economic effects of a small-scale, yet more likely, CBRN incident.

### 3.3. Problem definition

The CBRN problem assessment focuses on specific problems in a four-tier structure: 1) Horizontal issues; 2) Prevention issues; 3) Detection issues; and 4) Preparedness and response issues.

The general problem is the insufficient capacity of the EU to respond to the CBRN threats with regard to prevention, detection and response.

Table 2 sets out the main problems, with a synthesis of key issues identified specific to C, B, or RN areas.

**Table 2: Main problems and a synthesis of key issues identified specific to C, B, or RN areas**

<i>Specific problems</i>	<i>Key issues</i>
<b>1) Horizontal issues</b>	
<p><b>Problem 1.1: A wealth of international and EU legislation and agreements in place but differences in implementation</b></p> <p>A pool of legislation and international conventions cover CBRN materials, setting out rules and requirements at different detail for their production, storage, transport and trade. Some Member States have better approaches and mechanisms (e.g. medical intelligence cooperation, personnel security, detection) in place to enhance the security of CBRN materials than others.</p>	<p><i>There is a body of international and EU legislation which overall appears to focus more on safety than security (with the exception of nuclear materials, where the security aspect is adequately addressed by international legislation and conventions). In addition, international and EU legislation only rarely uses a comprehensive approach to all CBRN materials.</i></p> <p><i>There are differences in national transposition and implementation of international and EU legislation, in terms of quality, elaboration and coverage, as well as operational and functional arrangements in place. Terrorists and criminals could take advantage of less developed and secure national contexts.</i></p>
<p><b>Problem 1.2: Gaps and duplications in current information sharing and cooperation initiatives</b></p> <p>Multiple information sharing and cooperation initiatives exist at the EU and at international level, but these tend to be fragmented and do not involve all relevant actors. This may lead to information gaps and lack of opportunities for effective early warning.</p>	<p><i>There are many different formal and informal, ad-hoc, cooperation and information sharing instruments and initiatives focusing on CBRN and it is difficult to take stock of each to avoid duplication and identify synergies and gaps.</i></p> <p><i>The current mechanisms and initiatives are not sufficiently known to all relevant stakeholders. In addition, not all relevant CBRN areas are covered, hence showing gaps.</i></p> <p><i>Member States' positions at international forums on CBRN issues and the fight against terrorism are not systematically or fully coordinated. Common EU positions are not elaborated and communicated.</i></p> <p><i>There is no adequate early warning mechanism covering the whole EU that would enable Member States to share information on lost or stolen sources or suspicious</i></p>

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destruction smuggled into the country in a shipping container could amount to \$1 trillion if subsequent draconian security measures were adopted that impeded trade. An efficient release of a biological agent in a major urban area could inflict costs of up to \$750 billion.  
<http://www.brook.edu/fp/projects/homeland/chapter1.pdf>.

<i>Specific problems</i>	<i>Key issues</i>
	<i>transaction, especially in the chemical and biological fields.</i>
	<i>The national capacities and capabilities of certain Member States concerning prevention, detection and response are limited. The potential of joint training initiatives and other cooperative capacity building activities is not fully exploited.</i>
<b>Problem 1.3: Constraints due to differences in practical and legal arrangements in the Member States</b>	<i>Mutual recognition of forensic evidence is not ensured within the EU. Moreover, regulations, standards and practical arrangements concerning procedures and rules on dealing with forensic evidence in case of CBRN events vary significantly.</i>
There are various legal and practical constraints to EU cooperation to combating CBRN terrorist threats.	<i>Criminal legislation and penalisation of illicit access to, or trafficking of CBRN materials (and consequently also the nature of investigative and penal actions and the level cooperation with Europol, Eurojust) differs between the Member States.</i>
	<i>Most security clearances and background checks undertaken in one Member State are not recognised in other Member States.</i>
<b>Problem 1.4: Problems with regard to personnel security</b>	<i>Not all personnel which may handle or have access to CBRN materials is adequately checked. There may also be potential personnel security issues in facilities where dangerous agents and toxins are handled on an occasional basis.</i>
Standards with regard to personnel security differ between Member States, which have different procedures related to background checks and personnel vetting.	<i>Whilst some Member States have elaborate vetting procedures in place, others apply much lower standards. Given the sheer number of persons having access to or handling CBRN materials across the entire supply chain (especially in the chemical sector), there is a need for a graduated approach.</i>
<b>Problem 1.5: Insufficient research and development to prevent, detect, prepare and respond to CBRN incidents</b>	<i>A number of research needs has been identified at the EU level in the field of prevention, detection, response and technology research.</i>
Whilst in some areas, a lot of research is undertaken, a number of research needs are currently not adequately addressed.	<i>While some Member States have developed significant research programmes in the security area, corresponding activities are at low levels in other Member States. In addition, as there is no clear overview of which research is being undertaken, this could lead to a duplication of efforts.</i>
<b>Problem 1.6: Publication and funding programmes do not sufficiently take security issues into account</b>	<i>The public dissemination of certain findings from research constitutes a potential risk as terrorists and criminals might use these findings to produce CBRN weapons. The risk is particularly significant in the biological area.</i>
The open-source publication of scientific findings and research funding practices do not sufficiently take into account security issues.	<i>Organisations funding research do not sufficiently consider the potential risks of misuse in their decisions to finance projects.</i>
<b>2) Prevention issues</b>	
<b>Problem 2.1: Access and availability of CBRN materials</b>	<i>The extent to which various type of CBRN material is available and used in Europe differs, but the overall scale of use of chemical, biological, radiological and nuclear material is large. A huge number of economic actors and individuals have access to these. European competitiveness depends to a great extent on CBRN materials.</i>
A lot of CBRN materials, which is relatively easy to obtain, can be weaponised. This relates predominantly to chemical substances and to a lesser extent to biological agents and radiological sources. Provided one has the means and the knowledge, it is also relatively easy to establish 'private' laboratories or find other ways to manipulate CBRN agents.	<i>A number of CBRN materials can be turned into weapons by terrorists and criminals. There is often no need for well-equipped laboratories to handle and/or prepare highly toxic chemical compounds, improvised radiological dispersion devices (RDDs) or to manipulate biological agents and toxins. There is also the growing issue of new, genetically modified micro-organisms.</i>
<b>Problem 2.2 Monitoring and control over CBRN materials, approaches and standards vary between the MS</b>	<i>The mapping of facilities and of all potentially dangerous materials in some Member States remains insufficient, thus rendering the coordinated control of CBRN markets difficult.</i>

<i>Specific problems</i>	<i>Key issues</i>
<p>There is insufficient coordinated control of the markets for CBRN materials and Member States have varying approaches and standards with regard to the monitoring and surveillance of CBRN materials and transactions. The level of awareness of the dangers of CBRN substances also varies across the production and supply chain.</p>	<p><i>Licensing requirements and the quality of follow-up monitoring and control arrangements are less developed in some Member States.</i></p>
	<p><i>Member States have different procedures for tracking CBRN materials and activities and reporting thefts/losses. Electronic tracking systems for high-risk sources (including cross-border transport) have not been introduced. There is also an overall lack of awareness of suspicious transactions and behaviour for personnel working with CBRN materials. Tracking biological substances can prove difficult as these are living organisms that can easily increase or reduce in numbers.</i></p>
	<p><i>There is a lack of dialogue between law enforcement and facilities (and their security managers) notably in the chemical and radiological/nuclear field in some Member States.</i></p>
	<p><i>There is a lack of security awareness amongst users of CBRN materials (including equipment with radiological sources) in certain Member States. Education and training curricula do often not address these issues sufficiently.</i></p>
<b>3) Detection issues</b>	
<p><b>Problem 3.1: Weaknesses in detection</b></p> <p>There are marked differences in the level of national detection capabilities and preparedness. Some Member States facing a limited terrorist threat do not have adequate technical resources and staff in CBRN detection. They also have only limited access to state-of-the-art equipment and know-how. Also, the knowledge and awareness of frontline officers to recognise CBRN materials/threat is not adequate everywhere in Europe.</p>	<p><i>There are gaps amongst European stakeholders (national agencies, emergency services, industry actors) in understanding current CBRN threats and risks and defining on that basis concrete detection requirements.</i></p>
	<p><i>Currently, technologies and tools are insufficiently developed and applied to ensure swift detection and identification of CBRN materials and/or incidents. Also, the potential of already existing technologies and tools may not be fully exploited in Europe.</i></p>
	<p><i>Overall, there is a general lack of overview across law enforcement bodies and other relevant actors of good methods and equipment. Information sharing arrangements are not in place or not working efficiently. A scope for duplication exists in research efforts.</i></p>
	<p><i>There are certain gaps in the CBRN awareness and preparedness of police, border guards and other professionals who might be the first to identify a CBRN attack. Relevant professionals should be generally better informed on the current level of threat, especially on current trends and concrete risks.</i></p>
<p><b>Problem 3.2: Duplication of efforts in standards, testing trialling and certification</b></p> <p>There are no harmonised minimum detection standards on which Member States could build and no European testing and trialling and certification scheme exists yet. The effectiveness of detection equipment procured (in combination with systems setup and training) may be inadequate.</p>	<p><i>A common set of minimum CBRN detection requirements, based on performance tested (trialled) under real life circumstances, would be needed to ensure a minimum level of safety for citizens across the EU. Performance requirements should be defined by building upon a scenario approach.</i></p>
	<p><i>Linked to the lack of a European system of standards for detection equipment and systems, there is also no European testing, trialling and certification of detection systems and equipment.</i></p>
<b>4) Preparedness and response issues</b>	
<p><b>Problem 4.1: Mechanisms and procedures to deal with incidents are not in place or not effective</b></p> <p>There are significant differences across Member States in the quality of national CBRN emergency and response plans of supply chain actors, high-risk sites or</p>	<p><i>When available, response and emergency plans in Member States do not sufficiently take account of the EU or international dimension of an incident. Similarly, they do not take account of the possible terrorist and intentional nature of the incident.</i></p>
	<p><i>Response planning at national or local level is not always taking into consideration all relevant security aspects, including the need for forensic investigation.</i></p>

<i>Specific problems</i>	<i>Key issues</i>
critical infrastructure operators. The security aspects are often not explicit or not well integrated in the plans.	<i>When available, response and emergency plans in Member States do not include pre-defined protocols which set out information flows and ensure liaison with security-related authorities.</i>
	<i>When available, response and emergency plans in Member States do not involve all necessary stakeholders, or these are not always aware of them.</i>
	<i>Not all high-risk locations (critical infrastructure, public transport companies) or operators handling high-risk CBRN materials have response plans in place that would cover all CBRN issues, and even if they have, their quality is varied.</i>
<b>Problem 4.2: Gaps in the training of first responders, including lack of awareness of forensic and cross-border issues</b>  There are significant gaps in the training of first responders to react to CBRN events in Member States. Precautions with regard to forensic investigation or decontamination are too often not taken into account.	<i>When available in Member States, training schemes and relevant guidance for first responders do not always take into account the likelihood of a terrorist attack. Even when they do, the specific effects of an intentional release and the related requirements (e.g. forensic investigation and decontamination) are not well known or understood by first responders.</i>
	<i>There is a lack of training schemes focusing on cross-border issues and cooperation in the event of a CBRN event.</i>
	<i>With regard to training within facilities dealing with/producing biological substances, very few Member States have developed specific training as a first response to security issues. This is less true for chemical and radiological/nuclear facilities where the focus of training for first response has placed more focus on security.</i>
<b>Problem 4.3: Not all Member States have adequate medical countermeasures in place</b>  The extent and coverage of medical countermeasures in place varies between the Member States.	<i>With regard to biological threats, not all Member States have vaccine stockpiles/banks and manipulated agents and toxins are of great concern.</i>
	<i>Having appropriate countermeasures in place in case of intentional disease is challenging, as it is virtually impossible to protect or treat the population against every possible threat (in particular due to the broad spectrum of biological threats especially when taking into account the possibility of manipulated pathogens and toxins). The enormous costs of such measures make it also impossible for Member States to continuously invest in their countermeasure capacity.</i>
	<i>Some rapid licensing procedures exist, but these are not sufficiently developed and they may not be able to generate sufficient production capacity in the case of large-scale incidents.</i>
	<i>Many Member States would not have sufficient decontamination capacity, especially in the case of release of nuclear or radiological materials, which requires isolation of victims.</i>

### 3.4. Scope of the problem

The threat from CBRN materials affects everybody in the EU, the Member States' governments and business, both directly and indirectly.

The extent to which different stakeholders are affected by existing problems differs. Nevertheless it is clear that the overall scale of legitimate use of CBRN materials across the private and public sector is substantial.

### 3.4.1. *The chemical industry*

Chemical substances can be found all over modern society, with over 100,000 chemical compounds in use throughout academia, industry, agriculture and society at large. The turnover of the EU chemicals industry was € 476 billion in 2006, accounting for 29% of total world sales. In the same year, the chemicals industry contributed 2% of total economy GDP<sup>19</sup>.

The geographical location of the EU chemicals industry is mainly concentrated in four countries<sup>20</sup>. Germany is the largest European producing country (26.1%), followed by France (13.0%), Italy (12.5%) and the United Kingdom (11.7%). The EU chemicals industry in 2004 comprised 27,000 enterprises<sup>21</sup> which collectively employed approximately 1.2 million people<sup>22</sup>.

### 3.4.2. *The biological market*

Nearly all biological agents and substances exist freely in nature. Viruses, fungi and toxins, can be found in different places in the world. In this respect, biological substances differ drastically from radiological and nuclear, and chemical substances, which need to be produced. Most biological substances are used and grown for legitimate reasons. They are handled in the industrial world, including the agro-industry, the pharmaceutical industry and in the medical sector in general.

Some biological substances can cause significant or even lethal harm. They can have direct, potentially lethal effect on human health. These substances are handled by laboratories with specific containment facilities, usually referred as to P3 and P4.<sup>23</sup> While highly harmful animal substances and harmful human substances can be handled in P3 laboratories, substances causing highly harmful human diseases can be handled only in P4 laboratories. Biosafety-Europe<sup>24</sup>, a project funded by the Commission, conducted a survey of all P3 and P4 laboratories in the EU, and found 310 of such laboratories in total. While P4 laboratories are exclusively part of government funded research centres, some of the P3 laboratories are also private research centres, or to a limited extent, owned by the pharmaceutical industry.

### 3.4.3. *The Radiological and Nuclear industry*

Many industrial sectors use radioactive materials, such as:

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<sup>19</sup> CEFIC (2005), Facts & Figures: The European Chemical Industry in a Worldwide Perspective.

<sup>20</sup> Ibid

<sup>21</sup> Commission Staff Working Paper: REACH – An Extended Impact Assessment

<sup>22</sup> CEFIC (2008) The European chemical industry A global leader in innovation, supporting growth and well-being in Europe.

<sup>23</sup> As referred to in Council directive 200/54/EC. It is worth noting that in the European Union there is a very large array of codification/terminology used for defining those laboratories (see: <http://www.biosafety-europe.eu/index.html>)

<sup>24</sup> <http://www.biosafety-europe.eu/>

- accelerators used in research (subatomic research, production of radioactive material, studying effects of radioactivity);
- industry (sterilisation, production of radioactive material);
- food irradiation and sterilisation;
- industrial uses such as affecting materials with radiation (e.g. radiographs, locating or controlling hidden levels of solids and liquids), tracing materials through radiation (test wear, to locate leaks, to trace fluid flow, to evaluate detergent efficiency) and using radiation to produce heat and power (e.g. electrical generators for unmanned weather stations and buoys, power devices for thrusters in the space program, heat for diving suits);
- medical use: diagnostic imaging: includes diagnostic x-ray and computed tomography. Magnetic resonance imaging and ultrasound are also included in diagnostic imaging, but do not use ionizing radiation;
- nuclear medicine and radiation therapy;
- consumer products such as luminous dials, gauges and signs, navigational lights and smoke detectors.

### 3.5. Status quo, existing gaps

Initially, it needs to be stressed that were the *status quo* to continue, a coherent approach towards the security of CBRN materials in the EU would be missing, and the EU capacity to fight the cross-border CBRN threat would remain fragmented across different strands.

An important body of legislation and voluntary agreements both at international and EU level regulating the handling of CBRN materials does already exist. In the biological field, whilst there are some legislative instruments specifically focusing on security (potential terrorist threat), the bulk of international and EU legislation is safety driven. The only exception is the nuclear field, where there already exists a strong focus on security.

**Table 3: Non-exhaustive list of key EU legislation and non-binding frameworks<sup>25</sup>**

European legislation	
C	<b>Council Directive 96/82/EC of 9 December 1996 on the control of major-accident hazards involving dangerous substances (Seveso II)</b> aims at mitigating the consequences of accidents. It focuses on safety, the formulation of emergency plans, and information exchange in case of incident.

<sup>25</sup> For a comprehensive list of legislation and non-binding frameworks currently in place, see Annex 3.

	<p><b>Council Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work</b> lays down the requirements for the protection of workers from risks to their safety and health arising, or likely to arise, from the effects of chemical agents that are present at the workplace or as a result of any work activity involving chemical agents</p> <p><b>The 2006 Regulation concerning the registration, evaluation, authorisation and restriction of chemicals (REACH)</b> proposes the regulation of the production of chemicals in such a way to avoid chemical contamination of air, water, soil and the human environment in order to preserve biodiversity and to safeguard workers' and citizens' health and safety.</p> <p><b>The Standing Committee of Experts on Precursors</b> addresses the risks posed by chemical precursors. The standing committee has been meeting since the beginning of 2008.</p>
B	<p><b>Directive 2000/54/EC</b> purpose is to guarantee a better standard of safety and health for workers exposed to biological agents at work (risk group 3 &amp; 4). The key rationale of this Directive is safety based and it does not cover security issues.</p> <p><b>Council Directive 82/894/EEC</b> on the notification of animal diseases, tackles the issue of animal health and its impact on humans. As required by the Directive, Member States have to notify the Commission of the appearance and subsequent eradication of certain contagious diseases in order to prevent their spread in Community livestock.</p> <p><b>Council Directive 2000/29/EC</b> of 8 May 2000<sup>26</sup> on protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread within the Community: this directive lists all pests and diseases which are injurious for plants, whilst setting up a notification system for outbreaks.</p> <p><b>Directive 2000/54/EC</b> of the European Parliament and of the Council of 18 September 2000 on the protection of workers from risks related to exposure to biological agents at work.</p>
RN	<p><b>Council Directive 2003/122/Euratom of 22 December 2003 on the control of high-activity sealed radioactive sources and orphan sources (HASS Directive)</b> aims at improving the traceability of nuclear materials and thereby enhancing the security of sources to reduce the risk of radioactive sources being misused.</p> <p><b>Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation ("Basic Safety Standards" Directive / BSS Directive)</b> lays down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation.</p> <p><b>Council Directive 89/618/Euratom of 27 November 1989 on informing the general public about the health protection measures to be applied and steps to be taken in the event of a radiological emergency.</b></p>

<sup>26</sup>

This directive creates a compulsory notification system: when an outbreak occurs, Member States have to notify the Commission. Member States have also to notify the Commission when there is an interception at the customs on imported/exported goods, <http://europa.eu/scadplus/leg/en/lvb/f85001.htm>



**Directive 2004/37/EC of the European Parliament and the Council of 29 April 2004 on the protection of workers from the risks related to exposure to carcinogens or mutagens at work.** This Directive sets out the minimum requirements for protecting workers who have been exposed to carcinogens and mutagens.

**Council Directive 2006/127/Euratom of 20 November 2006 on the supervision and control of shipments of radioactive waste and spent fuel** provides for a compulsory and common system of notification and a standard control document for the shipment of radioactive waste and spent fuel.

**The European Programme for Critical Infrastructure Protection (EPCIP)** provides a framework for exchanging good practices and raising capability in a number of sectors, including the energy and nuclear sectors, in all EU Member States.

In addition to current legislation focusing primarily on safety issues, a number of other relevant gaps would continue to exist. Among the most important ones, the following need to be mentioned:

- **Significant differences in national transposition and implementation of international and EU legislation**, in terms of quality, elaboration and coverage. Terrorists and criminals could take advantage of less secure national contexts;<sup>27</sup>
- **Weaknesses in the regulatory framework**: most current legislation and conventions cover certain CBRN materials only, rather than assuming a package approach. The overall regulatory approach is fragmented and uneven across the different sources of threats. Consequently, planners of prevention, detection and response actions at different levels (national, regional, local), operators of critical infrastructure and first responders have to comply with a variety of rules and systems;
- **Insufficient awareness of information exchange mechanisms amongst stakeholders**. Especially, the involvement of private sector stakeholders is rather limited;<sup>28</sup>

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<sup>27</sup> Overall, as concerns the implementation of the legislation, there appear to be different categories of Member States:

- a group of Member States, including France, Germany, the UK, Italy, Spain have well-developed and well-implemented legislative frameworks;
- Nordic countries also show a good record in enhancing the security of biological agents and fostering mutual cooperation;
- Other 'Member States, such as Luxembourg and Belgium have implemented the legislative instruments, but this is not accompanied by a substantial institutional and operational framework;
- new Member States: in a majority of these countries the regulatory framework may both show important legislative gaps and an insufficient level of implementation.

Nevertheless, it needs to be stressed that existing gaps do not always apply to the same groups of Member States (e.g. a Member State might have good practices in ensuring facility security, but might lack good communication strategies with the general public). Targeting specific actions to specific groups of Member States would be a very difficult task to envisage and almost impossible to monitor.

- **Insufficient early warning capacity.** Several early warning systems exist in the EU to cover CBRN emergencies.<sup>29</sup> However, there is no EU-wide system specifically dedicated to linking-up the law enforcement community with a view to exchanging information on thefts, loss and suspicious transactions. As a consequence, emergency responders and anti-terror coordinators do not have single automatic access to information on incidents and stolen or lost CBRN materials in other EU Member States;
- **Personnel security.** Whilst some Member States have elaborated vetting procedures in place, others apply much lower-level procedures. High-risk CBRN materials, especially hazardous chemicals (such as highly concentrated acids) and radiological sources (at a significant activity level) is relatively widely used in construction and industry, the medical sector and research. As a consequence, the number of persons who handle or may have access to such material is considerable. This includes researchers and research students, doctors and X-ray assistants, as well as a high number of engineers and blue-collar workers in the chemical industry;
- **Access to and availability of CBRN materials.** There is potentially a significant quantity of CBRN materials relatively easily available that could be weaponised. Provided one has the means and the knowledge, it is also relatively easy to establish ‘private’ laboratories or find other ways to manipulate CBRN agents. The most

<sup>28</sup>

Only 15% of all EU initiatives specifically mention the involvement of industry stakeholders. Although there are certain cooperation mechanisms in place (in the chemical field CEFIC; in the biological field: Europa Public Health, the European Group on Ethics in Sciences and New Technologies, Europa-bio and EBSA; in the radiological and nuclear field: the European Atomic Forum FORATOM, the European Society for Radiology, the European Association for Radiology, the European Coordination Committee of The Radiological and Electromedical Industries) which can constitute examples of good practice at EU level, the number of these initiatives remains limited. Private sector stakeholders thus have limited opportunity to communicate their concerns, to comment on the feasibility of certain public decision-making and policies and to provide feedback on the potential impacts of some initiatives on industry.

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The Rapid Alert System for Biological, Chemical and Chemical Terrorist Events (RAS BICHAT) for example is the rapid alert system used for exchanging information on health threats due to deliberate release of chemical, biological and radio-nuclear agents (notification of confirmed or suspected events, exchange of information and coordination of measures among partners. More precisely in the biological field, the Early Warning and Response System is a system aiming at ensuring a rapid and effective response in case of incident related to communicable disease. A similar system was developed more specifically for chemical accidents with the Rapid Alert System for Chemicals (RAS-CHEM). The system is meant to link the various poison centres of the European Union and the Ministries of Health for the exchange of information on incidents including chemical agents relevant to terrorism and other events leading to release of chemicals, and consultation and coordination of counter-measures. In the radiological and nuclear field, the ECURIE system (European Community Urgent Radiological Information Exchange) is a radiological emergency notification and information exchange system. The system notifies the national Competent authorities of the participating States (currently EU Member States, Croatia and Switzerland, IAEA and the European Commission) in case of a major nuclear accident or radiological emergency. During an emergency the system also provides an information exchange platform for the participating States in order to inform about the current and foreseeable status of the accident, radiological status of the environment, meteorological conditions, national countermeasures taken, etc.

dangerous of these materials could potentially be used in terrorist attacks for their very harmful properties. This would require access to the material itself, access to knowledge on how to transform or weaponise the material and finally, and access to the equipment required for such manipulation;

- **Security of facilities producing, storing or distributing CBRN materials.** Whilst safety standards for facilities handling CBRN materials, especially those that could potentially be very dangerous, are covered by international agreements and EU legislation on public health, infrastructure protection, etc, the protection of facilities for security purposes is mainly a national affair. Member States have taken very divergent approaches to facility security, for example with regard to overall security plans for facilities and the appointment of security managers; security procedures within facilities and communication between relevant stakeholders (e.g. between law enforcement and facilities);
- **The use of priority lists to identify which CBRN materials pose safety and security challenges.** Today, there are a number of ‘priority substance lists’ which have been created at national, EU and international levels. Table 4 below provides several examples of such lists.

**Table 4: Examples of priority lists**

List	Level	Purpose	Type of CBRN
Chemical Weapons Convention	International	Prohibit use for warfare	C
NATO's International Task Force 25 (ITF-25) list of hazardous chemicals	International	Prohibit use for warfare	C
Biological and Toxin Weapons Convention (BTWC)	International	Prohibit use for warfare	B
Australia Group	International	Export	CB
World Organisation for Animal Health	International	Safety	B
The IAEA Code of Conduct on the Safety and Security of Radioactive Sources	International	Safety	RN
International Air Transport Association	International	Transport	CBRN
International Carriage of Dangerous Goods by Road (ADR)	International	Transport	CBRN
Regulation EC 1334/2000 on setting up a Community regime for the control of exports of dual-use items and technology	European	Export	CBRN (products and technologies)
Common Military List of the European Union	European	Export	CBRN (weapons)
Council Directive 2008/68/EC on the inland transport of dangerous goods	European	Transport	CBRN

Council Directive 96/82/EC (Seveso II)	European	Public health	C
Regulation EC 1907/2006 (REACH)	European	Safety	C
Council Directive 2000/54/EC (protection of workers from risks related to exposure to biological agents at work)	European	Safety	B
Council Directive 2000/29/EC (protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread within the Community)	European	Safety	B
Matrix currently under development by DG SANCO	European	Security	B
Council Directive 2003/122/Euratom (on the Control of High Activity Sealed Radioactive Sources)	European	Safety	RN
Centre for Disease Control and Prevention (USA)	National	Bioterrorism	B
Schedule 5 pathogens and toxins (UK)	National	Security	B
Dutch priority list (under preparation) (Netherlands)	National	Security	CBRN
Biological Materials Ordinance of 27 Jan 1999 as amended (Germany)	National	Safety	B
Foreign Trade and Payments Act of 28 Apr 1961; Foreign Trade and Payments Ordinance Of 18 Dec 1986 (Germany)	National	Export	B
List of War Weapons Control Act, § 20(Germany)	National	Security	B
Protection against Infection Act of 20 Jul 2000 (Germany)	National	Public health	B

The existence of such a high number of different lists, each requiring different levels of actions and covering different areas, makes compliance a complicated affair for large and multinational companies, such as major pharmaceutical companies or chemical industry. In addition, practically none of the lists are specifically aimed at security.

### 3.6. Subsidiarity and proportionality principles

The subsidiarity principle is satisfied as the measures being undertaken through the CBRN package cannot be achieved by any single EU Member State and must therefore be addressed at EU level. Although security issues are to a large extent a national competence, there are several reasons why some of them need to be tackled at the EU level:

- the root of the problem is evidently an international phenomenon and many of the existing security initiatives and legislation are international in character;

- a number of problems related to CBRN materials are equally international in character. These include for example the exchange of information among Member States, cooperation between Member States and transport security;
- a variety of security measures currently exist in Member States. Potentially, since no internal borders exist, lower standards of security in one Member States might allow the malicious use of CBRN materials in another one;<sup>30</sup>
- there are potential economies of scale to be generated through the identification and dissemination of good practice at the international and EU levels. In particular, good practice related to the implementation and enforcement of EU legislation needs to be tackled at the EU level.

Cooperation is especially needed if the EU Member States wish to improve their level of capability in countering CBRN threats either at national or European level. Terrorism is international in character, and so would be the consequences of a potential CBRN incident – the EU can therefore only be as secure as its weakest link. In this sense, activities at EU level and an EU co-ordinated approach is needed and beneficial to all relevant stakeholders.

The EU is well placed to lead and to act as a catalyst for this cooperation, and activities in the CBRN field are in accordance with the subsidiarity principle, especially insofar as they help reinforce the channels for bilateral and multilateral cooperation between Member States. At the same time international cooperation needs to extend beyond the EU and in specific cases focus also on third countries.

The assessment of proportionality of a policy to combat terrorism is extremely difficult. The arbitrary and apparently irrational nature of terrorism means that its threat and consequences are difficult to predict. The fear generated is strong and induces indirect damage to well-being way beyond the loss of life, injury and property. The reactions of security agencies to terrorism may themselves induce negative effects on citizens.

On the other hand, the potential negative effects of a terrorist attack using CBRN materials are significant, in terms of financial losses, longer-term economic consequences, losses of life and casualties and social disruption and overall well-being. Well targeted and relevant action in this field to prevent such attacks from happening, to identify planned attacks and to appropriately deal with the consequences of an attack is therefore justified. In these circumstances EU activities in the protection against potential CBRN incidents, especially taking into consideration the existing security gaps, the fact that a difference needs to be made between high-risk CBRN materials and CBRN materials in general, and the fact that a CBRN incident within the EU is a real possibility, are proportionate.

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In general, experience has demonstrated that terrorists will use those materials which they can most easily obtain to commit their attacks. The most telling example is the explosives used in the Madrid attacks, which were stolen in France, possibly reflecting the fact that the measures taken to protect explosives in Spain are stricter than those taken in France.

#### 4. POLICY OBJECTIVES

As a reflection of the problems identified, the objectives of the CBRN package focus mainly on the areas defined in Table 5.

Table 5: Problem structure and related policy objectives

General horizontal objective						
1. To improve the EU's capacity to counter CBRN threats						
Specific horizontal objectives						
1.1 To increase effective international cooperation, coordination and dialogue on CBRN	1.2 To raise awareness and increase knowledge and information sharing on CBRN	1.3 To reduce, where possible, judicial, legal, jurisdictional barriers and constraints	1.4 To improve personnel security	1.5 To strengthen and prioritise research on CBRN	1.6 To increase awareness of security implications in funding decisions	1.7 To increase awareness of security aspects in publishing
Objectives - Prevention		Objectives - Detection		Objectives – Preparedness and response		
General	Specific	General	Specific	General	Specific	
<b>2. To increase the security of CBRN materials and the safety of citizens and possible targets</b>	2.1 To prevent access to legitimately produced and used CBRN materials by terrorists or other criminals	<b>3. To increase the chances of detection and identification of CBRN materials before and after terrorist incidents</b>	3.1 To improve detection and identification capacity and capability	<b>4. To reduce to a minimum the effects of terrorist incidents involving CBRN materials</b>	4.1 To improve response and emergency planning and protocols, also at the EU level	
	2.2 To improve monitoring and control over CBRN materials		3.2 To develop an EU approach towards detection and identification		4.2 To develop an EU approach towards response and emergency planning	
	2.3 To improve overall awareness of the potential dangers and risks, contributing to a high 'security culture'				4.3 To ensure ongoing information flows in case of CBRN emergencies	
					4.4 To increase the chances of finding and prosecuting terrorist and other criminals	
					4.5 To enhance national and EU countermeasures and on-the-ground response capacity	

#### 5. POLICY OPTIONS AND THEIR ASSESSMENT

The below assessment of available policy options differs slightly from the standard impact assessment structure with the aim of conducting a streamlined assessment. The specific impact assessment approach focuses on two main policy options:

- the assessment of the status quo, i.e. the baseline scenario;
- the assessment of relevant CBRN actions.

Due to the complexity and horizontal nature of the topic to be analysed, and the significant number of actions identified in the course of the stakeholders consultation, the relevant CBRN actions are identified on the basis of the first screening of all identified actions that can be found in Annex 4. The purpose of the first screening was to determine:

- which actions do not require a thorough assessment, as they are considered acceptable, feasible and non-controversial. The screening criteria include:
  1. stakeholders' support through consultation of the Task Force;
  2. positive or at least no negative economic, social and environmental impacts and effects on fundamental rights;
  3. limited financial costs;
  4. high EU value added, strong EU rationale;
  5. no issues in relation to subsidiarity and proportionality.
- which actions do require a thorough assessment because they do not meet the criteria outlined above (e.g. they are considered very costly, politically difficult to agree and / or with negative effects on fundamental rights, etc);

On this basis, the first screening categorised the actions as follows:

- uncontroversial actions considered overall acceptable and meeting at least 4 screening criteria.
- controversial actions possibly raising concerns as to their feasibility or cost, meeting fewer than 4 of the screening criteria identified above.

The results of the screening exercise are as follows:

- A total of **99 actions** are considered uncontroversial and will be included in the preferred policy option (CBRN Action plan);
- A total of **48 actions** are considered potentially controversial and will be further assessed in section 5.2.

Table of symbols; "-" for negative impacts and "+" for positive impacts
Assessment of achievement of policy objectives

0	1	2	3	4	5
Baseline/No impact	Very small impact	Small impact	Medium impact	Significant impact	Very significant impact
Assessment of financial costs <sup>31</sup>					
1		2		3	
Low costs: <1 million EUR		Medium costs: between 1 million EUR - 5 million EUR		High costs: > 5 million EUR	
Assessment of economic impacts					
--	-	0	+	++	
Negative impact	Small negative impact	Neutral / no impact	Small positive impact	Positive impact	

## 5.1. Baseline scenario or status quo

Table 6: Status Quo

Assessment Criteria	Rating (from -, 0 - 5)	Motivation of the rating and aspects of the policy action necessary to achieve the impact
<i>Relevance</i>		
1.1 To increase effective international cooperation, coordination and dialogue on CBRN	0	Current international, cooperation and dialogue would be continued. As elaborated in the problem assessment, this would continue to suffer from inefficiencies and possible duplication of efforts. It would not involve all Member States and it would lack a common EU position in some cases whether this would be strongly beneficial. The current lack of effectiveness would also impact on the EU's early warning capacity and its capacity to set up effective public communication in case of a CBRN incident.
1.2 To raise awareness and increase knowledge and information sharing on CBRN	0	Under the <i>status quo</i> , a great deal of stakeholders would continue to be unaware of at least part of the cooperation structures and information sharing mechanisms which exist. Communication levels between

<sup>31</sup> The criteria for assessing the costs in are based on the fact that the costs of implementation will be subdivided among a number of actors, e.g. 27 Member States or the Commission (existing financial programmes), and will occur across the several years' implementation period.



Assessment Criteria	Rating (from -, 0 - 5)	Motivation of the rating and aspects of the policy action necessary to achieve the impact
		Member States would not improve, even though some good bilateral and sometimes multilateral contacts would be further developed. People having access to or handling CBRN materials will not be sufficiently aware of the dangers that such materials may represent.
1.3 To reduce, where possible, judicial, legal, jurisdictional barriers and constraints	0	Differences in practices and legislation would continue to exist. There would therefore be no mutual recognition of for example forensic evidence or of vetting procedures. In addition, in some Member State criminal law may not cover all CBRN acts or may not cover these adequately, with the potential of legal loopholes.
1.4 To improve personnel security	0	Current arrangements in the Member States with regard to personnel security would continue to exist. Some Member States would keep their well-developed background checks and vetting procedures, whilst in other countries no such screening would exist or only for persons which require a very high level of security clearance (e.g. in P4 laboratories). This will lead to important differences which terrorists could use to gain access to CBRN materials.
1.5 To strengthen and prioritise research on CBRN	0	Current research efforts would continue. This includes national-level research projects as well as research undertaken as part of the Research and Development Framework Programmes funded by the European Commission. In addition to current funding availability not being sufficient, Member States would also not have a clear picture on what kind of research is already being undertaken in other national contexts, and what the upcoming research needs would be.
1.6 To increase awareness of security implications in funding decisions	0	No changes would occur, some funding organisations, especially those based in the US, would review security implications whilst other organisations will not pay attention to such issues.
1.7 To increase awareness of security aspects in publishing	0	No changes would occur. The publication of research through open-source literature would continue. Some publishers, for example in the US, would discuss possible security issues with authors whilst in other countries no such check would take place.
2.1 To prevent access to legitimately produced and used CBRN materials by terrorists or other criminals	0	CBRN materials would continue to be relatively available. This would be particular the case for chemicals, as a number of substances can be acquired in shops and through the internet. CBRN facilities, and in particular possibly smaller outfits, will not always have appropriate security management in place.
2.2 To improve monitoring and control over CBRN materials	0	Monitoring and control of CBRN materials would remain problematic in some countries, for some types of material (e.g. radioactive sources) or in some points of the supply chain (mainly at the level of end users).

Assessment Criteria	Rating (from -, 0 - 5)	Motivation of the rating and aspects of the policy action necessary to achieve the impact
		The opportunity for losses and thefts would remain the same unless Member States would launch improvements, with a real danger of further losses and thefts. In addition, if a theft or loss would occur, many stakeholders would not know to whom they were to report this to.
2.3 To improve overall awareness of the potential dangers and risks, contributing to a high 'security culture'	0	The low levels of awareness and understanding of the potential dangers and risks of CBRN materials would persist and could deter people from noting and reporting suspicious behaviour and transactions. Insufficient education, training and other measures to inform staff and other stakeholders of dangers and risks in some countries could lead to terrorists and criminals actively attempting to obtain these materials where these are least protected.
3.1 To improve detection and identification capacity and capability	0	Current detection capacity and capability would continue to be low in some Member States, with a very low chance that certain CBRN materials are detected. Detection systems and equipment would not be used in a targeted way and may not be placed in all relevant locations.
3.2 To develop an EU approach towards detection and identification	0	The differences in the standards for detection systems and equipment, as well as different ways of testing, trialling and certifying these would remain. In addition to the supply of such systems and equipment not meeting the specific needs of clients, industry would also continue to incur costs for having to comply with 27 different sets of standards and other requirements.
4.1 To improve response and emergency planning and protocols, also at the EU level	0	Differences in CBRN emergency planning would continue to exist in the Member States and, in some national contexts, would take insufficient account of intentional releases and the potential use of CBRN materials for a terrorist attack. This would also mean that first responders and other stakeholders involved in emergency situations would not know what steps to take and who to involve in crucial moments.
4.2 To develop an EU approach towards response and emergency planning	0	Response and emergency planning would continue to be a strictly national affair (with some international guidance and cooperation), insufficiently taking into account the likely cross-border effects of CBRN incidents.
4.3 To ensure ongoing information flows in case of CBRN emergencies	0	The current levels of information exchanges as well as information protocols would continue to exist. These may be insufficient in a number of national contexts, not adequately reaching the stakeholders required and / or not envisaging the need to involve neighbouring and other countries.
4.4 To increase the chances of finding and prosecuting terrorist	0	Not all Member States will have incorporated criminal and forensic

Assessment Criteria	Rating (from -, 0 - 5)	Motivation of the rating and aspects of the policy action necessary to achieve the impact
and other criminals		investigations into emergency response plans, especially if the latter do not sufficiently take account of malicious intent. This could lead to important evidence being lost or spoiled.
4.5 To enhance national and EU countermeasure capacity	0	Some Member States will have good medical countermeasures (in terms of drugs, vaccines and therapeutic capacity) and decontamination capacity whilst others may not prioritise such measures or lack resources to put these in place. It is unlikely that any of the Member States are fully prepared for all types of CBRN materials that could be used in a terrorist attack. In the event of a large-scale incident, the different capacities can lead to important cross-border movements of the population.
<i>Expected impacts</i>		
Financial and economic impacts	0	The current level of costs would be maintained, with differing levels of investments between the Member States as well as cost-inefficiencies due to a lack of harmonisation between the countries. In case of an incident, the economic impact could be severe, see section 3.2
Social impacts	0	Without improving the overall approach to achieving a higher security of CBRN materials, the potential of preventing CBRN incidents from occurring would not be improved. In case of such an incident actually occurring, the social impacts in terms of public health and safety as well as the security of citizens (in terms of potential casualties) would be severe.
Environmental impacts	0	If the status quo was to continue, the long term environmental impacts might be negative. As there would be no activities towards better prevention, protection and response of/to CBRN incidents, the risk of such incidents occurring (with serious environmental impacts such as for example contamination of specific areas) would not be reduced.
Impacts on fundamental rights	0	The continuation of the status quo would have no particular effects on fundamental rights

## 5.2. Detailed assessment of the selected actions

Following the first screening exercise presented in Annex 4, a total of 48 policy actions require a further assessment, based on the following assessment criteria:

- a rating as to the extent to which the action is expected to meet the relevant objectives;
- the financial and economic effects of each action. Where possible, an estimation of the costs of each action has been provided;

- where relevant, a description of the potential social and environmental impacts, as well as effects on fundamental rights. With respect to environmental impacts, it is worth mentioning that only direct environmental impacts of a specific action are considered in the below assessment. It needs to be stressed however that indirect positive effects of preventing CBRN incidents are significant and certainly add to the positive environmental effect concerning air quality, water quality, soil quality, land use, animal and plant health and food and feed safety in general;
- the EU added value and rationale for EU intervention;
- the need to change or develop EU legislation in the years to come.

It also needs to be stressed initially, that, due to the sheer number of actions described, their assessment can only touch upon the most relevant impacts with the purpose of making the assessment as focused as possible. Nevertheless, in most relevant cases, where the assessed action can be considered as particularly sensitive, a more detailed description of its impacts and consequences is included. In addition, all actions that might result in separate legislative proposals or high costs in term of resources at EU and/or national level will be subject to separate impact assessments or feasibility studies.

The chosen approach addresses the difficulties associated with providing an impact assessment of a wide-ranging Action Plan, and aims to focus the assessment on those actions for which the possible impact is the biggest in terms of costs or possibly controversial political choices to be made. The approach tries to combine and look for commonalities in more than 260 actions that have been identified as necessary through the work of the CBRN Task force. Issues such as cost-effectiveness, overlaps, synergies, duplications with already existing measures have been discussed during this long consultation phase, and are already taken into consideration when narrowing down the necessary actions to the ones assessed below.

The numbering of the actions assessed below corresponds to the list of actions included in Annex 4. Actions identified with the letter H (for Horizontal) are common to all CBRN strands (i.e. chemical, biological and radiological/nuclear), actions identified with the letters C, B and RN are applicable to the chemical, biological and radiological/nuclear strands respectively.

### **Action B.0 (Implementing the Action Plan)**

The EBN (European Bio-Network) should be created in order to support the implementation of the Action Plan. EBN would be a structure which would pull together European expertise on bio-preparedness from different sectors – research community, private sector and public sector (including the security and intelligence community). Its role would be to develop guidelines and codes of conducts for researchers concerning materials and resources for education about effective and secure bio-standards and best practices. The Network would promote and support development of bio-standards at EU level.

#### Achievement of (relevant) policy objectives

1.1 To increase effective international cooperation, coordination and dialogue on CBRN	1.2 To raise awareness and increase knowledge and information sharing on CBRN	2.3 To improve overall awareness of the potential dangers and risks, contributing to a high 'security culture'	4.1 To improve response and emergency planning and protocols, also at the EU level
3	4	2	1

#### Assessment of relevant effects

*Economic impacts:* the costs for this action would be medium, depending on the structure and size of a network. A network with a central coordinating body could involve an investment of approximately 3 million EUR/year.

Financial costs	Economic impacts
2	0

*Legal effects:* the establishment of the network is likely to require a legislative proposal.

#### Assessment of EU added value

The added value of this action would be low and it would raise a number of proportionality and subsidiarity issues. Firstly, establishing a formal and permanent body at the EU level might duplicate existing structures. Secondly, the actions received little support from relevant stakeholders. Thirdly, most of the actions foreseen within this network would fall under Member States' responsibility. Fourthly, the network in its envisaged form, would focus only on the biological side, rather than have a horizontal approach.

Due to these factors, Action B0 is considered unfeasible.

#### **Action H.08 (Develop improved information tools for CBRN security)**

The Member States and the Commission should establish a law enforcement Early Warning System (EWS) for CBRN related incidents, taking account of existing systems and experiences and based on established common European lists of the most high-risk CBRN materials. Such a mechanism would include information on immediate threats, losses/thefts, and suspicious transactions and would in any case need to be accessible to the law enforcement authorities and relevant emergency responders of the Member States and to Europol. As a first step, the extension of the existing G6 system should be considered. The system should be without prejudice to the exchange of information on public health issues.

#### Achievement of (relevant) policy objectives

1.1 To increase effective international cooperation, coordination and dialogue on CBRN	1.2 To raise awareness and increase knowledge and information sharing on CBRN
3	4

As a concept, the establishment of an EU-wide Early Warning System which would combine C, B and RN would be beneficial, as it would improve information exchanges and allow Member States to take the necessary precautions and other steps when threats, losses, thefts and suspicious transactions are reported. Nevertheless, there are several issues to take into account. Firstly, several separate systems already exist, such as the existing system functioning between the G6 states or Ecurie, the radiological emergency notification and information exchange system. Secondly, it is very important to avoid system overloads, which is for example occurring in some Member States with regard to the European Arrest Warrant (EAW). To this end, clear protocols should be established. The system should have two levels: incidents and threat/suspensions. It would need to be highly secured.

#### Assessment of (relevant) effects

*Economic impacts:* The costs of this action are potentially very high, as it would require a sophisticated system linking all Member States, which should be able to process substantial information up- and downloads. Several countries outside the G6 cooperation countries (DE, ES, FR, IT, PL, UK) already have early warning systems operating for individual CBRN materials and related threats (for example Austria or the Nordic countries). Interlinking and extending these would be less burdensome than setting up entirely new systems. The action would also require, at national and EU levels, continuous and updated inputs. The financial costs may range between hundreds and millions EUR, depending on the adequacy of the existing systems, the number of users and security requirements. On the longer term, however, having a combined system would lead to some important economies of scale.

Financial costs	Economic impacts
3	++

*Social impacts:* The action would have a positive effect on Governance, as it would help improve communication and cooperation between the Member States. The action would also improve Public health and safety, given that an early warning system could directly help to prevent deaths and injuries. Furthermore, the action would contribute to fighting crime and terrorism and increasing security, by improving the exchange of information within the law enforcement community.

#### Assessment of EU-added value

High added value. CBRN incidents and threats have an international dimension. Incidents can have pan-European effects and a loss / theft of a substance in one Member State can have serious effects on another Member State.

### Action C.03 (Improve training)

The Member States should organise regular exercises concerning the security of chemical facilities in order to test preparedness measures in place and raise awareness among staff.

#### Achievement of (relevant) policy objectives

1.2 To raise awareness and increase knowledge and information sharing on CBRN	2.1 To prevent access to legitimately produced and used CBRN materials by terrorists or other criminals	2.3 To improve overall awareness of the potential dangers and risks, contributing to a high 'security culture'
4	1	4

The organisation of regular exercises is of great importance to ensure that chemical facilities are prepared against terrorist or criminal threats and know how to respond. Staff awareness is particularly important in this regard. The coverage and scale of the action is significant, especially when taking into account the number of chemical facilities in the EU – it may thus be advisable to focus on providing 'train-the-trainer' programmes instead. It would in addition be important that the Member States followed some kind of common EU guidelines for developing and providing the training, to ensure a harmonised approach to preparedness overall. This may require a mapping of current training provided and the identification and exchanges of good practices in this regard (as proposed for the biological threats under action B.3).

#### Assessment of (relevant) effects

*Economic impacts:* Depending on the type of chemical facilities addressed (e.g. all or only those dealing with chemicals that would be included in the EU priority substances list), this action could be costly particularly for those Member States which do not yet have such training programmes in place. A single training session could run from around 200 – 500 EUR per half-day.

Financial costs	Economic impacts
2	-

*Social impacts:* The action would help to improve Public health and safety, as staff in chemical facilities would be better prepared to deal with chemical incidents. Better staff preparedness would contribute positively to crime and terrorism prevention and increase security. The action would also improve the Standards and rights related to job quality, as it would improve the workers' access to continuous training.

### Assessment of EU-added value

Putting in place a requirement for Member States to provide training is important to ensure that in all countries staff in chemical facilities is sufficiently prepared. However, without common guidelines or standards for such training there may still be great differences in the quality and content of such training, thus reducing the EU added value of this action.

### **Action B.03 (Improve training)**

Member States and the Commission should consider and develop:

- Guidelines at the EU level for minimum training requirements for persons working with, having access to, or handling biological agents and toxins;
- In conjunction with universities and professional associations, minimal requirements for academic training on biosafety, potential misuse of information and biological agents and toxins and bio-ethics for undergraduate, graduate and postgraduate students.



#### Achievement of (relevant) policy objectives

1.2 To raise awareness and increase knowledge and information sharing on CBRN	2.1 To prevent access to legitimately produced and used CBRN materials by terrorists or other criminals	2.3 To improve overall awareness of the potential dangers and risks, contributing to a high 'security culture'
4	2	4

Developing minimum training requirements would ensure increased awareness of people working with or having access to biological agents and toxins on specific security issues. Indeed some Member States will have developed guidelines or approaches that can be applied in other countries. It would also useful to develop some minimal requirements for certain types of academic training, including on the dual use of agents and toxins. This would ensure a more harmonised approach in the EU Member States and enable countries with little experience in this area to learn from their peers.

#### Assessment of (relevant) effects

*Economic impacts:* The development of minimum training requirements requires medium investments, depending on their nature and scale. A mapping study to put forward guidelines or approaches to be used and promoted at EU level could amount to approximately 200,000 EUR. Around the same costs would be incurred for a study to identify good practices, should this also be included.

Financial costs	Economic impacts
1	0

*Social impacts:* On the one hand, the action may negatively affect Public health and safety, as spreading information to graduate and undergraduate students may create a perception of unsafety. On the other hand, the action would also positively affect Public health and security as it might raise the minimum training standards in the weakest links. The action could also increase security, and reduce the possibility of crime and terrorism involving biological agents and toxins.

#### Assessment of EU-added value

There is a strong EU rationale for this action, as ensuring a common set of guidelines would ensure an EU wide 'interpretation' of minimum training requirements.

#### **Action H.12 (Strengthening personnel security)**

The Member States and the Commission should develop and introduce common graduated criteria for background checks and vetting requirements in relation to personnel having access to high-risk CBRN materials along the whole chain of production, storage, distribution and use. This should be done based on the establishment

of a common European list of the most high-risk CBRN materials. These common criteria should be based on a graduated approach. In the course of the recruitment process, the recruiting organisation should ensure that the credentials of the candidates are properly checked and assessed. The Commission should launch a study concerning existing background check procedures and requirements within the CBRN industry.

#### Achievement of (relevant) policy objectives

1.4 To improve personnel security	2.1 To prevent access to legitimately produced and used CBRN materials by terrorists or other criminals
4	4

Launching a study on existing background check procedures (and vetting processes) would be very beneficial in identifying gaps and good practices, which would help to formulate common criteria that are realistic and acceptable. Limiting this to the European common list is equally beneficial. The length of the list (i.e. the number of materials covered) will determine the coverage of this option: whilst a short list of highly dangerous materials will most likely cover those sectors in which background checks and vetting processes are already being applied, a long list (in particular with regard to chemical substances) could substantially expand the elements of the chain of production, storage, distribution and use to be covered. An important additional factor to be considered would be the ability of the individual Member State to carry out and maintain such background checks, vetting processes and levels

#### Assessment of (relevant) effects

*Economic impacts.* According to available indications, costs for a ‘simple’ background check could amount to 100-200 EUR, whilst a full-blown vetting is likely to cost up to 5,000 EUR per person. Some Member States with less developed background checks and vetting processes will face costs to meet the EU criteria that will be put forward. The financial inputs required will also vary depending on the length of the EU list of most high-risk materials. A graduated approach based upon access to the most dangerous substances would prove far more feasible financially.

Financial costs	Economic impacts
1	0

*Social impacts:* Depending on the number of people to be affected, the action could reduce privacy of individuals. On the other hand, the action increases security as it reduces the possibility of unauthorised access to high-risk CBRN materials, and thus the possibility of crime and terrorism involving high-risk CBRN materials.

*Fundamental rights:* Background checks and vetting requirements establish conditions for access to employment in certain areas of the labour market. Thus, an impact on the

freedom to choose an occupation and the right to engage in work can be expected. Such background checks require the processing of personal data. The personal data protection principles apply to all processing of personal data by any person whose activities are governed by Community law. Any collection of, or access to personal data by officials of the State about an individual must be duly justified, in line with the law and necessary in a democratic society in pursuit of one or more of the legitimate aims listed in Article 8 *para 2* of the European Convention on Human Rights (ECHR).

*Legal effects:* The common criteria may require a legislative instrument at EU level.

#### Assessment of EU-added value

Establishing common graduated criteria for background checks and vetting would provide a high added value, as it would improve overall security standards and levels across the EU and help Member States with less developed approaches to make improvements. The action would also increase the trust between the Member States, which would be beneficial to further enhance the mutual recognition of vetting processes. It would be important to ensure that a balanced approach is taken, involving vetting for only a limited number of people and if necessary good quality background checks for those who are not in direct contact, or only rarely, with high-risk materials. Mutual recognition of vetting processes would also benefit the individual workers that make use of their right to engage in occupation in other Member States. It would reduce costs for businesses and administrations as Member States would be able to recognise the vetting processes conducted by other Member States.

#### **Action H.13 (Strengthening personnel security)**

The Member States and the Commission should identify and exchange good practices on approaches to security of non-EU visiting staff and students; Member States should aim at common procedures across the EU.

#### Achievement of (relevant) policy objectives

1.3 To reduce, where possible, judicial, legal, jurisdictional barriers and constraints	1.4 To improve personnel security	2.1 To prevent access to legitimately produced and used CBRN materials by terrorists or other criminals
4	2	3

#### Assessment of (relevant) effects

*Economic impacts:* The costs for identifying good practices would be low, involving a mapping study to identify good practices, their validation and organising the exchanges. The costs of the subsequent establishment of an EU procedure to deal with the screening of visiting staff from outside the EU would also be low to medium, again depending on the type of background checks or vetting applied. The action could however have the

negative economic effect of inhibiting excellence and talents to come to work in the EU, thus reducing overall competitiveness.

Financial costs	Economic impacts
2	- (if a procedure is applied)

*Social impacts:* The action could negatively affect the right to private life and personal data protection of the individuals involved, equality of treatment and opportunities. On the other hand, since common procedures at EU level help improving security standards within the weakest links, the action increases security, and contributes to the prevention of crime and terrorism involving high-risk CBRN materials.

*Fundamental rights:* Depending on the form of the common procedures, the action could have a negative effect on the Non-discrimination principle. Also, any collection of, or access to personal data by officials of the State about an individual must be duly justified, in line with the law and necessary in a democratic society in pursuit of one or more of the legitimate aims listed in Article 8 *para* 2 of the European Convention on Human Rights (ECHR). The measure could also entail negative effects on academic freedom.

*Legal effects:* The EU common procedure may require a legislative instrument at EU level.

#### Assessment of EU-added value

The EU has a strong role to play in this area, as it is responsible for overall migration policy. There are known cases of attempts to infiltrate universities and research institutes. Not all Member States apply background checks which would enable at least the identification of suspicious applications - this is a pan-European problem justifying common action in this field.

#### **Action B.04 (Strengthening personnel security)**

Member States should ensure that Each Member State and/or organisation has a secure registry of personnel having access to or information on biological agents and toxins on the EU biosecurity list (along the whole chain of production, storage, distribution and use). Law enforcement should have access to such a registry.

#### Achievement of (relevant) policy objectives

1.3 To reduce, where possible, judicial, legal, jurisdictional barriers and constraints	2.1 To prevent access to legitimately produced and used CBRN materials by terrorists or other criminals	2.2 To improve monitoring and control over CBRN materials
1	3	3

Maintaining a registry of persons working, handling and/or having access to biological agents and toxins in diagnostic facilities is beneficial as it would speed up any control activity in case of a suspicious activity or behaviour. There would be benefit in agreeing on some common elements to be included in the registry, or the overall format of the latter, at EU level.

#### Assessment of (relevant) effects

*Economic impacts:* Some Member States already have registries in place. For those that will have to set this up, the financial costs will strongly depend on the length of the EU biosecurity list. If all researchers, visiting staff and students who might have access to some material will fall under the scope of this register, this would include more than 10,000 individuals in Europe.

Financial costs	Economic impacts
2	0

*Social impacts:* The action could have a negative effect on private life and personal data protection, especially if a high number of people are affected and if access to the registry within the law-enforcement authorities would not be properly limited. On the other hand, the action increases security, and reduces the possibility of unauthorised access to high-risk CBRN materials, and thus crime and terrorism.

*Fundamental rights:* The Protection of personal data could be affected if personal information is not sufficiently protected and secured, and if access to the registry by the law-enforcement authorities would not be properly limited. The personal data protection principles apply to all processing of personal data by any person whose activities are governed by Community law. Furthermore, any collection of, or access to personal data by officials of the State about an individual must be duly justified and in line with the law. Only interferences which are in accordance with law and necessary in a democratic society in pursuit of one or more of the legitimate aims listed in Article 8 *para* 2 of the ECHR.

#### Assessment of EU-added value

The EU has a role to play in ensuring that security standards are harmonised in the Member States, to avoid that terrorists or criminals concentrate on countries with less developed approaches. A registry would be part of the overall ‘package’ to improve the overall security level playing field.

#### **Action H.18 (Strengthen and prioritise research)**

The Member States and the Commission should encourage funding organisations (be it public or private) to take security aspects of proposed research projects and other publications into account, as well as the suitability of the funds receiver (from both a safety and a security perspective) to work on the research the receiver is proposing. Best

practices of funding organisations should be identified and exchanged across Member States.

Achievement of (relevant) policy objectives

1.5 To strengthen and prioritise research on CBRN	1.6 To increase awareness of security implications in funding decisions	1.7 To increase awareness of security aspects in publishing
2	4	2

Assessment of (relevant) effects

*Economic impacts:* It is difficult to estimate the costs of this action, as funding organisations could be encouraged through several actions such as the preparation of guidance material, checklists, detailed information on security issues, training, events, etc. Overall, costs are expected to be low. Preparing guidance material should cost less than 200,000 EUR with translations. However, the action could have negative effects in a scenario where funding for research presenting security risks would be reduced, for example because, as a result of additional checks required on the status and security arrangements of funding applicants, funding organisations would decide to finance projects outside the EU. This could affect the overall competitiveness of the EU.

Financial costs	Economic impacts
1	0 (- if funding would be reduced)

*Social impacts:* This action may, if funding applicants presenting security risks would have limited chances of receiving grants, harm equality of treatment and opportunities. On the other hand, it could contribute to increased security and be a step forward towards reducing the possibility of crime and terrorism involving CBRN materials.

Assessment of EU-added value

There is scope for EU action in this area, as a common message would raise awareness in all Member States as well as at the international level.

**Action B.06a (Strengthen and prioritise research)**

All scientific publications should be assessed by peer reviewers before their publication

Achievement of (relevant) policy objectives

1.6 To increase awareness of security implications in funding decisions	1.7 To increase awareness of security aspects in publishing
2	3

Assessment of relevant effects

*Economic impacts:* the action might have a negative impact on research. If researchers do not have assurances on the publication of their studies, their interest in research might decrease (or be undertaken outside the EU). This could influence the competitiveness of the EU. Appropriate education and training of all peer reviewers on security issues seem to be unfeasible, given the high numbers of researchers. Also, many of the peer reviewers are not citizens of the EU, which means that the EU's legislative powers would be very limited.

Financial costs	Economic impacts
1	-

*Effects on fundamental rights:* This kind of peer review might raise concerns as to its compatibility with fundamental rights such as freedom of science and speech by preventing researchers to publish their findings.

### Assessment of EU added value

The rationale for EU intervention is weak: the role of the EU would not be to interfere with freedom of expression and with national arrangements in place in relation to the publication of research. Furthermore, there might be a detrimental long-term effect on research and public health.

Due to the above reasons, this action is considered unfeasible.

### **Action B.06b (Strengthen and prioritise research)**

Publications of studies with sensitive biological dual-use research in two versions (public and restricted version)

#### Achievement of (relevant) policy objectives

1.6 To increase awareness of security implications in funding decisions	1.7 To increase awareness of security aspects in publishing
2	2

### Assessment of relevant effects

*Economic impacts:* the costs of this action strongly depend on its implementation. Setting up an EU body to assess which studies would require to be published in two versions is potentially very costly. The extra efforts required to publish two versions also require additional inputs and hence costs. It may significantly delay publications and would thus hinder the European research.

Financial costs	Economic impacts
3	0

*Effects on fundamental rights:* This action might also raise concerns as to its compatibility with fundamental rights, such as freedom of speech and access to information.

### Assessment of EU added value

The action could raise issues of subsidiarity, as it would interfere with national arrangements in place in relation to the publication of research. The action would also lead to increased inputs from researchers to provide two different versions of their publications.

As the action raises questions in relation to subsidiarity, and it has also received very little stakeholders' support, it is considered unfeasible.



### 5.2.1. CBRN prevention

#### **Action H.20 (Develop EU lists of high-risk CBRN materials and risk-based approaches to security)**

The Member States and the Commission should establish and regularly update EU lists of high-risk chemical agents; biological agents and toxins (biosecurity list); and high-risk radioactive sources of special security concern.

These lists should be developed based on a risk assessment analysis. This process should include the following steps:

- Identifying and analysing relevant CBRN materials;
- Assessing its potential for being used for malicious purposes;
- Selecting the most dangerous material in terms of its potential for being used for malicious purposes;
- Assessing its vulnerability in terms of theft/loss (ease of obtaining them);
- Establishing possible preventive measures: physical / technical and administrative;
- Carrying out a cost / benefit study on these possible measures.

#### Achievement of (relevant) policy objectives

2.2 To improve monitoring and control over CBRN materials

5

2.1 To prevent access to legitimately produced and used CBRN materials by terrorists or other criminals

1

The development of a common list would ensure harmonisation at EU level. Member States should be offered the possibility to adopt the list but add materials which are of specific national concern. The latter is particularly relevant with regard to biological agents and toxins, as their presence strongly depends on contextual, geographical and climatic differences of the EU27.

The list would need ongoing updating. The criteria used for the selection of the materials to be included would need to be agreed between the Member States. The use of a common list would be particularly useful to improve detection and identification methodologies and tools, as research and private sector solutions could focus on the prioritised materials. It will also be highly important to ensure that the lists take account of recent developments, for example of the possibility of genetic manipulation in the biosecurity list.

#### Assessment of (relevant) effects

*Economic impacts:* In terms of financial costs, several meetings between the Commission, the Member States and relevant Agencies would be required to take the process forward and prepare the lists. These could be facilitated by key experts in the field. Per meeting, around 15 days at 500 EUR would be required, totalling 7,500 EUR. Logistics for meetings: (e.g. travel, subsistence, conference rooms): would approximately amount to 1,000 EUR per person. When estimating the participation of 40 persons per meeting, taking part in around 5 meetings, this would amount to 200,000 EUR. Expert fees to support the process (e.g. assessment of potential to be used for malicious purposes, vulnerability assessment, etc) may amount to around 100,000 EUR per type of material. Additional costs would be incurred for the cost-benefit study on possible preventive measures, which could add an additional 20 – 30,000 EUR per Member State.

Financial costs	Economic impacts
1	0

*Legal effects:* The common EU lists may require a legislative instrument setting out, for example, the assessment criteria for including materials on the list.

#### Assessment of EU-added value

There is a strong rationale for EU intervention, as it would help to harmonise an area characterised by great national and international differences, thus ensuring an approach based on similar methods and criteria. Furthermore, identifying a number of high risk CBRN materials at EU level could certainly provide common EU ground for balanced approach to activities at EU level and represent a cornerstone for the implementation of the entire Action plan. Broad availability of CBRN materials in the modern world means that it would not be possible to implement strict security measures concerning all such materials. A certain prioritisation is needed so that public authorities and private operators concentrate resources on securing only a certain group of high-risk CBRN materials. Such an approach would allow the EU and the Member States to concentrate on those issues which are of highest concern.

#### **Action H.22 (Enhance the security of CBRN materials and facilities)**

The Member States and the Commission should develop criteria on assessing security arrangements at high-risk CBRN facilities. This should be done in the form of a good practice document.

#### Achievement of (relevant) policy objectives

2.1 To prevent access to legitimately produced and used CBRN materials by terrorists or other criminals	2.2 To improve monitoring and control over CBRN materials
4	2

### Assessment of (relevant) effects

*Economic impacts:* The action in itself would require low financial inputs, as it would mainly concern a mapping exercise, identification of good practices and the preparation of a document. Based on similar studies, the mapping exercise of existing criteria would amount to around 100,000 EUR per type of material. Additional costs would be required for the publication of the document in all the languages of the EU. If the assessment criteria would become compulsory, the financial implications may be high for some Member States and relevant industry to ensure compliance.

Financial costs	Economic impacts
1	0 (- if the assessment criteria would become compulsory)

*Social impacts:* Developing criteria on assessing security arrangements at high-risk CBRN facilities would positively affect the security of CBRN facilities as it might help to identify gaps in existing protection measures.

#### Assessment of EU-added value

The rationale for EU intervention is strong, as evidence suggests that security arrangements in some facilities may be insufficient to ensure protection against the malicious intent to obtain CBRN materials. It would thus be important to further encourage harmonisation of the extent to which Member States assess security arrangements in their facilities.

#### **Action C.07 (Enhance the security of CBRN materials and facilities)**

The Member States should ensure that security plans/security management systems are in place in high-risk chemical facilities. The security plans should provide for graduated levels of security based on the existing threat level. Member State authorities should be involved in assessing whether these security plans satisfy the necessary level of protection requirements.

#### Achievement of (relevant) policy objectives

2.1 To prevent access to legitimately produced and used CBRN materials by terrorists or other criminals	2.2 To improve monitoring and control over CBRN materials
4	3

Improving the security plans and security management systems in facilities handling high-risk chemicals, involving Member State authorities in checking whether such plans satisfy the necessary level of protection requirements, is beneficial, as it would ensure that any potential threat is taken into account. The option is in line with the European Programme for Critical Infrastructure Protection, which aims to improve the protection of critical infrastructure in the EU through a package of measures including the identification and designation of European critical infrastructure and accompanying financial measures. This addresses critical infrastructure which, if disrupted or destroyed, would significantly affect two or more Member States.

The option would also require close links to the Seveso II Directive on the major-accident hazards of certain industrial activities, which looks at protection of facilities and plans from a safety perspective. The option would benefit from action in the field of developing criteria for assessing security arrangements in CBRN facilities and exchanges of good practices, as put forward under H.22.

### Assessment of (relevant) effects

*Economic impacts:* The financial costs of this action are very high, given the number of chemical plants that could be affected which would have to establish or further elaborate their security plans and management systems, in particular in Member States with less advanced approaches in place. To mitigate this, it would be useful if more developed Member States would provide assistance, advice and expertise. High costs would also be incurred by national authorities to verify the compliance of these plans and systems with protection requirements. It is likely that such costs will have economic impacts, as chemical plants could increase their prices to cover these additional costs. Small facilities in particular may not be able to cope with such additional costs. There is a potential for the action to affect EU competitiveness and to lead to market distortion.

Financial costs	Economic impacts
3	-

*Legal effects:* The action may require legislation which goes beyond the Seveso II Directive, as it would need to cover specific security concerns.

### Assessment of EU-added value

The action may raise issues of subsidiarity and proportionality, as security plans and management systems are a national responsibility of owners, operators and authorities. However, insufficient security plans and management systems could lead to thefts, losses and incidents which could affect other Member States and are therefore a European concern.

### **Action C.09a (Enhance the security of CBRN materials and facilities)**

The Commission should investigate gaps with regard to the delivery documentation mechanism established under the Responsible Care programme.<sup>32</sup>

<sup>32</sup>

The Responsible Care programme is an (voluntary) initiative of the chemical industry which addresses issues such as health, safety and environmental performance, and communication with stakeholders. As part of the programme, participating chemical companies are obliged to document all their deliveries. The Responsible Care programme is an initiative of the chemical industry which addresses issues such as health, safety and environmental performance, and communication with stakeholders about products and processes

Achievement of (relevant) policy objectives

2.1 To prevent access to legitimately produced and used CBRN materials by terrorists or other criminals	2.2 To improve monitoring and control over CBRN materials	2.3 To improve overall awareness of the potential dangers and risks, contributing to a high 'security culture'
1	2	1

### Assessment of relevant effects

*Economic impacts:* whilst the costs for a similar investigation would be relatively low, any changes proposed to the programme could require additional investments by the companies that are participating in the Responsible Care Programme. As a result of this action, participants may also decide to leave the programme.

Financial costs	Economic impacts
1	-

### Assessment of EU added value

The rationale for EU intervention is rather low. The investigation of the Responsible Care programme would not be highly relevant, given that the programme does not include all relevant stakeholders. In addition, if the investigation would show a need for changes to the programme, the Commission could not 'enforce' such changes. Several stakeholders doubted the usefulness of a similar investigation. The action also received very little support from relevant stakeholders and is thus considered unfeasible.

### **Action C.10 (Enhance the security of CBRN materials and facilities)**

The Member States and the Commission should develop a high level approach to chemical facility security which identifies key objectives and steps to be taken in order to increase security, based on national risk assessment approaches.

### Achievement of (relevant) policy objectives

2.1 To prevent access to legitimately produced and used CBRN materials by terrorists or other criminals	2.2 To improve monitoring and control over CBRN materials
3	3

### Assessment of (relevant) effects

*Economic impacts:* The financial implications of developing an EU high level approach are difficult to estimate without more detailed information as to what kind of activities this would include. As a minimum, Member States and the Commission are likely to incur costs for meetings to agree on the common objectives and steps. Further costs could be incurred for the preparation of a document setting out the high level approach.

Financial costs	Economic impacts
1	0

*Social impacts:* Developing a high level approach to the security arrangements of chemical facilities would positively affect the security of CBRN facilities as it might help to identify gaps in existing protection and other safety measures.

*Legal effects:* The action may require a legislative instrument, or an EU recommendation or communication to set out the high level approach.

#### Assessment of EU-added value

The action may raise issues of subsidiarity and proportionality, as chemical facility security is a national responsibility of owners, operators and authorities. However, insufficient facility security could lead to thefts, losses and incidents which could affect other Member States and are therefore a European concern.

### **Action B.08 (Enhance the security of CBRN materials and facilities)**

The Member States should establish:

- A secure registry of facilities possessing any of the biological agents and toxins on the EU biosecurity list within each Member State while allowing access to law enforcement;
- A process to verify and if necessary to enhance security arrangements of facilities, including diagnostic laboratories handling and possessing any of the biological agents and toxins on the EU biosecurity list.
- A mechanism within facilities storing biological agents and toxins on the EU biosecurity list to regularly review the need of such biological agents and toxins while keeping a good record of stored materials;

Most Member States have an overview of relevant facilities but some do not have a centralised list of all relevant ones. Developing secure registries is beneficial and in particular would assist in enabling local law enforcement and security officials to pay closer attention to facilities containing particularly hazardous biological agents and toxins. The registries would enable countries to monitor such facilities and to quickly follow-up any suspicious activity. The joint experience of the Member States could serve as a very useful basis for enhancing the security arrangements facilities. Whilst some Member States face less of an immediate security risk, the concern is that terrorists or criminals might take advantage of that lower level of security to obtain biological agents for use against another Member State. Good record-keeping and regular checking of such substances is essential to enable their monitoring. For some Member States which do not have secure registries in place, their development may prove time consuming, costly and difficult. Access to the registries should be clearly defined and limited.

#### Achievement of (relevant) policy objectives

2.1 To prevent access to legitimately produced and used CBRN materials	2.2 To improve monitoring and control over CBRN materials
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by terrorists or other criminals	
4	4

#### Assessment of (relevant) effects

*Economic impacts:* The action, in its entirety, is potentially very costly especially for Member States which have less developed systems in place (for example, if they face less criminal or terrorist threats). Particularly resource-intensive activities relate to the development and maintenance of registries (securing, updating, checking, etc), the creation of the mechanism and the development of a process to verify and enhance security arrangements. The introduction of the action could have negative economic impacts on some Member States who may refrain from handling certain biological agents and toxins. The financial costs and economic effects will strongly depend on the length of the EU biosecurity list. However, the number of facilities dealing with biological agents and toxins is relatively low and hence the economic effects will also be of a smaller scale. This could make the investments required more acceptable and justifiable.

Financial costs	Economic impacts
2	-

*Environmental impacts:* Possible positive effects, if the action would lead to a reduction of facilities possessing and handling dangerous biological agents and toxins.

*Legal effects:* The process to verify security arrangements and the mechanism to review the need for such biological agents and toxins may need to be supported by further legislation.

#### Assessment of EU-added value

The rationale for EU intervention is strong, as evidence suggests that security arrangements in some facilities may be insufficient to ensure protection against the malicious intent to obtain agents and toxins. It would be important to further harmonise the security of facilities to ensure an equal level of protection across the EU.

#### **Action B.08a (Enhance the security of CBRN materials and facilities)**

The Member States should introduce the system of accreditation of a specific and limited number of laboratories, health institutions, and production establishments on the basis of compliance with minimum security standards.

#### Achievement of (relevant) policy objectives

2.1 To prevent access to legitimately produced and used CBRN materials by terrorists or other criminals	2.2 To improve monitoring and control over CBRN materials
4	4

### Assessment of relevant effects

*Economic impacts:* There are relatively high costs associated with accreditation in general. The action could have negative effects on industry in some Member States as some institutions and laboratories may no longer be allowed to handle biological substances or may decide not to handle them as the accreditation (and complying with the minimum security standards) would be too costly. Setting out the legislative basis for accreditation, developing the criteria and processes and setting up the system would also need considerable time to be completed.

Financial costs	Economic impacts
3	-

#### Assessment of EU added value

The EU added value is rather low, as a number of Member States already have national licensing and authorisation procedures in place which also include security standards. Stakeholders considered that the action would constitute an unnecessary duplication of efforts.

Due to these reasons, the action is considered unfeasible.

#### **Action RN.03a (Enhance the security of CBRN materials and facilities)**

The Commission should bring together relevant authorities from the Member States in order to identify good practices concerning the physical protection of various categories of sources. Based on this work, the Commission should develop a good practice guideline addressing such issues as:

1. The responsibility of an authority to assess the security measures in place for various types sources;
2. Linking the results of the above mentioned security assessment to the licensing/registration procedure;
3. Creating varying levels of security measures adapted to the risk posed by particular radioactive sources, amounts of certain sources or combinations of sources. These security measures should address inter alia: background checks for personnel, physical security measures and information security.

#### Achievement of (relevant) policy objectives

1.4 To improve personnel security	2.1 To prevent access to legitimately produced and used CBRN materials by terrorists or other criminals	2.2 To improve monitoring and control over CBRN materials
3	3	1

#### Assessment of relevant effects

*Economic impacts:* The costs for developing a good practice guideline are low and would mainly relate to the identification and selection of good practices, meetings between Member States, the preparation of the guideline and its dissemination.

Financial costs	Economic impacts
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1	0
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#### Assessment of EU added value

The EU added value of this action would be low with a high potential for duplication of efforts, as the IAEA has already developed a set of very useful guidelines on which any further work could be based. There are, in addition, some subsidiarity issues as it is up to the Member States to put in place arrangements for assessing the security of radiological and nuclear facilities and materials and to determine whether these should be linked to licensing/registration procedures.

Due to these factors and low stakeholder' support, the action is considered unfeasible.

#### **Action RN.06 (Enhance control over CBRN substances)**

The Member States should launch recovery programmes for disused high-risk sources. The launch of a source recovery programme could be coupled with the creation of a source exchange system among the Member States, so that recovered sources can be made available to those states that need them (rather than manufacturing new sources).

#### Achievement of (relevant) policy objectives

2.1 To prevent access to legitimately produced and used CBRN materials by terrorists or other criminals	2.2 To improve monitoring and control over CBRN materials
3	4

Evidence suggests that, even though most Member States have registries in place of high-risk sources, in some countries such registration is insufficiently controlled. Knowing where disused high-risk sources are, and in whose possession, is essential to prevent their use for malicious purposes (the materials could potentially be used in a “dirty bomb”) and to ensure appropriate safety levels. There have been cases of orphan sources as a result of bankruptcy of companies or due to unexplained losses of equipment and material. Even when sources are not lost, but simply disused, it would be highly beneficial to recover them rather than leaving them in a possibly insecure location or circumstances. The option envisages a recovery programme to be launched by the Member States, which would in particular benefit from an exchange system to allow recovered sources to be used by countries that need them. It is important to take into account of existing initiatives in this area, e.g. as part of Council Directive 2003/122/Euratom on the control of high-activity sealed radioactive sources and orphan sources and IAEA guidance in this field.

#### Assessment of (relevant) effects

*Economic impacts:* The action is potentially very costly. It is also likely that ‘poorer’ Member States, which are most likely to have such insecure materials, will have to incur

higher costs. However, important financial gains could be achieved through the development of the source exchange programme among Member States, which would allow for the sources to be used again, rather than manufacturing new sources. The exchange programme itself would require low financial investments, in relation to the establishment of a database or similar tool to log on requests and availability, as well as costs for transport.

Financial costs	Economic impacts
3	++

*Social impacts:* The action would greatly improve public health and safety, as the launch of recovery programmes would reduce the risk of disused sources falling in the wrong hands and, in general, affecting the health of the population if opened or poorly sealed.

#### Assessment of EU-added value

The EU has a strong role in encouraging the launch of recovery programmes, based on early Euratom agreements and legislation. The exchange programme would in particular require an EU-wide approach.

#### **Action RN.13 (Contribute to the development of a high security culture of staff)**

The Member States and the Commission should engage with research stakeholders to raise awareness of security issues and facilitate the exchange of good practices on dealing with security threats. Particular attention should be given to background check requirements for visiting researchers/students. This work should lead to an increased security culture within the research sector.

#### Achievement of (relevant) policy objectives

1.4 To improve personnel security	1.6 To increase awareness of security implications in funding decisions	1.7 To increase awareness of security aspects in publishing
3	2	4

#### Assessment of (relevant) effects

*Economic impacts:* The costs for identifying good practices would be low, involving a mapping study to identify good practices, their validation and organising the exchanges. A study to identify good practices would amount to approximately 200,000 EUR. The costs for the dissemination and exchanges of the good practices are more difficult to estimate, as this could be undertaken in many different ways, e.g. through events with relevant Member State authorities, by compiling the good practices in an online forum or in a publication, etc.

Financial costs	Economic impacts
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1-2	-
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*Social impacts:* The action could negatively affect equality of treatment and opportunities, as well as non-discrimination if third country nationals would need to undergo more rigid forms of screening. If the same level of stringent security checks could be applied to all researchers with access to high risk material, regardless of being from a Member State or a third country, this would negate much of the concern over discrimination.

*Fundamental rights:* similar to the social issues raised, the action could negatively affect the non-discrimination principle if the same level of security checks for everybody would not be ensured. The measure could also entail negative effects on academic freedom.

*Legal effects:* The EU common procedure may require a legislative instrument.

#### Assessment of EU-added value

The EU has a strong role to play in this area, as it is responsible for overall migration policy. There are known cases of attempts to infiltrate universities and research institutes. Not all Member States apply background checks which would enable at least the identification of suspicious applications - this is a pan-European problem justifying common action in this field.

#### **Action RN.13a (Contribute to the development of a high security culture of staff)**

The Commission should launch a study on the implementation in the EU Member States of the IAEA Code of Conduct on the Safety and Security of Radioactive Sources.

#### Achievement of (relevant) policy objectives

1.4 To improve personnel security	2.3 To improve overall awareness of the potential dangers and risks, contributing to a high 'security culture'
2	2

#### Assessment of relevant effects

*Economic impacts:* The costs for undertaking a study on the implementation of the IAEA guideline would be low, in the order of 200,000 euro.

Financial costs	Economic impacts
1	0

#### Assessment of EU added value

The rationale for EU intervention is weak. Stakeholders stressed that sufficient information was already available at this stage on the implementation of the IAEA Code of Conduct and that undertaking a study would thus not bring any added value.

The action is therefore considered unfeasible.

#### **Action H.25 (Improve the identification and reporting of suspicious transactions)**

Member States and the Commission should:

- Identify and exchange good practices on the reporting of suspicious transactions in relation to CBRN materials used by private and public entities (e.g. industry, medical sector, research).
- Establish modalities for reporting loss or suspicious transactions while enhancing awareness of relevant stakeholders about suspicious transactions and encourage stakeholders to report such transactions to law-enforcement authorities

#### Achievement of (relevant) policy objectives

2.2 To improve monitoring and control over CBRN materials	2.3 To improve overall awareness of the potential dangers and risks, contributing to a high 'security culture'
4	4

#### Assessment of (relevant) effects

*Economic impacts:* The costs of this action are medium. The identification and selection of good practices would require a mapping study in the approximate amount of 200.000 EUR.

Financial costs	Economic impacts
1	0

*Social impacts:* The action could interfere with the right to private life and protection of personal data, depending on the specific personal data that needs to be reported to law enforcement authorities, on the exact purposes and how this information would be processed, and which safeguards for individuals are provided. The action could also increase the public perception of un-safety. On the other hand, the action increases security, and improves the control over high-risk CBRN materials and thus reduces the possibility of thus crime and terrorism. The action could also contribute to raising standards related to job quality, as it would increase the access of relevant personnel to continuous training.

*Fundamental rights:* Reporting losses or suspicious transactions might require the processing of personal data. The personal data protection principles apply to all processing of personal data by any person whose activities are governed by Community law. Furthermore, any collection of, or access to personal data by officials of the State about an individual must be duly justified and in line with the law. Only interferences which are in accordance with law and necessary in a democratic society in pursuit of one or more of the legitimate aims listed in Article 8 *para* 2 of the ECHR will be considered to be an acceptable limitation by the State of an individual's Article 8 ECHR rights.

#### Assessment of EU-added value

There is great scope for EU action in this area, as the EU could steer the identification and exchanges of good practices, as well as the development of adequate modalities, thus ensuring a more harmonised approach.



### **Action H.26 (Improve the identification and reporting of suspicious transactions and behaviour)**

Member States and the Commission should develop guidelines for the industry, the medical sector and the research community containing criteria identifying the forms of behaviour which may give rise to suspicion. Member State authorities should provide guidance to stakeholders on what suspicious transactions are.

#### Achievement of (relevant) policy objectives

2.2 To improve monitoring and control over CBRN materials	2.3 To improve overall awareness of the potential dangers and risks, contributing to a high 'security culture'
3	3

#### Assessment of (relevant) effects

*Economic impacts:* The costs of this action are medium. The development of guidelines would require a mapping of criteria currently used in the Member States and their elaboration into an EU document. Member States would have to meet possibly several times to agree on the guidelines. It is estimated that a mapping study would cost around 100,000 EUR and that up to three meetings convening Member State representatives would represent an approximate amount of 90,000 EUR. However, it is not possible to estimate the costs for the guidance to be provided by Member State authorities, as this could be provided in a wide variety of forms, e.g. a website, a handbook, an awareness campaign, training, etc.

Financial costs	Economic impacts
2	0

*Social impacts:* The action could also increase the public perception of unsafety. It would be important to emphasise that the criteria concern suspicious behaviour in transactions, and not behaviour by colleagues or relatives. On the other hand, the action could certainly contribute to raising security and possibly also to raising standards related to job quality, as it would increase the access of relevant personnel to continuous training.

#### Assessment of EU-added value

There is great scope for EU action in this area, as the EU could steer the development of common criteria, ensuring a more harmonised approach to what constitutes suspicious behaviour and transactions.

### Action H.27 (Enhance the security of transport)

The Member States and the Commission should establish an ad-hoc committee of experts on transport security with regard to CBRN materials. This Committee should bring together experts from the transport sector, the security services and law enforcement authorities. The Committee should address the following issues:

- Assess whether existing transport security rules fully cover all CBRN materials.
- Identify and exchange good practices in the Member States concerning the transport of high-risk CBRN materials (e.g. limited quantities in one transport; or tracking systems).
- Identify and exchange current good practices in terms of tracking CBRN materials.
- Requirements for the development of tracking and tracing systems for the transport of CBRN materials.
- Identify and exchange good practices concerning the implementation of current ADR (and RID and ADN) requirements such as the development of security plans.
- Identify security requirements for logistics enterprises.
- Consider establishing a notification system for the international transport of CBRN materials contained in the CBRN lists (identified under the risk-management process).
- Consider the feasibility and costs/benefits of introducing a requirement that only licensed transporters would be used for the transport of specifically identified CBRN materials. These licensed transporters would be obliged to follow agreed minimum security requirements.

The work of the Committee should feed into existing processes such as the UNECE Ad-Hoc Working Group.

#### Achievement of (relevant) policy objectives

2.2 To improve monitoring and control over CBRN materials	2.3 To improve overall awareness of the potential dangers and risks, contributing to a high 'security culture'
4	4

#### Assessment of (relevant) effects

*Economic impacts:* The costs of this action would be low, consisting of fees for expert inputs and facilitation and travel expenses. Possibly additional procurement would be required for the feasibility and cost/benefits studies, the identification and exchanges of good practice and other analytical tasks.

Financial costs	Economic impacts
1	0

#### Assessment of EU-added value

The Committee would be established at EU level and address issues of international and EU concern. It would enhance the development of a common EU position in international matters and help to further harmonise national approaches to transport security of CBRN materials, whilst encouraging peer learning at the same time.

#### **Action B.13 (Enhance the security of transport)**

The Commission and the Member States should initiate the creation of an EU capability and mechanism to rapidly and safely transport biological samples, in accordance with international regulations, within the EU and into the EU.

#### Achievement of (relevant) policy objectives

2.2 To improve monitoring and control over CBRN materials	2.3 To improve overall awareness of the potential dangers and risks, contributing to a high 'security culture'
4	4

Having an EU capability and a mechanism to rapidly and safely transport biological samples would increase the overall EU capacity to deal with deliberately caused outbreaks. This would prove invaluable with regard to the identification of a particular biological agent, thus reducing the amount of time before appropriate medical and other responses can be initiated. Consideration would have to be given to the appropriate security of such transport.

The mechanism would need to be accompanied by an extensive mapping of available laboratories and available carriers. Any transfer of such samples, particularly of Category A biological agents such as anthrax, or indeed Category B, such as Q Fever, would require appropriately high levels of security to ensure safe transit. At the same time, consideration would also have to be given to the fact that any laboratory receiving such samples would have to maintain an equally high level of security. At present, some countries experience great difficulties in organising transport, as some carriers refuse to handle dangerous substances.

#### Assessment of (relevant) effects

*Economic impacts:* The costs of this action would depend on its exact content. For example, several different activities could be included, such as the mapping of laboratories and their specific capacity to handle certain samples, the identification of appropriate carriers, in line with international regulations, as well as agreements between the Member States on protocols and transport modalities. The action would bring some efficiency gains as some transport would be dealt with centrally, based on the most relevant and closest laboratory.

Financial costs	Economic impacts
1-3	+

*Environmental impacts:* Possibly positive environmental effects, as the action would reduce the likelihood and scale of environmental risks, by increasing the safety and security of transport of dangerous CBRN materials and make it more efficient.

*Legal effects:* The establishment of a mechanism may require a legislative basis.

#### Assessment of EU-added value

There is a strong rationale for EU action in this area, as an EU capability and mechanism would enable the identification of the closest, most relevant laboratories and as the action would address a transport problem experienced by many Member States.

#### **Action C.20a (Enhance the security of transport)**

Based on a risk-management approach, each Member State should work towards eliminating the transport of certain high-risk chemicals. This can be done by encouraging and supporting the development of relevant chemical manufacturing facilities at sites which require such dangerous chemicals (rather than transporting them). Enhance links between law enforcement authorities and transporters of chemical agents.

#### Achievement of (relevant) policy objectives

2.1 To prevent access to legitimately produced and used CBRN materials by terrorists or other criminals	2.2 To improve monitoring and control over CBRN materials
3	4

#### Assessment of relevant effects

*Economic impacts:* Creating similar facilities would require very substantial investments from both relevant Member States and industry, which would have an extremely negative effect on economic development and competitiveness. Also, while users of high-risk chemicals are geographically dispersed, the quantities that each of them use may be relatively small. Furthermore, stakeholders manufacturing dangerous substances may decide to move to third countries with less stringent requirements.

Financial costs	Economic impacts
3	--

*Environmental impacts:* The potential multiplication of plans manufacturing dangerous substances would have negative environmental effects and increase the risk of serious environmental damage in case of a leak or other incident. Assessment of EU added value

The EU added value is very low and the action will raise significant proportionality and subsidiarity issues. Member States showed very little support as the action might imply negative consequences for national economies.

The action is therefore considered unfeasible.

### **Action C.20b (Enhance the security of transport)**

The Commission and the Member States should establish an *ad-hoc* committee of experts on transport security with regard to chemical materials. This Committee should bring together experts from the transport sector, the security services and law enforcement authorities. The Committee should address the following issues:

- Assess whether existing transport security rules fully cover all high-risk chemicals.
- Identify good practices in the Member States concerning the transport of high-risk CBRN substances (e.g. limited quantities in one transport; or tracking systems).
- Identify current good practices in terms of tracking chemical agents.
- Requirements for the development of tracking and tracing systems for the transport of high-risk chemicals.
- Identify good practices concerning the implementation of current ADR (and RID and ADN) requirements such as the development of security plans.
- Identify security requirements for logistics enterprises.
- Consider establishing a notification system for the international transport of high-risk chemicals identified under the risk-management process mentioned in section 1.1.
- Consider the feasibility and costs/benefits of introducing a requirement that only licensed transporters would be used for the transport of specifically identified high-risk chemicals. These licensed transporters would be obliged to follow agreed minimum security requirements.

The work of the Committee should feed into existing processes such as the UNECE Ad-Hoc Working Group.

Achievement of (relevant) policy objectives

2.2 To improve monitoring and control over CBRN materials	2.3 To improve overall awareness of the potential dangers and risks, contributing to a high 'security culture'
3	3

Assessment of relevant effects

*Economic impacts:* the costs of this action would be low, consisting of fees for expert inputs and facilitation and travel expenses. Possibly additional procurement would be required for the feasibility and cost/benefits studies, the identification and exchanges of good practices and other analytical tasks.

Financial costs	Economic impacts
1	0

#### Assessment of EU added value

The Committee would be established at EU level and address issues of international and EU concern. It would enhance the development of a common EU position and help to further harmonise national approaches to transport. However, the exclusive focus on chemical substances only and not on all CBRN materials will lead to confusion and duplication of efforts.

The action is therefore considered unfeasible.

#### **Action C.20c (Enhance the security of transport)**

The links between law enforcement authorities and transporters of chemical agents should be enhanced.

#### Achievement of (relevant) policy objectives

2.2 To improve monitoring and control over CBRN materials	2.3 To improve overall awareness of the potential dangers and risks, contributing to a high 'security culture'
3	1

#### Assessment of relevant effects

*Economic impacts:* the costs of this action would depend on the arrangements in place at national level. Whilst some countries already have good links in place, other Member States may have to invest in enforcing such links. This could require some investments from both transporters and law enforcement, in terms of setting up communication protocols and tools, reporting arrangements, etc.

Financial costs	Economic impacts
1	0

#### Assessment of EU added value

The EU rationale for intervention is high, as the action would contribute to a more harmonised approach to transport security throughout the EU, which is highly necessary considering the many intra-Community movements of chemical materials. However, the exclusive focus on chemical substances only and not on all CBRN materials will lead to confusion and duplication of efforts.

Because of the above reasons and potentially high cost for some stakeholders, the action is considered unfeasible.



### Action H.32 (Improve information exchange)

The Member States should ensure a high level of information exchange between relevant actors by having a clearly established notification mechanism which would allow anyone to inform the relevant authorities about a loss/theft of high-risk CBRN materials or about a suspicious transaction. As a minimum requirement, facility security managers should have the necessary contact information for relevant local law enforcement authorities.

#### Achievement of (relevant) policy objectives

1.2 To raise awareness and increase knowledge and information sharing on CBRN	2.2 To improve monitoring and control over CBRN materials	2.3 To improve overall awareness of the potential dangers and risks, contributing to a high 'security culture'
4	4	2

#### Assessment of (relevant) effects

*Economic impacts:* Depending on the exact content of this option, the costs involved could be high. Some Member States may have to set such notification mechanisms up, or substantially improve or merge existing ones. Additional investments could be required to facilitate reporting, such as awareness raising campaigns, the establishment of a toll-free national number, etc.

Financial costs	Economic impacts
1	0

*Social impacts:* The option could also increase the public perception of un-safety. On the other hand, a successful notification mechanism could help to prevent serious harm to public health and security.

*Environmental effects:* The action could possibly have positive environmental effects, as it would reduce the likelihood and scale of environmental risks, by improving the information flow between relevant authorities on for example the transport of dangerous CBRN materials.

#### Assessment of EU-added value

Several notification mechanisms exist at international and national levels, but most focus on notification of (accidental) releases rather than on thefts and losses. Encouraging the Member States to set up notification mechanisms covering all CBRN materials, to report on thefts, losses and suspicious transactions would be highly beneficial, as it would contribute to establishing clear protocols across and entire production and supply chain. This would strongly improve response capacity and ensure a higher level playing field with regard to notification in the EU. Therefore, there is scope to encourage the Member

States to deal with CBRN threats in a comprehensive manner and to establish clear mechanisms to respond to losses, thefts and suspicious transactions, in particular given the potential cross-border effects.

#### **Action C.22 (Improve information Exchange)**

The Member States and the Commission should consider establishing an alert mechanism in order to quickly transfer security related information to security managers in which high-risk chemicals are present.

##### Achievement of (relevant) policy objectives

1.2 To raise awareness and increase knowledge and information sharing on CBRN	2.2 To improve monitoring and control over CBRN materials
4	4

##### Assessment of (relevant) effects

*Economic impacts:* The establishment of an alert mechanism would require continuous monitoring, updating and ongoing assessments of whether and when facilities need to be contacted. It may also require secured information channels with a 24/7 functionality. Especially for Member States who do not have similar mechanisms in place, the start up and maintenance costs could be substantial, given the high number of chemical plants that would have to be linked to the mechanism.

Financial costs	Economic impacts
2-3	0

##### Assessment of EU-added value

The option should help security facility managers to receive timely information from relevant authorities on security issues which may affect the chemical facilities they work in. This would be very beneficial, as it would allow for precautionary measures to be taken, such as increased security controls or even an interruption of activity. The effective implementation of this option could be challenging, as it would require an extensive mapping of chemical facilities and their characteristics, as well as an ongoing monitoring process of which information should be transferred to which facilities. Nevertheless, it is clear that there is scope to encourage the Member States to deal with CBRN threats in a comprehensive matter, in particular given the potential cross-border effects.

#### **Action RN.16a (Improve information Exchange)**

The Commission should setup an EU Database of Illicit Trafficking Incidents

##### Achievement of (relevant) policy objectives

2.2 To improve monitoring and control over CBRN materials	2.3 To improve overall awareness of the potential dangers and risks, contributing to a high 'security culture'
4	2

#### Assessment of relevant effects

*Economic impacts:* The action would require financial inputs in terms of the technical development of the database (ICT tools, secured system and access), its continuous and timely updating and ongoing quality control of the information included.

Financial costs	Economic impacts
2	0

#### Assessment of EU added value

The rationale for EU intervention is rather low considering that an international database already exists (IAEA's Illicit Trafficking Incidents database). There would be more scope in improving the functioning of the latter rather than creating a second database. Issues of data protection (i.e. of sensitive information) should also be addressed, as Member States may be reluctant to add too many details to the current database.

Due to these factors and lack of stakeholders' support, the action is considered unfeasible.

#### *5.2.2. CBRN Detection*

#### **Action H.34 (Establish a scenario-based / modelling approach to identifying work priorities in the detection field)**

The Member States should strengthen and support:

- The exchange of methodologies for developing scenarios;
- Networking of detectors at national level (centralising the analysis of detection data);
- The exchange of information and data regarding broader trends of what has been detected;
- The exchange and coordination of information on exercises among the Member States and other stakeholders when relevant.

#### Achievement of (relevant) policy objectives

3.1 To improve detection and	3.2 To develop an EU approach
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identification capacity and capability	towards detection and identification
4	4

#### Assessment of (relevant) effects

*Economic impacts:* The financial inputs required for the exchanges of methodologies, knowledge and information would be relatively low, and would concern mainly the coordination costs, costs for meetings, identification of suitable methodologies and possibly publication costs. In addition, these activities would lead to cost-efficiencies in the longer term, as Member States would have more targeted detection work priorities and as industry could better respond their specific needs.

However, one element of this option could potentially be costly, namely the networking of detectors at national level to centralise the analysis of detection data, as it would require the development of sophisticated hardware and software which would be able to receive process and analyse high quantities of data in a very short time period.

Financial costs	Economic impacts
1 (3 if networking of detectors is implemented)	+

#### Assessment of EU-added value

The EU rationale for this option would be strong, as it would ensure an overall higher level of detection capability and capacity, and enable Member States with less experience to learn from other countries with more advanced and sophisticated approaches.

#### **Action B.14 (Establish a scenario-based / modelling approach to identifying work priorities in the detection field)**

The Member States and the Commission should develop detection models for different biological pathogens and toxins, considering distribution, possible vectors, infectious dose and stability.

#### Achievement of (relevant) policy objectives

3.1 To improve detection and identification capacity and capability	3.2 To develop an EU approach towards detection and identification
4	4

#### Assessment of (relevant) effects

*Economic impacts:* The development of models can be very costly and time-consuming, depending on the number of biological agents to be included in the models. However, by

sharing the work on modelling between the EU Member States, important cost-savings can be made.

Financial costs	Economic impacts
3	0

#### Assessment of EU-added value

As to the development of models, each biological agent has its own characteristics in terms of rapidity of spread, potential coverage and duration of activity. It would therefore be very useful to develop specific models for each agent and ensure that these are made available at EU level, to enable all Member States to learn from these. Several Member States have good experience in this area, which should be collected and shared. The EU would have an important role, given that it could contribute to the coordination of the modelling work, ensuring that Member States can learn from each other and apply a common approach to focusing the models.

#### **Action H.37 (Develop minimum detection standards)**

The Member States and the Commission should develop minimum detection standards based on relevant scenarios and threat assessments while building on existing work (e.g.: CEN). When developing such standardisation activities, adequate engagement of the private sector should be ensured and legal requirements for evidence considered.

#### Achievement of (relevant) policy objectives

3.1 To improve detection and identification capacity and capability	3.2 To develop an EU approach towards detection and identification
4	5

#### Assessment of (relevant) effects

*Economic impacts:* The process of developing minimum detection standards can be undertaken at a relatively low cost. It involves, possibly, some financial costs to cover negotiation and publication, as well as some expert inputs to steer the work. In the longer term, important financial gains could be made. The private sector would only have to comply with a single set of EU standards rather than many specific national ones. They would know, for example, the specific design and performance criteria, test and calibration requirements, and operating instruction requirements. This will help them to focus their efforts and save resources.

Financial costs	Economic impacts
1	++

#### Assessment of EU-added value

Whilst there are clear benefits of an EU approach towards detection, from a quality and cost-effectiveness perspective, it needs to be stressed that the choice, purchasing and deployment of detection systems, technologies and equipment is a national competence. Establishing minimum standards in this area would have to be based on the principle of voluntary negotiation and agreement.

**Action B.16 (Develop minimum detection standards)**

Member States and the Commission should set requirements for the detection, identification and monitoring of pathogens and toxins within a civilian security context at the EU level.

Achievement of (relevant) policy objectives

3.1 To improve detection and identification capacity and capability	3.2 To develop an EU approach towards detection and identification
4	4

### Assessment of (relevant) effects

*Economic impacts:* The action would require low set-up costs, but meeting the EU minimum requirements might require substantial investments from some Member States with less developed approaches. It would lead to important cost efficiencies on the longer term, as industry would be able to better cater detection needs and research would be better targeted and more relevant.

Financial costs	Economic impacts
1	++

### Assessment of EU-added value

Whilst there are clear benefits of an EU approach towards minimum requirements for detection, identification and monitoring from a quality and cost-effectiveness perspective, as well as in the light of cross-border phenomena, the choice, purchasing and deployment of detection systems, technologies and equipment is a strictly national affair. Establishing minimum requirements in this area, if not through a process of voluntary negotiation and agreement, could raise issues of subsidiarity.

### **Action H.38 (Establish trialling, testing and certification schemes for CBRN detection in the EU)**

The Member States and the Commission should:

- Map out and document the technical requirements necessary for the detection of chemicals, according to the field of application of the devices.
- Establish an EU wide certification scheme to evaluate whether detection systems and tools meet set requirements relying on existing capabilities and facilities.
- Establish an EU wide testing scheme for detection tools and systems to assess the performance and quality of solutions relying on existing capabilities and facilities.
- Establish an EU wide trialling scheme to evaluate the quality of both detection tools and systems in practical field operations relying on existing capabilities and facilities.
- Exchange good practices, approaches to and methodologies on quality assurance in CBRN in Member States.

### Achievement of (relevant) policy objectives

3.1 To improve detection and identification capacity and	3.2 To develop an EU approach towards detection and
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capability	identification
4	4

A common certification scheme would improve the efficiency of validating and approving detection tools and methodologies, as once a certain tool is validated in one country, it would automatically be approved in all 27 Member States. This would imply substantial cost savings. Prior to the creation of a certification, it would be important to build on the experiences in the Member States and to develop a scheme to which all countries are willing to commit.

A common testing scheme would ensure harmonisation of methodologies and tools for detection, as all Member States would effectively have to follow the same criteria, approaches and possess tools with similar performance and of similar quality. An EU-wide scheme would also be beneficial, as Member States could share testing data and pool testing costs. This could offset development costs and help stimulate research, innovations and improvements, thus contributing to increased detection probability and increased prevention and intervention opportunities.

EU wide trialling would enable Member States to share information and data and would improve the overall effectiveness and quality of detection. At present, Member States carry out trialling individually, hence a common scheme would in the long-term mean a cost-saving and help countries with fewer resources.

#### Assessment of (relevant) effects

*Economic impacts:* This action, in its entirety, is potentially very costly to set up and run. It could lead to increases in the price of detection systems and equipment. The development of an EU trialling system could in particular require substantial investments, especially when taking into account the natural and geographical differences between the Member States. In the longer term, the action could lead to important cost savings, if Member States would mutually accept certification, testing and trialling results.

Financial costs	Economic impacts
3	++

*Environmental impacts:* Large-scale trialling, and to a lesser extent testing, could represent a certain risk to the environment, if the necessary precautionary measures would not be taken into account.

*Legal effects:* The EU schemes could require the development of legislation especially to ensure mutual recognition of results.

#### Assessment of EU-added value

There is a strong rationale for EU intervention in this area, as common certification, testing and trialling could increase the overall level and quality of detection across the



EU and encourage a more harmonised approach. However, ultimately the choice, purchasing and deployment of detection systems and equipment are a strictly national affair. Mapping and documenting different technical requirements for the detection of chemicals has a high added value, as it would lead to an EU overview and learning between Member States.

**Action B.18 (Identify good practices related to detection of CBRN materials, awareness raising and training)**

Member States and the Commission should initiate:

- The development of mobile detection, identification and sampling capabilities at the EU level to be undertaken by commercial enterprises, research institutions and universities, and support mobile bio-forensic capabilities;
- The establishment and maintenance of a network of reference laboratories within the EU (if not yet done so).

Achievement of (relevant) policy objectives

3.1 To improve detection and identification capacity and capability	3.2 To develop an EU approach towards detection and identification
4	4

Having a mobile capability, particularly if it becomes apparent that an outbreak was caused deliberately, would prove invaluable in responding to, and at least initially identifying the use of a particular biological agent, thus reducing the amount of time before appropriate medical and other responses can be initiated and increasing the chance of finding forensic clues. Whilst having a mobile solution for sampling and initial detection could be very useful in certain cases, further detection, identification and analyses could take place in the most appropriate laboratories which are in some vicinity of the accident, as long as good transport is available. The action should therefore not negate the development of appropriate laboratory facilities. Consideration would also have to be given to the appropriate security of such mobile laboratories. Developing such capability at the EU level would ensure the centralisation of information.

Assessment of (relevant) effects

*Economic impacts:* The development of a network will require some set-up and running costs which relate to the coordination of information, contact details and possibly meetings between the laboratory representatives. A mobile detection capability, able to deal with all biological substances, is potentially very costly. Several industrial solutions currently exist, but these do not yet cover the full spectrum.

Financial costs	Economic impacts
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3	0
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*Environmental impacts:* Possibly positive impacts as the mobile unit may reduce transport needs and if the network would assist in the identification of the closest most relevant reference laboratory.

### Assessment of EU-added value

There is a strong rationale for EU intervention in this area, as the network would enable an EU overview of laboratories and their capacities. The mobile unit could be deployable throughout the EU and address emergency situations. This would in particular help Member States with less detection capacity.

### **Action B.20 (Improve the exchange of information)**

Members States and the Commission should support:

- EU and national projects performing measurements of biological background at specific areas, and enhance cooperation and information exchange among Member States on such projects;
- Exchange good practices among Member States on cases and processes when a dangerous biological substance is detected.

### Achievement of (relevant) policy objectives

3.1 To improve detection and identification capacity and capability	3.2 To develop an EU approach towards detection and identification
4	3

Appropriate detection equipment at key locations, particularly when deployed covertly, allows the ability to check for biological agents and maintain security, while minimising any inconvenience or delays to both the public and commercial trade. The exchange of such knowledge and technology amongst Member States, if carefully controlled to ensure the maintenance of security, would prove equally beneficial. From a perspective of social unrest and privacy, the impact of detection tools and methodologies on civilians should be minimised, whilst maintaining an appropriate level of security. This option could be considered in the light of relevant scenarios and threat assessments.

### Assessment of (relevant) effects

*Economic impacts:* The development of EU and national projects performing measurements of biological background at security relevant areas requires potentially high levels of funding. Relatively lower levels of financial inputs would be required for the exchanges of best practices, in relation to the identification of the good practices, their compilation and their exchange, for example through events or papers, etc.

Financial costs	Economic impacts
3	0

*Social impacts:* There is a remote possibility, depending on the location of the 'security relevant areas', the measures could inhibit free movement and /or target specific social

groups. On the other hand, the action would increase public security, and improve the chances of the detection of material that could be used for criminal or terrorist purposes.

### Assessment of EU-added value

EU level projects performing measurements of biological background at security relevant areas and exchanges of good practices would increase overall security levels and harmonise approaches, national projects could, on the other hand, increase fragmentation.

#### *5.2.3. CBRN preparedness and response*

### **Action H.45 (Improve response plans)**

The Member States and the Commission should develop and conduct regular exercises and training at all levels (national, European and international), involving and testing cooperation of all relevant organisations, particularly of health, first responders, security and judicial authorities; involvement of private sector in such exercises should be foreseen. Possible criminal investigations and forensics should be part of these regular exercises. The Commission should ensure coordination of relevant exercises at EU level.

### Achievement of (relevant) policy objectives

1.2 To raise awareness and increase knowledge and information sharing on CBRN	4.1 To improve response and emergency planning and protocols, also at the EU level	4.4 To increase the chances of finding and prosecuting terrorist and other criminals
4	4	2

### Assessment of (relevant) effects

*Economic impacts:* This action is potentially very costly, depending on the type of exercises and training to be provided and the level of EU coordination required. Whilst some Member States already organise exercises and training, these may not cover the full CBRN spectrum or specifically target security issues (as opposed to safety). In addition, the content of training for first respondents could be very different from training to private sector stakeholders or judicial authorities, thus requiring the development of different courses.

Financial costs	Economic impacts
3	0

*Social impacts:* Apart from contributing positively to increasing the security of citizens by raising the level of preparedness of relevant personnel, the action could also contribute to raising standards related to job quality, as it would increase the access of relevant personnel to continuous training and exercises.

### Assessment of EU-added value

The EU has an important role to play in ensuring that exercises and training are provided in all Member States, that they include some common elements and that they cover EU-

wide or cross-border elements. This also justifies the proposal to assign a coordinating role to the Commission of relevant exercises.

### Action B.21 (Improve response plans)

Member States and the Commission should constitute an EU level working group to consider:

- Better cooperation among relevant agencies in crisis and consequence management, response and recovery management; it should develop a bio-specific checklist of requirements for consequence management, response and recovery.
- Good practices on responding to security incidents involving the facilities possessing any of the biological agents and toxins on the EU biosecurity list;

#### Achievement of (relevant) policy objectives

1.2 To raise awareness and increase knowledge and information sharing on CBRN	4.1 To improve response and emergency planning and protocols, also at the EU level
3	4

#### Assessment of (relevant) effects

*Economic impacts:* The costs for setting up a working group and to ensure regular communication opportunities (meetings, virtual exchanges, etc) are low. For example, the set up and preparatory work: (e.g. background study, identification of experts, etc) would amount to around 200,000 EUR, the creation of a website / virtual forum would cost around 20,000 EUR and inputs to the development of the bio-checklist would also be around 20,000 EUR. Additional costs would need to be set aside for meetings of the working group. For example, logistics for four meetings per year of a group of 30 persons: (e.g. travel, subsistence, conference rooms): approximately 1,000 EUR per person, thus totalling 120,000 EUR. On the longer term, cost efficiencies could occur due to a more targeted to consequence, response and recovery management.

Financial costs	Economic impacts
1	0

#### Assessment of EU-added value

The added value of Community action in this field is to be considered, specifically as many of the elements proposed are already covered through more general actions addressing all CBRN materials. Whilst biological agents and toxins have very specific features, there would still be scope in addressing CBRN as a whole in consequence, response and recovery management rather than singling it out, thus adding an extra layer to response plans and other tools.

### Action RN.25a (Improve response plans)

Awareness should be raised among the public of radiological hazards, radioactivity and its effects on human beings and on the environment, the various types of radiological emergencies and their consequences for the population and the environment. Information should also be provided on the emergency measures envisaged to alert, protect and assist the population in the event of a radiological emergency as well as on action to be taken by the population in the event of a radiological emergency.

#### Achievement of (relevant) policy objectives

1.1 To increase effective international cooperation, coordination and dialogue on CBRN	1.2 To raise awareness and increase knowledge and information sharing on CBRN	4.1 To improve response and emergency planning and protocols, also at the EU level
4	2	3

#### Assessment of relevant effects

*Economic impacts:* The costs of the action are estimated to be low to medium, depending on the scale and coverage of the awareness raising activities (ranging from the preparation of printed folders and posters to national television campaigns).

Financial costs	Economic impacts
1-2	0

*Social impacts:* The action could have serious negative social effects. Informing the public about the possible dangers in their day-to-day lives and direct environment could create the perception of low security and lead to unnecessary panic and suspicion. On the other hand, the action would contribute to increasing public security, and improving preparedness against the potential criminal or terrorist use of radioactive material.

#### Assessment of EU added value

The rationale for EU intervention in this case is low, especially in view of potentially negative social effects. There is absolutely no need to provide detailed information on emergency measures in every aspect of the CBRN area.

As the action also received little stakeholder support, it is considered unfeasible.

#### **Action RN.25b (Improve response plans)**

Member States should develop plans on how to organise the dissemination of information in the event of a radiological emergency and determine the content of the information. In order to ensure that the general public takes the message seriously without exaggerating the scale of the hazard, the information should be credible and allow the general public to see that the emergency plans drawn up would be implemented in the event of a real emergency.



#### Achievement of (relevant) policy objectives

1.1 To increase effective international cooperation, coordination and dialogue on CBRN	1.2 To raise awareness and increase knowledge and information sharing on CBRN	4.1 To improve response and emergency planning and protocols, also at the EU level
4	2	3

#### Assessment of relevant effects

*Economic impacts:* The costs of the action are estimated to be low, however the dissemination of the information could require higher investments, depending on the modalities of its organisation.

Financial costs	Economic impacts
1-2	0

*Social impacts:* The action could have negative social effects, as it could create a perception of low security and lead to unnecessary panic and suspicion. On the other hand, the action would contribute to increasing public security, and improving preparedness against the potential criminal or terrorist use of radioactive material.

#### Assessment of EU added value

The option received very little stakeholder support and raises some subsidiarity issues. It is in principle the responsibility of the Member States to define whether and how to inform the public based on national experience and procedures.

Due to these factors, the action is considered unfeasible.

#### **Action H.47 (Strengthen the EU's countermeasure capacity)**

Each Member State should:

- Assess the required amounts and types of medical countermeasures in case of a incident involving high-risk CBRN materials;
- Assess the availability of hospital beds and hospitals able to carry out the decontamination of victims, the availability of medical and paramedical personnel, transport possibilities and of required countermeasures in the form of technical CBRN equipment.;
- Assess the possibility of sharing medical counter-measures across borders in case of an incident.

#### Achievement of (relevant) policy objectives

4.3 To ensure ongoing information flows in case of CBRN emergencies	4.5 To enhance national and EU countermeasures and on-the-ground response capacity
1	4

#### Assessment of (relevant) effects

*Economic impacts:* The costs for the assessments to be undertaken by the Member States are expected to be relatively low, as the action would include mapping, analysis and reporting. Any additional steps, for example Member States increasing their vaccine stockpiling, would be very costly. For example, the 2009 US Strategic National Stockpile (SNS), the main program for vaccine, medication, and some other medical materials and equipment stockpiling has set aside USD 570 million for a total population of slightly more than 300 million people. When applying this to the estimated nearly 500 million persons living in the EU, the costs could amount to nearly USD 1 billion or 700 million euro.

Financial costs	Economic impacts
1 (3 in case of additional steps)	0

*Social impacts:* The action would have the potential to improve Public health and safety given that it could help to reduce deaths and injuries among citizens.

#### Assessment of EU-added value

The added value of Community action in this field is to be considered, as the action invites the Member States to undertake several assessments without specifying the role of the EU or the possible next steps following these assessments.

#### **Action B.22 (Strengthen the EU's countermeasure)**

The Health Security Committee should consider:

- The possibilities to a) establish therapeutics and vaccine stockpiles towards the known threat of biological agents and toxins, and determine the necessary auxiliary medical supplies to stockpile (gloves, masks, syringes, etc.); b) establish a standby capacity to produce therapeutics, including vaccines, and c) establish sustained funding for a technology platform to secure countermeasures towards biological agents and toxins that are unknown today (public-private experts working group);
- The possibilities to scale up the diagnostic capacity in crises situations. Involvement of the private sector in the working group should be considered.
- Ensuring a sufficient amount of medical products to combat an eventual threat;

- Build an EU wide coordinated approach to access medical countermeasures allowing adequate protection of the EU population, based on risk assessment.

#### Achievement of (relevant) policy objectives

4.2 To develop an EU approach towards response and emergency planning	4.5 To enhance national and EU countermeasures and on-the-ground response capacity
2	4

#### Assessment of (relevant) effects

*Economic impacts:* The costs of this action would be low, as they would mainly concern the inputs by the Health Security Committee, some reporting and travel and subsistence in case of meetings. The financial costs of any action resulting from the Committee's work and accepted by the Member States are potentially huge, especially if it would involve ensuring an EU countermeasure capacity against all CBRN materials.

Financial costs	Economic impacts
1 (3 for actions resulting from the Committee's work)	0

*Social impacts:* The action would have the potential to improve Public health and safety, given that as a result of the work of the Committee it could help to reduce deaths and injuries.

#### Assessment of EU-added value

There is great value in exploring an EU approach towards medical countermeasure capacity, in particular if the assessments proposed under Action H.46 would confirm the need. An EU approach would also help Member States to share the potential burden.

#### **Action B.23 (Strengthen the EU's countermeasure capacity)**

The Commission and Member States should consider the creation of mechanisms for rapid licensing procedures of drugs and vaccines in crisis situations and possible exemptions from licensing procedures, taking existing work into consideration.

#### Achievement of (relevant) policy objectives

4.1 To improve response and emergency planning and protocols, also at the EU level	4.5 To enhance national and EU countermeasures and on-the-ground response capacity
4	4

#### Assessment of (relevant) effects

*Economic impacts:* The costs for setting up the mechanisms for rapid licensing and exemptions are relatively low and would mainly be administrative. There could be negative economic effects on competition and the functioning of the internal market should the mechanism be activated, given that certain pharmaceutical companies would be exempted from standard procedures and would be the sole producer of a drug or vaccine.

Financial costs	Economic impacts
1	0 (- if the mechanism would be activated)

*Social impacts:* The action would have the potential to improve Public health and safety, given that it could help to reduce deaths and injuries and increase the security of citizens.

*Legal effects:* Additional legislation might be required to create the mechanisms for rapid licensing procedures.

#### Assessment of EU-added value

The EU added value is strong: crisis situations will nearly always have cross-border consequences and hence require an EU mechanism, especially because some Member States will have a better capacity than others to effectively produce the required medical products.

#### **Action H.49 (Improve domestic and international information flows in case of CBRN emergencies)**

Member States should exchange information on emergency plans regarding CBRN incidents, involving all relevant agencies.

#### Achievement of (relevant) policy objectives

4.1 To improve response and emergency planning and protocols, also at the EU level	4.4 To increase the chances of finding and prosecuting terrorist and other criminals
4	1

#### Assessment of (relevant) effects

*Economic impacts:* The costs for the exchanges or information are generally low and will depend on the type of exchanges, e.g. through briefings and meetings, online platforms, reporting, etc.

Financial costs	Economic impacts
1	0

*Social impacts:* The action would have the potential to improve Public health and safety, given that it could help to reduce deaths and injuries. It would also increase the security of citizens.

#### Assessment of EU-added value

Encouraging Member States to exchange information on emergency plans to enable peer learning would indeed provide an EU-added value, it is though worth mentioning that domestic exchanges within Member States are mainly a national affair.

#### **Action R.27 (Improve domestic and international information flows in case of CBRN emergencies)**

The Member States and the Commission should consider integrating and building upon existing platforms for international exchange of information during nuclear emergency situations, as well as assessing their applicability to all radiological and nuclear incidents

of concern (scenario-based). An effort should be made to assess the possibilities of streamlining alert messages going through different rapid alert systems.

#### Achievement of (relevant) policy objectives

4.1 To improve response and emergency planning and protocols, also at the EU level	4.3 To ensure ongoing information flows in case of CBRN emergencies
4	4

#### Assessment of (relevant) effects

*Economic impacts:* The costs of reviewing existing platforms for international exchanges of information would be relatively low, as this would imply a mapping and possibly some discussions with relevant organisations responsible on their scope and coverage. The effective streamlining of rapid alert systems, in terms of adapting, expanding and maintaining these, could require relatively higher investments, depending on the alterations that are to be made.

Financial costs	Economic impacts
2	0

*Social impacts:* The action would have the potential to improve Public health and safety, given that it could help to reduce deaths and injuries. It would also increase the security of citizens.

#### Assessment of EU-added value

The EU rationale for this action is to be considered. The platforms and systems under consideration are international and it may therefore not be possible for the EU to integrate or expand these without the explicit consent of the relevant international organisations and third countries participating.

As a result of the above assessment, 14 actions are considered unfeasible and will be excluded from the preferred policy option.
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## **6. PREFERRED POLICY OPTION (CBRN ACTION PLAN)**

This section presents the main advantages and success factors of the preferred option, as well as a summary of its relevance, feasibility and expected impacts. Finally, it includes an assessment and considerations of proportionality and EU added value.

Based on the screening and the detailed assessments presented in section 5, the preferred policy option includes a total of 133 actions, organised into the four main strands (Actions applicable to prevention, detection and response; Prevention; Detection; and Preparedness and Response). A schematic overview is presented below.

Due to the fact that the current situation and differences between Member States is not completely clear at this stage, many of the proposed actions will require a mapping study, before its implementation starts.



**Table 7: Actions by strand and type**

	<b>Horizontal</b>	<b>C</b>	<b>B</b>	<b>R/N</b>	<b>Total</b>
<b>Actions applicable to prevention, detection, and response</b>	19	5	6	1	31
<b>Prevention</b>	13	17	7	21	58
<b>Detection</b>	10	1	7	2	20
<b>Preparedness and response</b>	15		3	6	24
<b>Total</b>	<b>57</b>	<b>23</b>	<b>23</b>	<b>30</b>	<b>133</b>

## 6.1. Summary of relevance, feasibility and expected impacts

**Table 8: Preferred policy option**

<b>Assessment Criteria</b>	<b>Rating (from 0 - 5)</b>	<b>Motivation of the rating and aspects of the policy actions necessary to achieve the impact</b>
<b>Relevance</b>		
1.1 To increase effective international cooperation, coordination and dialogue on CBRN	4	<p>The preferred policy option will make a positive contribution towards increasing the effectiveness of international cooperation, coordination and dialogue on CBRN. Several of the actions included in the Action Plan, across the various strands, would in particular, lead to:</p> <ul style="list-style-type: none"> <li>– increased mapping of existing international cooperation and coordination mechanisms addressing CBRN issues, thus providing an opportunity to identify gaps, possible areas of duplication and new opportunities.</li> <li>– more focused coordination and cooperation efforts, as the mapping of existing mechanisms will help to consider which are most relevant for the EU and the Member States;</li> <li>– increased cooperation with relevant agencies at international, EU and national levels;</li> <li>– improved identification and exchanges of good practices with international, European and national partners, enabling in particular Member States with less advanced approaches and less capacity to learn from countries with more experience and expertise;</li> <li>– taking the first steps towards a common EU position on certain issues in international forums, as well as working towards the achievement of common EU objectives. This may still, however, be challenging as it would require the political commitment of the Member States;</li> <li>– improved communication with the public, through the dissemination of good practices with regard to communication strategies, the development of guidelines for communication and their integration into emergency plans.</li> </ul> <p>The positive impacts will apply to all Member States, especially to those that so far have been less engaged in international coordination and coordination activity, or those with little national experience related to CBRN security and threats.</p> <p>Actions that would in particular contribute to this specific objective include actions H.2, H.2, H.3, H.4, C.1 and B.1, H.27 RN.22, H.40, H.44 and H.38.</p>
1.2 To raise awareness and increase knowledge and information sharing on CBRN	4	<p>The preferred policy option would help to raise awareness and increase knowledge and information sharing on CBRN through several actions, across the various strands, should be included in the Action Plan, such as those proposing actions to:</p>

Assessment Criteria	Rating (from 0 - 5)	Motivation of the rating and aspects of the policy actions necessary to achieve the impact
<i>Relevance</i>		
		<ul style="list-style-type: none"> <li>– map, identify and exchange good practices on security;</li> <li>– map existing international and EU legislative instruments with a view to verifying whether these adequately cover terrorist or criminal acts related to CBRN materials;</li> <li>– develop inventories or libraries of resources on CBRN materials, so that relevant actors can quickly have access to good-quality information;</li> <li>– establish an Early Warning System on CBRN-related incidents as well as other ensuring other information flows, making sure that all relevant EU and national actors are informed of threats, losses, thefts, etc enabling them to undertake timely action;</li> <li>– training of various stakeholder groups, including first responders, local authorities, EOD experts, laboratory staff, facility managers and other employees, etc, to make them understand the potential dangers of CBRN materials and to improve their capacity to prevent, identify and respond to incidents involving CBRN materials.</li> </ul> <p>The positive effects would benefit all Member States, as all countries would benefit from greater information and knowledge sharing, in particular those with less know-how and experience. By making certain information available EU wide, the likely cross-border effects of CBRN acts could also be better prevented, identified and responded to. Some of the actions may encounter some level of reluctance, as Member States are concerned about the sensitivity of the information and knowledge to be shared and the extent to which this can be adequately secured.</p> <p>Actions that would in particular contribute to this specific objective include actions H.23, H.24, C.19, B.11, RN.12, C.20, B.12, RN.13, H.25, H.26, H.39, H.41, RN.23 and H.44.</p>
1.3 To reduce, where possible, judicial, legal, jurisdictional barriers and constraints	3	<p>The actions included in the preferred policy option would help to address some barriers and obstacles which currently inhibit European common action in the area of CBRN:</p> <ul style="list-style-type: none"> <li>– reviewing penal legislation in the Member States with a view to verifying whether these adequately cover terrorist or criminal acts related to CBRN materials;</li> <li>– explore possibilities to enforce the mutual recognition of forensic evidence;</li> <li>– assess the possibility to encourage mutual recognition in the area of personnel vetting.</li> </ul> <p>Other actions included in the preferred policy option would also help to further this objective, such as activity to:</p> <ul style="list-style-type: none"> <li>– increase cooperation with relevant agencies at international, EU and national levels;</li> <li>– improve identification and exchanges of good practices with international, European and national partners, enabling in particular Member States with less advanced approaches and less capacity to learn from countries with more experience and expertise.</li> </ul> <p>Whether reduction of judicial, legal and practical barriers and constraints can be effectively attained heavily depends on the commitment of the Member States. However, several international and EU developments in this area have proven that there is an interest in at least harmonising some elements. Member States would overall benefit from these actions.</p> <p>Actions that would in particular contribute to this specific objective include actions H.11, H.19 and H.55</p>
1.4 To improve personnel security	4	<p>Several actions included in the preferred policy option, across the various strands, would contribute to improving personnel security overall, for example through:</p> <ul style="list-style-type: none"> <li>– introducing common graduated criteria for background checks and vetting procedures, to make sure that the credentials of personnel having access to CBRN materials throughout the supply chain are verified, thus reducing the possibility of criminals and terrorists gaining access;</li> <li>– improved identification and exchanges of good practices in the area of security checks with international, European and national partners, enabling in particular Member States with less advanced approaches and less</li> </ul>

Assessment Criteria	Rating (from 0 - 5)	Motivation of the rating and aspects of the policy actions necessary to achieve the impact
<b>Relevance</b>		
		<p>capacity to learn from countries with more experience and expertise;</p> <ul style="list-style-type: none"> <li>– strengthened management structures in CBRN facilities, so that personnel are adequately and regularly appraised and monitored;</li> <li>– The establishment of registries of personnel having access to or information on biological agents and toxins</li> </ul> <p>Other actions which will contribute to improved personnel security include:</p> <ul style="list-style-type: none"> <li>– The identification and exchanges of good practices, as well as the development of minimum training requirements and guidelines for persons working with, having access to or handling CBRN materials.</li> <li>– Education and training of various stakeholder groups laboratory staff, facility managers and other employees, etc, to improve their capacity to prevent, identify and respond to incidents involving CBRN materials.</li> <li>– The development of guidelines, codes of conduct and other voluntary means to increase the awareness of security issues of staff.</li> </ul> <p>The preferred policy option would improve the level of personnel security in all Member States, and in particular in those countries which may have less advanced approaches and arrangements in place. It would also ensure a more harmonised approach towards personnel security at EU level, which would lead to greater preparedness and detection and response capacity.</p> <p>Actions that would in particular contribute to this specific objective include actions H.9, H.10, C.2, B.2, C.3, B.3, H.12, H.13, C.4, B.4, B.5, H.23, H.24, C.19, B.11, RN.12</p>
1.5 To strengthen and prioritise research on CBRN	4	<p>A number of actions included in the preferred policy option, across the various strands, would increase the effectiveness and relevance of research, by mapping existing research, identifying needs and launching new research on this basis. Actions that would be particularly beneficial concern:</p> <ul style="list-style-type: none"> <li>– Mapping and sharing of research results and planned research, thus enabling Member States to be informed as to what already exists and to encourage them to launch new research.</li> <li>– Increased research cooperation with international partners to enhance synergies and duplication of efforts.</li> <li>– Stimulating new research in specific CBRN areas, such as the development of low-risk chemical alternatives, response and recovery from biological incidents, detection and identification of radioactive sources, the potential psychological effects of CBRN emergencies on the population, etc. This research needs have been identified by the CBRN task force as particularly relevant.</li> </ul> <p>All Member States would greatly benefit from increased research efforts at the European level, in particular those that may not have sufficient resources available to launch research projects themselves. The increased mapping and cooperation will strongly help to prioritise research and select the most relevant and urgent projects.</p> <p>Actions that would in particular contribute to this specific objective include actions H.14, H.15, H.16, , C.5, B.6, RN.1,</p>
1.6 To increase awareness of security implications in funding decisions	3	<p>One action included in the preferred policy option would help to increase awareness of the security implications in funding decisions and scientific research projects and activities. This would be beneficial as knowledge of what the potential security aspects are can help funding organisations and other stakeholders to, where necessary, take precautions.</p> <p>The action that would in particular contribute to this specific objective is H.18</p>
1.7 To increase awareness of security aspects in publishing	2	<p>One action included in the preferred policy option may help to increase awareness of the security implications of scientific publications, even though the need for this would be verified through a study.</p> <p>The action that would in particular contribute to this specific objective is H.17</p>

Assessment Criteria	Rating (from 0 - 5)	Motivation of the rating and aspects of the policy actions necessary to achieve the impact
<i>Relevance</i>		
2.1 To prevent access to legitimately produced and used CBRN materials by terrorists or other criminals	4	<p>The preferred policy option comprises several actions, mainly under the Prevention strand, aimed at reducing the number of persons having access to CBRN materials to those that really need such access, to improve physical and administrative security arrangements of facilities and to reduce the 'lethality' of some materials. These will help to prevent access to legitimately produced and used CBRN materials, for example by:</p> <ul style="list-style-type: none"> <li>– developing EU lists of high-risk CBRN materials, based on a risk-management analyses, to focus measures on substances of specific security concern;</li> <li>– enhancing the security of CBRN materials within facilities, through the development of security plans, communication mechanisms to transfer security related information and the establishment of registries of facilities;</li> <li>– focusing on ways to improve the assessment of security arrangements in high-risk CBRN facilities, improving links to law enforcement authorities, improving licensing requirements and laboratory standards related to security;</li> <li>– encouraging the chemical industry to replace, where possible, high-risk chemicals with suitable alternatives;</li> <li>– identification and exchanges of good practices in these areas.</li> </ul> <p>The actions would help the Member States to target their efforts to increase the security on the most relevant materials and facilities. They would also help to harmonise the current national approaches to facility and material security, by working towards common requirements and standards. Member States with less advanced approaches will be able to learn from those with more expertise and experience. A number of actions mainly consist of action to be taken at Member State level and their success would therefore strongly depend on their national willingness and commitment.</p> <p>Actions that would in particular contribute to this specific objective include actions H.20, H.21, C.6, B.7, RN.2, C.7, B.8, RN.3, H.22, C.8, B.9, RN.4, C.9, B.10, C.10, C.11.C.12, C.13 and C.14.</p>
2.2 To improve monitoring and control over CBRN materials	4	<p>The preferred policy option includes a number of actions, mainly under the Prevention strand, which would contribute to improved monitoring and control over CBRN materials (in particular chemical and radioactive materials, as these are most traded and transported), in particular in terms of accounting, information exchanges and reporting on threats, losses and other incidents, transport and import and export. Relevant action proposed include:</p> <ul style="list-style-type: none"> <li>– increased compliance with international obligations and use of existing monitoring and control mechanisms, in particular in the chemical area, as these already provide valuable tools to restrict access and use by legitimate users only;</li> <li>– improved licensing, registration, delivery control to ensure that CBRN substances are appropriately recorded and monitored and to reduce the chances of such materials being lost or stolen;</li> <li>– improved communication and information exchange on threat levels, thefts, losses and incidents, through the development of links to authorities, notification mechanisms and communication channels;</li> <li>– enhanced transport of CBRN materials, through actions to making transport more secure and better organised, and by setting. This also includes exploring ways to trace and track the transport of in particular chemical and radioactive substances, based on national experiences or similar approaches in other EU areas. This also includes specific attention to the import / export regime of radioactive sources;</li> <li>– increased focus on high-risk radioactive sources, through the exchange of good practices, improved identification and detection and a source recovery programme combined with a source exchange system.</li> </ul> <p>The actions would encourage Member States to increase their current monitoring and control mechanisms and to reduce the risks that CBRN materials fall into the wrong hands. The actions would also help to harmonise the current national approaches, by promoting good practices and exploring the adoption of international or EU tools, standards and requirements. A number of actions mainly consist of action to be taken at Member State level and their success would therefore strongly depend on their national willingness and commitment.</p> <p>Actions that would in particular contribute to this specific objective include actions C.15, RN.5, C.16, RN.6, C.17,</p>

Assessment Criteria	Rating (from 0 - 5)	Motivation of the rating and aspects of the policy actions necessary to achieve the impact
<i>Relevance</i>		
		RN.7, C.18, RN.8, RN.9, RN.10, RN.11, H.30, H.31, H.32, C.21, RN.16, C.22 and RN.17, RN.18, RN.19, RN.20, RN.21, RN.22.
2.3 To improve overall awareness of the potential dangers and risks, contributing to a high 'security culture'	3	<p>There are several actions, mainly under the Prevention strand which would contribute towards a high 'security culture', with persons working with and having access to CBRN materials being more aware of the potential dangers and risks and being more alert to suspicious transactions and behaviour. The following actions are likely to have a particular positive impact:</p> <ul style="list-style-type: none"> <li>– the identification and exchanges of good practices in the area of security education and training, as well as awareness raising, including the development of guidelines, minimum training requirements, etc;</li> <li>– the identification and exchanges of good practices in the area of suspicious transactions and behaviour, in terms of reporting and modalities for reporting;</li> <li>– the development of specific security training on radiological and nuclear materials and for private sector security staff.</li> </ul> <p>The actions would encourage Member States to improve their current training and awareness-raising activities, as well as to place increased focus on suspicious transactions and behaviour, in terms of reporting and modalities for reporting. The actions would also help to harmonise the current national approaches, by promoting good practices and exploring the adoption of international or EU programmes and requirements.</p> <p>Actions that would in particular contribute to this specific objective include actions H.23, H.24, C.19, B.11, RN.12, C.20, B.12, RN.13, H.25, H.26.</p>
3.1 To improve detection and identification capacity and capability	4	<p>Various actions, mainly in the Detection strand, would help to increase detection and identification capacity and capability, through a combination of measures focused on:</p> <ul style="list-style-type: none"> <li>– the identification and exchanges of good practices in the area of awareness raising, training and exercises, exchanges of scenario and modelling approaches and information between the Member States;</li> <li>– improving communication and information exchanges between the Member States, public and private stakeholders as well as networking of laboratories and equipment / systems;</li> </ul> <p>The actions would stimulate Member States to improve their current efforts in the field of detection by promoting good practices and exploring improved communication with the detection suppliers and the military sector. This would benefit the capacities and capabilities of Member States overall, as the area to be covered by detection is very wide, as well as enable Member States with less advanced approaches to learn from their peers.</p> <p>Actions that would in particular contribute to this specific objective include actions H.34, B.14, B.16, H.39, H.40, H.41, C.23, B.20, RN.24.</p>
3.2 To develop an EU approach towards detection and identification	5	<p>Several actions, mainly in the Detection strand, would promote the development of an EU approach towards detection and identification, in particular with regard to:</p> <ul style="list-style-type: none"> <li>– joint work on scenarios, in terms of EU level modelling and exchange of information, taking into account the likely cross-border effects of events;</li> <li>– minimum detection standards based on the scenario-building activities;</li> <li>– the establishment of EU trialling, testing and certification schemes, as well as mobile capacity;</li> <li>– the development of EU guidance and information, in the shape of handbooks, training and networking.</li> </ul> <p>The actions would enable some great economies of scale as well as improve the links between the supply and the demand side of detection systems and technologies. It would also help to increase detection capacities and capabilities in the Member States to a level playing field.</p> <p>Actions that would in particular contribute to this specific objective include actions H.33, H.35, H.37, B.15, H.38,</p>

Assessment Criteria	Rating (from 0 - 5)	Motivation of the rating and aspects of the policy actions necessary to achieve the impact
<i>Relevance</i>		
		B.17, H.39, B.18, RN.23, B.19
4.1 To improve response and emergency planning and protocols, also at the EU level	4	<p>Several actions which are part of the preferred policy option, in particular as part of the Preparedness and Response strand, will contribute to improving response and emergency planning at both national and EU levels. The most relevant activities proposed include:</p> <ul style="list-style-type: none"> <li>– a mapping of existing state structures and identification and exchanges of good practices concerning CBRN incidents, as well as increased focus on the integration of security issues and in particular CBRN emergencies into response plans;</li> <li>– the development of training and exercises for all stakeholders involved in emergency and response plans.</li> </ul> <p>The actions would improve overall response and emergency planning in the Member States, as well as enable those with less advanced approaches to learn from those countries that have more experience in this field. A number of actions mainly consist of action to be taken at Member State level and their success would therefore strongly depend on their national willingness and commitment.</p> <p>Actions that would in particular contribute to this specific objective include actions H.42, H.43, H.44, H.45, H.47, H.51</p>
4.2 To develop an EU approach towards response and emergency planning	4	<p>The preferred policy option includes several actions, mainly within the Preparedness and Response strand, which will strengthen an EU-wide approach towards response and emergency planning, in particular through the development of:</p> <ul style="list-style-type: none"> <li>– The coordination of training and exercise at EU level to improve overall response plans, as well as the provision of guidance to medical staff.</li> <li>– Exchanges of information on emergency plans, also taking into account existing international platforms for nuclear emergency situations.</li> <li>– The development of an Emergency Response Guidebook, based on existing guidance and information tools.</li> </ul> <p>The actions would also help to harmonise the current national approaches, by exploring the adoption of EU coordination measures and integration with international platforms.</p> <p>Actions that would in particular contribute to this specific objective include actions H.44, B.21, H.47, H.48, RN.27, H.50, H.51</p>
4.3 To ensure ongoing information flows in case of CBRN emergencies	4	<p>There are several actions, especially in the Preparedness and Response strand, which would increase the effectiveness of domestic and international information flows in case of CBRN emergencies, such as:</p> <ul style="list-style-type: none"> <li>– increased exchanges of information between the Member States on their approaches to handling CBRN emergencies;</li> <li>– measures to improve information flows between public authorities and the supply chain, in particular with regard to radioactive materials, reviewing who should be involved and informed at what stage.</li> </ul> <p>Increased information flows, as well as the development of appropriate protocols for such flows, would strongly benefit the speed and quality of emergency responses. A number of actions mainly consist of action to be taken at Member State level and their success would therefore strongly depend on their national willingness and commitment.</p> <p>Actions that would in particular contribute to this specific objective include actions RN.25, H.48</p>
4.4 To increase the chances of finding and prosecuting terrorist and other criminals	4	<p>The preferred policy option includes various actions that are part of the Preparedness and Response strand which will increase investigative and forensic approaches, for example through:</p> <ul style="list-style-type: none"> <li>– encouraging Member States to increase forensic awareness of in particular first responders in a CBRN crime scene, thus ensuring that important evidence is not destroyed;</li> </ul>

Assessment Criteria	Rating (from 0 - 5)	Motivation of the rating and aspects of the policy actions necessary to achieve the impact
<i>Relevance</i>		
		<ul style="list-style-type: none"> <li>– studying potential problems in relation to CBRN contaminated materials and their transport;</li> <li>– increasing cooperation with relevant EU agencies to establish laboratory practices which can ensure that forensic evidence can be used in courts, as well as exchanges of good practices in this area</li> </ul> <p>The quality of forensic evidence, as well as its possible admissibility in different Member State courts is essential in order to find and prosecute terrorist and other criminals. The actions included will in particular help the Member States to identify their current problems and needs, as well as help Member States with less expertise in this area to learn from those with more advanced approaches.</p> <p>Actions that would in particular contribute to this specific objective include actions H.53, H.54, H.55, and RN.30.</p>
4.5 To enhance national and EU countermeasure capacity	4	<p>The preferred policy option includes several actions, mainly within the Preparedness and Response strand, which would increase national and EU countermeasure capacity in terms of therapeutics, vaccines, diagnostics, decontamination and overall medical capacity, for example by:</p> <ul style="list-style-type: none"> <li>– encouraging Member States to review their countermeasures and overall medical capacity in order to assess their possible needs in case of a CBRN incident, as well as the exchange of good practices in this regard. This would also include assessing the possible sharing of medical countermeasures and the development of rapid licensing mechanisms;</li> <li>– the involvement of the Health Security Committee to further study the establishment of therapeutics and vaccine stockpiling, scaling up diagnostic capacity and EU coordination in the field of medical countermeasures;</li> <li>– increasing the decontamination capacity of Member States, through assessing the available means and capacity and studying further decontamination needs and procedures;</li> <li>– the improvement of modelling tools to verify further research needs</li> </ul> <p>The actions would also help to harmonise the current national approaches, by exploring the adoption an EU capacity.</p> <p>Actions that would in particular contribute to this specific objective include actions H.46, H.47, B.22, B.23, H.49, H.51, H.51</p>
<i>Expected impacts</i>		
Assessment Criteria	Rating (from Low to High)	Motivation of the rating and aspects of the policy actions necessary to achieve the impact
Financial and economic impacts	Medium	<p>Most of the 133 actions included in the preferred policy option are expected to require low financial costs, to be incurred at EU and national levels by various stakeholders. Such costs would relate, for example, to studies, mapping activities, identification and dissemination of good practices, participation in networks, meetings and other events.</p> <p>It is estimated that around 18 actions could potentially imply high financial costs. These relate, for example, to the funding of new research in all CBRN areas, the establishment of a comprehensive early warning system and capacity, the requirement for facilities to have security plans/security management systems in place and the establishment of EU wide testing, trialling and certification schemes for detection systems and equipment. The exact costs are difficult to estimate at this stage. However, costly actions will be subjects to separate feasibility studies. The actions that could potentially imply high economic costs are: H.08, H.10, C.03, C.05, B.06, RN.01, C.07, C.11, C.12, C.14, B.08, B.09, RN.03, RN.06, B.14, H.38, H.45, H.53.</p> <p>The expected costs of the implementation of the Action plan are difficult to assess precisely, as these will depend on several factors, e.g. the length of the EU lists. It is worth noting however that even if the aggregate costs of these actions could run into several tens of millions euro, this would be divided between different implementation levels (i.e. the Commission, EU agencies and 27 Member States) and spread over several years. Whilst some actions would start immediately, several would only be launched as from 2011. This will provide sufficient time to adequately plan</p>

Assessment Criteria	Rating (from 0 - 5)	Motivation of the rating and aspects of the policy actions necessary to achieve the impact
<i>Relevance</i>		
		<p>for such costs. In addition, the existing financial programmes, in particular the specific programme 'Prevention, Preparedness and Consequence Management of Terrorism and other Security related risks', as well as the specific programme "Prevention of and Fight against Crime" will be able to offer relevant financial support for the implementation of the Action plan. These specific programmes will cover the period until December 2013. Up to 100 million EUR will be made available to support the implementation of the CBRN package within these programmes.</p> <p>Attention is also drawn to the potential negative economic effects in terms of competitiveness or the internal market of a minor number of actions (not more than 5) relating to rapid licensing, increased screening of visiting staff from third countries, funding organisations having to take security issues into account in funding decisions and the development of secure registries of biological facilities. Nevertheless, all 133 actions included in the preferred policy option are consistent with horizontal EU strategies such as Sustainable Development Strategy or Strategy for Growth and Jobs.</p>
Social impacts	Medium	<p>The majority of actions included in the preferred policy option are not expected to have serious social effects. Clearly, however, the overall positive social effect of successfully countering CBRN threats is improved public health and safety, the security of citizens, in terms of a reduction of casualties and long-term health problems, reduced levels of fear and increased perception of safety, and fight against terrorism and crime. In this sense, the Action Plan as a whole could already positively contribute to such improved perception, if promoted also to a wider public.</p> <p>Several actions, at least 20, would also have a positive effect on Governance, for example because they would enhance institutional cooperation and communication, improve the organisation of information flows or help to establish protocols, etc. These would at the same time also help to increase the trust between Member States. Among the actions with positive social impacts are: H.08, C.03, H.12, H.13, B.04, H.18, RN.06, H.25, H.26, H.32, B.20, H.45, H.47, B.22, B.23, H.49.</p> <p>Around 10 of the actions could, potentially, have negative social impacts: B.03, H.12, H.13, B.04, H.18, RN.13, H.25, H.26, H.32 and B.20. These include increased screening of staff from third countries and requesting funding organisations to consider the security aspects of potential funding decisions. The possible negative effects relate to interferences with the fundamental rights to private life and to the protection of personal data. The content and actual implementation of the actions can however be such that these effects do not have to occur at all.</p>
Environmental impacts	Very low	<p>The assessment of the preferred policy options does not consider indirect environmental effects for each proposed action. Nevertheless, it needs to be stressed that the consequences of a potential CBRN incident could be devastating for the environment. Improving the prevention, detection and response aspect of potential CBRN incidents therefore has a significant positive environmental impact.</p> <p>5 of the actions included in the preferred policy option are expected to have an environmental impact: B.8, B.13, H.32, H.38, B.18. In two cases, such impacts could be positive. This concerns a positive environmental impact if an action putting additional security requirements for laboratories dealing with high-risk agents and toxins would reduce the number of laboratories handling such substances, and a positive effect if an EU mechanism would ensure the rapid and safe transport of biological samples. A potential negative environmental impact was identified in the case of large-scale trialling, and to a lesser extent testing, of detection equipment and systems, which could have negative effects on the environment or bring certain risks to the environment.</p>
Impacts on fundamental rights	Low	<p>Potential issues in relation to fundamental rights have been identified in around 5 actions: H.12, H.13, B.04, RN.13 and H.25. Two of these actions concern measures to increase the security of visiting staff from third countries. These could, if not handled with care, negatively affect the non-discrimination principle and academic freedom. Background checks and vetting requirement can negatively affect the freedom to choose an occupation and the right to engage in work. At the same time, mutual recognition of vetting procedures throughout the EU could facilitate taking up work in similar areas in other Member States.</p> <p>There are also 3 actions which deal with notifying and reporting suspicious transactions. These might represent an interference with the concerned person's private life and his or her right to protection of personal data (Articles 8 ECHR, Article 7 and 8 EUChFR) and must be duly justified and in line with the law. Only interferences which are in accordance with law and necessary in a democratic society in pursuit of one or more of the legitimate aims listed in Article 8 para. 2 ECHR will be considered to be an acceptable limitation by the State of an individual's Article 8 ECHR. Provided that adequate protection of personal data is ensured, the content and actual implementation of the actions can however be such that these effects do not occur at all.</p>



Assessment Criteria	Rating (from 0 - 5)	Motivation of the rating and aspects of the policy actions necessary to achieve the impact
<i>Relevance</i>		
Impacts on EU legislation	Low	<p>Ten actions could, depending on the chosen modalities of implementation, require new EU legislation. For example, there could be a 'single market' rationale for adoption of EU wide detection standards and certification schemes (at present, industry incurs high administrative and compliance costs for having to deal with different sets of standards and certification), as well as a security rationale (some Member States do not have any standards in place and in others these are insufficient, hence increasing the chances of CBRN materials passing a border or being smuggled into a key public building undetected).</p> <p>Some of the actions also work towards greater harmonisation, if not specifically of legislation, but of practices based on national legislation. For example, there are several actions which aim to increase mutual recognition or introduce common criteria for different procedures, such as for example background checks. Another action includes an analysis of the level of criminalisation of CBRN act, in order to identify whether such acts are, and are appropriately, penalised in the Member States.</p> <p>Actions that could potentially require legislation at EU level are: H.12, H.13, H.20, C.07, C.10, B.08, RN.13, B.13, H.38 and B.23. If decided to legislate in these cases, the legislation would be proposed and adopted in a time frame of a minimum of 5 years. Where this is the case, such actions will themselves have to be subject to Impact Assessments, including on the respect for fundamental rights, in particular the right to personal data protection.</p>
Impacts on third countries	Low	<p>Impact on third countries is very difficult to assess. There are two actions (H.13, RN.13) which propose to focus on the security of visiting staff from third countries. If these would lead to rigid background checks or other vetting procedures, nationals from third countries may decide not to visit EU countries.</p> <p>There are around 3 more actions which suggest improving control on imports and exports to third countries. Depending on the extent of such controls, it may become more expensive for third countries to import and export to/from EU Member States. Transport costs could also increase as a result of increased monitoring and control requirements.</p> <p>There are several actions which aim at improving the identification and reporting of suspicious transactions. Due care should be given that transactions requested from certain third countries do not become suspicious by default, as again this could impact on commerce with these countries.</p> <p>The increased efforts in the area of detection, and in particular the development of minimum standards and the establishment of EU testing, trialling and certification, will possibly make the EU a more attractive region for trade in detection systems and equipment, also from industry in third countries.</p> <p>Throughout the Action Plan, there is high focus on increasing security requirements in terms of personnel, facilities, response plans, etc. This may require high financial investments in some Member States, as well as from industry. On the other hand, multinational companies will benefit from more harmonised security requirements across the EU, which could mean an improvement to the current 27 different sets of requirements.</p>
<i>Feasibility</i>		
Assessment Criteria	Rating (from Low to High)	Motivation of the rating and aspects of the policy actions necessary to achieve the impact
Implementation feasibility	Medium to High	<p>The implementation of the preferred policy option is considered to be overall feasible. The Action Plan is based on a thorough, long-term consultation exercise through expert groups, green papers, workshops and the CBRN Task Force. This has helped to gain momentum and to create overall consensus on the need to address CBRN threats.</p> <p>The structure of the Action Plan is graduated, as it envisages different implementation periods for different individual actions. Whilst some may seem relatively ambitious, overall the timing seems appropriate. The Action Plan also sets out initial roles and responsibilities, even though this could be further detailed.</p> <p>There is a risk that the sheer coverage of the Action Plan, which includes 133 individual actions, could be very challenging. A multitude of activities across the different strands and for different types of CBRN will start and be undertaken simultaneously. It will be very important to adequately monitor progress on all these different developments, in order to keep all relevant stakeholders involved and committed. There may be scope in producing regular monitoring reports, or developing an online tool where information on progress can be presented. Several stakeholders could be made responsible for providing regular updates of activities within their strand or group of</p>

Assessment Criteria	Rating (from 0 - 5)	Motivation of the rating and aspects of the policy actions necessary to achieve the impact
<i>Relevance</i>		
		actions.
Financial feasibility	Medium to High	<p>As highlighted under the section discussing the financial and economic impacts, the Preferred policy option will, as a whole, require some financial inputs to start up and run the activities planned as part of the 133 actions. The implementation of the Action Plan, however, appears to be feasible given that:</p> <ul style="list-style-type: none"> <li>– the costs would be shared at different implementation levels (EU, Member States, public and private actors);</li> <li>– the costs would be spread over several years;</li> <li>– there are important financial gains to be made on the longer term</li> <li>– a significant part of the financing will be provided by the EU financial programmes.</li> </ul> <p>Whilst some of the options could lead to industry calculating increased costs into their prices, it is expected that the financial gains will at least balance out these effects.</p>
Political feasibility	High	<p>As mentioned earlier, the Action Plan is based on a thorough, long-term consultation exercise between Member States, experts and private sector. The Green papers provided a clear opportunity for Member States to present both their political views as well as concrete inputs on CBRN.</p> <p>The CBRN Task Force was by no means a forum to voice political views, as it had a strong practical focus on discussing current problems and needs without taking the political directions of individual countries into account. However, it was obvious during the Task Force meetings that representatives were closely liaising with their national partners and that, on a regular basis, the views presented were indeed very similar to the political position of the country.</p> <p>In this sense, it is anticipated that the Action Plan is politically feasible as a policy package. Due attention should however be given to some of the actions, in particular those that:</p> <ul style="list-style-type: none"> <li>– only ‘prescribe’ what Member States should do, with a low focus on stimulating a more EU common approach or harmonisation through exchanges of good practices, guidance, etc.</li> <li>– actions for which subsidiarity issues have been identified (in around 6 cases), for example because certain approaches to facility security could well be undertaken solely at national level, of because setting standards for detection are a strictly national affair.</li> </ul>

Due to the fact that the current situation and differences between Member States is not completely clear at this stage, many of the proposed actions will require a mapping study, before its implementation starts.

The following table presents a summarised description of the most important actions (actions potentially involving high costs or new legislation) in terms of type of the instrument, implementation period and responsible actors.

**Table 9: Selected actions potentially requiring legislative action or involving high costs**

#### 1) Actions applicable to CBRN prevention, detection and response

No.	Policy action	Type of action	Time of implementation	Relevant actors	Potentially costly
H.08	The Member States and the Commission should establish a law enforcement Early Warning System (EWS) for CBRN related incidents, taking account of existing systems and experiences and based on established common European lists of the most high-risk CBRN materials. Such a mechanism would include information on immediate threats, losses/thefts, and suspicious transactions and would in any case need to be accessible to the law enforcement authorities and relevant emergency responders of the Member States and to Europol. As a first step, the extension of the existing G6 system should be considered. The system should be without prejudice to the exchange of information on public health issues.	Exchange of information	From 2009	Commission	X
C.03	The Member States should organise regular exercises concerning the security of chemical facilities in order to test preparedness measures in place and raise awareness among staff.	Organisation of exercises	From 2010	Member States, Commission	X
B.03	Member States and the Commission should consider and develop: <ul style="list-style-type: none"> <li>• Guidelines at the EU level for minimum training requirements for persons working with, having access to, or handling biological agents and toxins;</li> <li>• In conjunction with universities and professional associations, minimal requirements for academic training on biosafety, potential misuse of information and biological agents and toxins and bio-ethics for undergraduate, graduate and postgraduate students.</li> </ul>	Identification of best practices	2010-2012	Member States, Commission, relevant stakeholders	
H.12	The Member States and the Commission should develop and introduce common graduated criteria for background checks and vetting requirements in relation to personnel having access to high-risk CBRN materials along the whole chain of production, storage, distribution and use. This should be done based on the establishment of a common European list of the most high-risk CBRN materials. These common criteria should be based on a graduated approach. In the course of the recruitment process, the recruiting organisation should ensure that the credentials of the candidates are properly checked and assessed. The Commission should launch a study concerning existing background check procedures and requirements within the CBRN industry.	Potentially legislative	From 2011	Member States, Commission, EU agencies	
H.13	The Member States and the Commission should identify and exchange good practices on approaches to security of non-EU visiting staff and students; Member States should aim at common procedures across the EU.	Potentially legislative	2010-2012	Member States, Commission	
B.04	Member States should ensure that Each Member State and/or organisation has a secure registry of personnel having access to or information on biological agents and toxins on the EU biosecurity list (along the whole chain of production, storage, distribution and use). Law enforcement should have access to such a registry.		2010-2011	Member States	

H.18	The Member States and the Commission should encourage funding organisations (be it public or private) to take security aspects of proposed research projects and other publications into account, as well as the suitability of the funds receiver (from both a safety and a security perspective) to work on the research the receiver is proposing. Best practices of funding organisations should be identified and exchanged across Member States.	Funding of research	From 2010	Member States, Commission, relevant stakeholders	
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## 2) Prevention strand

No.	Policy action	Type of action	Time of implementation	Relevant actors	Potentially costly
H.20	The Member States and the Commission should establish and regularly update EU lists of: <ul style="list-style-type: none"> <li>• high-risk chemical agents;</li> <li>• biological agents and toxins (biosecurity list);</li> <li>• high-risk radioactive sources;</li> </ul> of special security concern.  These lists should be developed based on a risk assessment analysis. This process should include the following steps: <ul style="list-style-type: none"> <li>o Identifying and analysing relevant CBRN materials;</li> <li>o Assessing its potential for being used for malicious purposes;</li> <li>o Selecting the most dangerous material in terms of its potential for being used for malicious purposes;</li> <li>o Assessing its vulnerability in terms of theft/loss (ease of obtaining them);</li> <li>o Establishing possible preventive measures: physical / technical and administrative;</li> <li>o Carrying out a cost / benefit study on these possible measures.</li> </ul>	Potentially legislative	From 2010	Member States, Commission, EU agencies	
H.22	The Member States and the Commission should develop criteria on assessing security arrangements at high-risk CBRN facilities. This should be done in the form of a good practice document.	Identification of good practices	2011-2015	Member States, Commission, EU agencies	
C.07	The Member States should ensure that security plans/security management systems are in place in high-risk chemical facilities. The security plans should provide for graduated levels of security based on the existing threat level. Member State authorities should be involved in assessing whether these security plans satisfy the necessary level of protection requirements.	Potentially legislative	From 2010	Member States	X
C.10	The Member States and the Commission should develop a high level approach to chemical facility security which identifies key objectives and steps to be taken in order to increase security, based on national risk assessment approaches.	Potentially legislative	2011-2015	Member States, Commission, EU agencies	
B.08	The Member States should establish: <ul style="list-style-type: none"> <li>• A secure registry of facilities possessing any of the biological agents and toxins on the EU biosecurity list within each Member State while allowing access to law enforcement;</li> <li>• A process to verify and if necessary to enhance security arrangements of facilities, including diagnostic laboratories handling and possessing any of the biological agents and toxins on the EU biosecurity list.</li> <li>• A mechanism within facilities storing biological agents and toxins on the EU biosecurity list to regularly review the need of such biological agents and toxins while keeping a good record of stored materials;</li> </ul>	Potentially legislative	2010-2014	Member States, Commission, relevant stakeholders	X
R.N.06	The Member States should launch recovery programmes for disused high-risk sources. The launch of a source recovery programme could be coupled with the creation of a source exchange system among the Member States, so that recovered sources can be made available to those states that need them (rather than manufacturing new sources).	Coordination and information exchange	2011-2015	Member State,	X
R	The Member States and the Commission should engage with research	Potentially	From	Member	

N o.	Policy action	Type of action	Time of implementation	Relevant actors	Potentially costly
N. 13	stakeholders to raise awareness of security issues and facilitate the exchange of good practices on dealing with security threats. Particular attention should be given to background check requirements for visiting researchers/students. This work should lead to an increased security culture within the research sector.	y legislative	2010	States, Commission, EU agencies	
H. 25	Member States and the Commission should: • identify and exchange good practices on the reporting of suspicious transactions in relation to CBRN materials used by private and public entities (e.g. industry, medical sector, research). • establish modalities for reporting loss or suspicious transactions while enhancing awareness of relevant stakeholders about suspicious transactions and encourage stakeholders to report such transactions to law-enforcement authorities	Identification of best practices	From 2010	Member States, Commission, EU agencies	
H. 26	Member States and the Commission should develop guidelines for the industry, the medical sector and the research community containing criteria identifying the forms of behaviour which may give rise to suspicion. Member State authorities should provide guidance to stakeholders on what suspicious transactions are.	Identification of best practices, developing guidelines	From 2010	Member States, Commission, EU agencies	
H. 27	The Member States and the Commission should establish an ad-hoc committee of experts on transport security with regard to CBRN materials. This Committee should bring together experts from the transport sector, the security services and law enforcement authorities. The Committee should address the following issues: • Assess whether existing transport security rules fully cover all CBRN materials. • Identify and exchange good practices in the Member States concerning the transport of high-risk CBRN materials (e.g. limited quantities in one transport; or tracking systems). • Identify and exchange current good practices in terms of tracking CBRN materials. • Requirements for the development of tracking and tracing systems for the transport of CBRN materials. • Identify and exchange good practices concerning the implementation of current ADR (and RID and ADN) requirements such as the development of security plans. • Identify security requirements for logistics enterprises. • Consider establishing a notification system for the international transport of CBRN materials contained in the CBRN lists (identified under the risk-management process) • Consider the feasibility and costs/benefits of introducing a requirement that only licensed transporters would be used for the transport of specifically identified CBRN materials. These licensed transporters would be obliged to follow agreed minimum security requirements. The work of the Committee should feed into existing processes such as the UNECE Ad-Hoc Working Group.	Identification of best practices	2011-2015	Member States, Commission, EU agencies	
B. 13	The Commission and the Member States should initiate the creation of an EU capability and mechanism to rapidly and safely transport biological samples, in accordance with international regulations, within the EU and into the EU.	Potentially legislative	2010-2014	Member States, Commission	
H. 32	The Member States should ensure a high level of information exchange between relevant actors by having a clearly established notification mechanism which would allow anyone to inform the relevant authorities about a loss/theft of high-risk CBRN materials or about a suspicious transaction. As a minimum requirement, facility security managers should have the necessary contact information for relevant local law enforcement authorities.	Information exchange	2011-2012	Member States, Commission, EU agencies	

No.	Policy action	Type of action	Time of implementation	Relevant actors	Potentially costly
C.22	The Member States and the Commission should consider establishing an alert mechanism in order to quickly transfer security related information to security managers in facilities in which high-risk chemicals are present.	Information exchange	2011-2012	Member States, Commission, EU agencies	

### 3) Detection strand

No.	Policy action	Type of action	Time of implementation	Relevant actors	Potentially costly
H.34	The Member States should strengthen and support: <ul style="list-style-type: none"> <li>• the exchange of methodologies for developing scenarios;</li> <li>• networking of detectors at national level (centralising the analysis of detection data);</li> <li>• the exchange of information and data regarding broader trends of what has been detected;</li> <li>• the exchange and coordination of information on exercises among the Member States and other stakeholders when relevant.</li> </ul>	Information exchange	From 2011	Member States, Commission, EU agencies	
B.14	The Member States and the Commission should develop detection models for different biological pathogens and toxins, considering distribution, possible vectors, infectious dose and stability.	Development of standards	2012-2014	Member States, Commission	
H.37	The Member States and the Commission should develop minimum detection standards (including within the context of border monitoring) based on relevant scenarios and threat assessments while building on existing work (e.g.: CEN). When developing such standardisation activities, adequate engagement of the private sector should be ensured and legal requirements for evidence considered.	Minimum standards development	2012-2014	Member States, Commission	
B.16	Member States and the Commission should set requirements for the detection, identification and monitoring of pathogens and toxins within a civilian security context at the EU level	Development of standards	2012-2014	Member States, Commission	
H.38	The Member States and the Commission should: <ul style="list-style-type: none"> <li>• Map out and document the technical requirements necessary for the detection of CBRN materials, according to the field of application of the devices.</li> <li>• Establish an EU wide certification scheme to evaluate whether detection systems and tools meet set requirements relying on existing capabilities and facilities.</li> <li>• Establish an EU wide testing scheme for detection tools and systems to assess the performance and quality of solutions relying on existing capabilities and facilities.</li> <li>• Establish an EU wide trialling scheme to evaluate the quality of both detection tools and systems in practical field operations relying on existing capabilities and facilities.</li> <li>• Exchange good practices, approaches to and methodologies on quality assurance in CBRN in Member States.</li> </ul>	Potentially legislative	From 2011	Member States, Commission	X
B.18	Member States and the Commission should initiate: <ul style="list-style-type: none"> <li>• The development of mobile detection, identification and sampling capabilities at the EU level to be undertaken by commercial enterprises, research institutions and universities, and support mobile bio-forensic capabilities;</li> </ul>	Development of standards	2010-2014	Member States, Commission	

	<ul style="list-style-type: none"> <li>• The establishment and maintenance of a network of reference laboratories within the EU (if not yet done so).</li> </ul>				
B.20	<p>Members States and the Commission should support:</p> <ul style="list-style-type: none"> <li>• EU and national projects performing measurements of biological background at specific areas, and enhance cooperation and information exchange among Member States on such projects;</li> <li>• Exchange good practices among Member States on cases and processes when a dangerous biological substance is detected.</li> </ul>	Exchange of good practices	From 2010	Member States, Commission	

#### 4) Preparedness and response strand

No.	Policy action	Type of action	Time of implementation	Relevant actors	Potentially costly
H.45	The Member States and the Commission should develop and conduct regular exercises and training at all levels (national, European and international), involving and testing cooperation of all relevant organisations, particularly of health, first responders, security and judicial authorities; involvement of private sector in such exercises should be foreseen. Possible criminal investigations and forensics should be part of these regular exercises. The Commission should ensure coordination of relevant exercises at EU level.	Organisation of exercises	From 2010	Member States, Commission, EU agencies	X
B.21	<p>Member States and the Commission should constitute an EU level working group to consider:</p> <ul style="list-style-type: none"> <li>• Better cooperation among relevant agencies in crisis and consequence management, response and recovery management; it should develop a bio-specific checklist of requirements for consequence management, response and recovery.</li> <li>• Good practices on responding to security incidents involving the facilities possessing any of the biological agents and toxins on the EU biosecurity list;</li> </ul>	Development of good practices	2011-2014	Member States, Commission, relevant stakeholders	
H.47	<p>Each Member State should:</p> <ul style="list-style-type: none"> <li>• Assess the required amounts and types of medical countermeasures in case of a incident involving high-risk CBRN materials;</li> <li>• Assess the availability of hospital beds and hospitals able to carry out the decontamination of victims, the availability of medical and paramedical personnel, transport possibilities and of required countermeasures in the form of technical CBRN equipment.;</li> <li>• Assess the possibility of sharing medical counter-measures across borders in case of an incident.</li> </ul>	Problem identification	2011	Member States supported by the Commission	
B.22	<p>The Health Security Committee should consider:</p> <ul style="list-style-type: none"> <li>• The possibilities to a) establish therapeutics and vaccine stockpiles towards the known threat of biological agents and toxins, and determine the necessary auxiliary medical supplies to stockpile (gloves, masks, syringes, etc.); b) establish a standby capacity to produce therapeutics, including vaccines, and c) establish sustained funding for a technology platform to secure countermeasures towards biological agents and toxins that are unknown today (public-private experts working group);</li> <li>• The possibilities to scale up the diagnostic capacity in crises situations. Involvement of the private sector in the working group should be considered.</li> <li>• Ensuring a sufficient amount of medical products to combat an eventual threat;</li> <li>• Build an EU wide coordinated approach to access medical countermeasures allowing adequate protection of the EU population, based on risk assessment.</li> </ul>	Coordination	2011-2014	Member States, Commission, relevant stakeholders	
B.23	The Commission and Member States should consider the creation of mechanisms for rapid licensing procedures of drugs and vaccines in crisis situations and possible exemptions from licensing procedures, taking existing work into consideration.	Potentially legislative	2012	Member States, Commission, relevant	

				stakeholders	
H.49	Member States should exchange information on emergency plans regarding CBRN incidents, involving all relevant agencies.	Information exchange	Ongoing	Member States, Commission	
RN.27	The Member States and the Commission should consider integrating and building upon existing platforms for international exchange of information during nuclear emergency situations, as well as assessing their applicability to all radiological and nuclear incidents of concern (scenario-based). An effort should be made to assess the possibilities of streamlining alert messages going through different rapid alert systems.	Information exchange	From 2010	Member States, Commission, EU agencies	

As mentioned earlier, actions involving legislative action or implying high costs will be subject to separate impact assessments/feasibility studies.

## 6.2. Assessment of the EU added value

### The EU leading cooperation

There is a need for cooperation at the EU level. Terrorism is international in character, the EU has shared borders and some terrorists can move freely within the EU. There is a strong emphasis in the preferred policy option on actions involving cooperation between Member State authorities and other stakeholders, cooperation with international stakeholders and cooperation within Member States. The EU is well placed to lead and to act as a catalyst for this cooperation. It would also favour the development of an EU position in the international arena.

The cooperation proposed ranges from the exchanges of experiences and good practices in some actions to exchanges of information and intelligence that could have operational significance in others. These actions could all help reinforce channels for bilateral and multilateral cooperation between Member States.

In some cases the cooperation concerns the exchange of experience and good practice and in others it involves the exchange of intelligence that could have operational significance. These actions could themselves help reinforce channels for bilateral and multilateral cooperation between Member States.

In this sense the preferred policy option is perfectly in line with the principles of proportionality and subsidiarity. Firstly, proof of that is the choice of the instrument itself – an Action plan, rather than a regulatory framework. Secondly, the Action plan is mostly concentrating on high-risk CBRN materials only, rather than all CBRN materials. Thirdly, a large number of measures proposed build upon existing safety measures. Where gaps between applicable safety and security measures exist, only these are addressed. Furthermore, given the potential consequences of a CBRN attack in terms of human lives, costs, psychological effect, etc, the actions targeted at preventing these attacks or ensuring an efficient response are proportionate.

Regarding subsidiarity, the very nature of the terrorist threat can imply international consequences, thus EU level coordinated approach is needed. Information on existing vulnerabilities in Europe is of course classified, however based on the last reports on the CBRN threat, evidence of such possibilities does exist. There are several examples among the actions proposed, where a cross-border/EU element is obvious. These for



example include activities related to information exchange, international co-operation or transport security, and security vetting. Furthermore, many of the measures proposed are based on the internal market principle. Proposing an EU approach towards these issues would ensure a level playing field across the EU in terms of price competitiveness and possibly eliminate the weakest links in terms of security.

### **The EU as a provider of funding for actions**

Some of the actions included in the Preferred policy option involve, are or likely to involve EU expenditure. This includes funding for cooperation, mapping and identification of good practices, working groups, research and the development of testing, trialling and certification schemes for detection systems and equipment. Whilst normally the costs of the latter would be met by producers, there is a strong public interest in ensuring that detection equipment and systems work in practices.

### **Expected take-up among relevant stakeholders**

The expected take up among relevant stakeholders is very high, due to the fact that all actors that will have to implement the Action Plan participated actively in its development through the wide EU consultation, and especially the CBRN Task force.

As already outlined in the beginning of the report, the Action Plan was informed by a large-scale consultation process, involving the establishment of the CBRN Task Force and its specific sub-groups, including public and private experts from all relevant sectors and from all Member States. The experts have, together with the Commission, already extensively discussed the possible actions to be undertaken with regard to the security of CBRN materials and put forward recommendations as to which actions would be most relevant and necessary for inclusion in the Action Plan.

All actions that are presented and assessed in this report have already been extensively reviewed, further shaped and validated by experts in the field, in particular in terms of their relevance and appropriateness to counter CBRN threats. Limitations and bottlenecks have already been considered during the consultation phase, and have led to discarding a number of actions from the preferred policy option.

Such an approach has ensured that ownership of the actions to implement is present among all relevant stakeholders. In order to ensure maximum take-up, the intention is to continue to build on the community which was formed by the CBRN Task Force. In particular, the Commission foresees that the members of the Task Force will be invited to become members of a CBRN Advisory Group, which will assist in providing advice on the implementation of the Action Plan. Other relevant actors will also be included in the implementation of the Action plan, e.g. the Health Security Committee.

### **Holistic / Framework approach at EU level**

An additional advantage of the single approach chosen is that it allows for synergies to be identified. Many of the actions which have been identified as necessary by the experts are applicable to all the different materials covered – this means that similarities in the methodology to be used to take certain actions forward and increase efficiency can be

used across the board. A prime example of the benefits of a coordinated approach relates to security vetting for those persons who have access to CBRN materials – clearly this requires a consistent approach for all materials. An added benefit is that the different materials will (at least in theory) be equally well protected – avoiding displacement choices by the would-be terrorists for those materials which are the easiest to obtain. The approach taken avoids the possibilities of a fragmented approach towards different sources of threats and relevant stakeholders, for example prevention planners, first responders, critical infrastructure operators, complying with different sets of rules and different systems.

## **7. MONITORING AND EVALUATION**

The timeframe proposed for the initial implementation of the CBRN Action Plan is 3 years. This period should be long enough for significant progress to be achieved, and fits in well with the timeframe of the financial programmes supporting its implementation. An evaluation study, focusing of course also on unforeseen or unintended effects, will be prepared before the first evaluation takes place.

Due to the nature of CBRN threats, the implementation of the CBRN Action Plan will be an ongoing process, adjusted and fine-tuned in line with up-to-date risk assessments. The implementation of the Action Plan should start immediately following its adoption by the Council. The implementation of the vast majority of measures identified in the CBRN Action Plan will be completed or underway in the period 2010-2013.

In order to ensure maximum take-up, the intention is to continue to build on the community which was formed by the CBRN Task Force. In particular, the Commission foresees that the members of the Task Force will be invited to become members of a CBRN Advisory Group, which will assist in providing advice on the implementation of the Action Plan. Over the course of the initial three year period, regular reporting and monitoring of the implementation will also take place through the continued involvement of relevant Council Working Group(s) dealing with CBRN issues and the Health Security Committee.

The CBRN Advisory group is going to meet at least once a year to discuss horizontal issues (across the C, B and RN strands) and will schedule additional meetings for specific strands. The main purpose of the Advisory group will be to monitor the progress made in the implementation of the Action plan. The first meeting of the CBRN Advisory group will be scheduled immediately after the adoption of the CBRN Action plan in the Council, in order to discuss and define the implementation priorities for the first year. The advisory group meeting reports (prepared on the basis of defined indicators) will be considered as yearly monitoring/review reports;

An evaluation of the Action Plan and its implementation will be prepared by the Commission in line with the generally applicable framework for such evaluations at the end of the three year implementation period. As the Action plan is going to be discussed in the Council, where the possibility of changes of specific actions exists, it is too early to define key indicators in details (they can only be considered provisional). Nevertheless, concrete indicators could be the number of implemented actions, but more importantly, could also be a decrease in CBRN incidents, which could for example be verified by way of the IAEA, Interpol's and Europol's data on this topic. Additional indicators could relate to the implementation of security plans at CBRN facilities, as well as measures adopted to increase the security of transport, the adoption of codes of conduct etc.

The main monitoring and evaluation arrangement will focus on the achievement of the objectives established by the CBRN Policy package. For this purpose, the "scoreboard principle" will be followed in order to assess the progress in the implementation of the

measures. This will be particularly relevant for a number of issues identified in the Action Plan, for which feasibility assessments will be conducted in 2010-2012. On this basis, possible amendments or a revised/new strategy/action plan can be presented.

## ANNEX 1: CBRN GLOSSARY

AAAS	American Association for the Advancement of Science
ACDP	Advisory Committee on Dangerous Pathogens
ADN	International Carriage of Dangerous Goods by Inland Waterway Regulations
ADNS	Animal Disease Notification System
ADR	International Carriage of Dangerous Goods by Road Regulations (Accord européen relatif au transport international des marchandises dangereuses par route)
AFSSA	Agence française de sécurité sanitaire des aliments (France)
ARGOS DSS	Accident Reporting and Guidance System - Decision Support System
BSS	Basic Safety Standards
BTWC	Biological and Toxin Weapons Convention
BWC	Biological Weapons Convention
CA	Competent Authority
CBRN	Chemical, Biological, Radiological and Nuclear
CCPNM	Convention on the Physical Protection of Nuclear Material
CCS	Civil Contingency Secretariat (UK)
CDHS	United States Center for Homeland Security and Defence
CEFIC	European Chemical Industry Council
CEN	European Committee for Standardisation (Comité Européen de Normalisation)
COBRA	Civil contingencies committee leading responses to national crises (UK)
COSHH	Control of Substances Hazardous to Health Regulations
CPS&Q	Consumer Products Safety & Quality

CWC	Chemical Weapons Convention
Defra	Department of the Environment, Food and Rural Affairs (UK)
DG ENTR	Directorate-General for Enterprise and Industry of the European Commission
DG JLS	Directorate-General for Justice, Freedom and Security of the European Commission
DG RTD	Directorate-General for Research and Technological Development of the European Commission
DG SANCO	European Commission's Directorate General for Health and Consumer Affairs
DG TREN	Directorate-General Energy and transport of the European Commission
DGSE	Direction Générale de la Sécurité Extérieure
EBDS	European Bomb Data System
EBSA	European Biosafety Association
EUCFR	Charter of Fundamental Rights of the European Union
ECHR	European Convention on Human Rights
ECDC	European Centre for Disease Prevention and Control
ECURIE	European Community Urgent Radiological Information Exchange for Nuclear Emergencies
EDA	European Defence Agency
EEA	European Economic Area
ENAC	Emergency Notification and Assistance Convention
EPCIP	European Programme for Critical Infrastructure Protection
ESCON	Epidemiological Surveillance Component of the Community Network
ESRAB	European Security Research Advisory Board
ESRIF	European Security Research and Innovation Forum

EURDEP	European Radiological Data Exchange Platform
EUROPHYT	European Network of Plant Health Information Systems
EWRS	Early Warning and Response System
FMD	Food and Mouth Disease
FORATOM	European Atomic Forum
FP7 / FP8	European Union's Framework Programme for research and technological development
FVO	Food and Veterinary Office of the EU
GHSI	Global Health Security Initiative
GICNT	Global Initiative to Combat Nuclear Terrorism
HASS	High Activity Sealed Sources and Orphan Sources
HazMat	Hazardous materials
HEDIS	Healthcare Effectiveness Data and Information Set
HEU	Highly Enriched Uranium
HSC	European Commission's Health Security Committee
IAEA	International Atomic Energy Agency
IFCS	Intergovernmental Forum on Chemical Safety
INCHEM	The International Programme on Chemical Safety
IND	Improvised Nuclear Device
INERIS	National Institute for Industrial environments and risks (France)
ITRAP	Illicit Trafficking Radiation Detection Assessment Programme
JRC	Joint Research Centre
NATO	North Atlantic Treaty Organization
NORM	Naturally Occurring Radioactive Materials
NPR	Non-Proliferation Regime

NPT	Treaty on the Non-Proliferation
NSABB	National Science Advisory Board for Biosecurity
OECD	Organisation for Economic Co-operation and Development
OIE	World Organisation for Animal Health
OPCW	Organisation for the Prohibition of Chemical Weapons
PAHO	Pan American Health Organization
RAS BICHAT	Rapid Alert System for Biological, Chemical and Chemical Terrorist Events
RAS-CHEM	Rapid Alert System for Chemicals
RDD	Radiological Dispersion Device
REACH	European Union Regulation on Registration, Evaluation, Authorisation and restriction of Chemicals
RID	International Carriage of Dangerous Goods by Rail Regulations
RITNUM	Response to Illicit Trafficking of Nuclear Material
RPG	Rocket-Propelled Grenade
RPM	Radiation Portal Monitor
SAGAS Group	Stakeholders Advisory Group on Aviation Security
SAPO	Specified Animal Pathogens Order
SARS	Severe Acute Respiratory Syndrome
SGDN	General Secretariat of National Defence (Secrétariat Général de la Défense Nationale, France)
SitCen	EU Joint Situation Centre
SÜG	Security Vetting Act (Sicherheitsüberprüfungsgesetz, Germany)
TIC	toxic industrial chemicals
TRACES	Community Trade Control and Expert System



UN FAO	Food and Agriculture Organization of the United Nations
US GAO	US Government Accountability Office
WHO	World Health Organisation
WMD	Weapons of Mass Destruction

## ANNEX 2: EXAMPLES OF INCIDENTS, MILITARY AND TERRORIST ATTACKS INVOLVING CBRN MATERIALS

### Attacks involving biological substances

Date	Organisation/ Perpetrators	Location/ Country	Biological Agent	Comments	Damage/ Casualties
<b>Large-scale attack plans</b>					
Attacks					
1982-Onwards	The Civil Cooperation Bureau (CCB) of South African Military Intelligence	South Africa, various	Bacteria: Anthrax <i>Bacillus anthracis</i>  And various other Biological Agents	The South African Apartheid regime established a covert biological warfare unit	'Project Coast' was covertly established, developing biological weapons which were used in assassinations
March 1988 - onwards	Iraqi Authorities	Al-Salman (Salman Pak), al-Taji and al-Hakam, Iraq	Bacteria: Anthrax <i>Bacillus anthracis</i> ;  Bacteria: Gas gangrene <i>Clostridium perfringens</i>	Following its Chemical warfare capabilities, Saddam Hussein's regime began developing biological weapons	
Failed attacks					
1972	Order of the Rising Sun / extreme right wing terrorists	Chicago, St. Louis and other major cities, United States	Bacteria: Typhoid <i>Salmonella typhi</i> ;  Various other Biological Agents	Planned to poison water supplies to disseminate pathogens	Conspiracy foiled by authorities
1992	Japanese Aum Shinrikyo religious cult / terrorist group	Zaire and Kamikuishiki Japan	Virus: Ebola (Filovirus causing haemorrhagic fever)	Members of the Cult travelled to Zaire to acquire samples of the Ebola virus, but the group was unsuccessful in developing it as a weapon	Conspiracy failed as the group was unable to achieve weaponisation of the Ebola cultures at their base
May 1995	Aryan Nations member /	Ohio,	Bacteria: Plague	A laboratory technician and white extremist, Larry Harris,	Conspiracy foiled by authorities

Date	Organisation/ Perpetrators	Location/ Country	Biological Agent	Comments	Damage/ Casualties
	extreme right supremacist / Laboratory Technician	United States	<i>Yersinia pestis</i>	used false letterhead to obtain three vials of Plague	
<b>Small-scale attacks</b>					
Attacks					
1970s	Soviet Military Research Scientists	Vozrozhdeniye 'Renaissance' Island, Aral Sea, Central Asia	Bacteria: Anthrax <i>Bacillus anthracis</i>	Secret trials using Anthrax and other biological agents	Still contaminated with Anthrax spores to a high degree
1978	Bulgarian KDS Secret Police	Paris, France	Cytotoxin: Ricin (Produced from mash left after processing of Castor oil beans)	Bulgarian exile Vladimir Kostov had a pellet containing Ricin shot into him with an 'Umbrella gun'	Lived due to thick clothing preventing deep penetration and wax covering of Ricin failing to melt
September 1978	Bulgarian KDS Secret Police	Waterloo Bridge, London, England	Cytotoxin: Ricin (Produced from mash left after processing of Castor oil beans)	Bulgarian exile Georgi Markov had a pellet containing Ricin shot into him with an 'Umbrella gun'	Died 72 hours after attack, following high fever and heart attack
September 19 84	Devotees of Bagwhan Shree Rajneesh / religious cult	Wasco, Oregon, United States	Bacteria: Salmonella <i>Salmonella typhimurium</i>	Contaminated glasses and bowls in local salad bars to incapacitate population before elections and gain office	No fatalities but around 751 cases of 'Food poisoning'
1990-1993	Japanese Aum Shinrikyo religious cult / terrorist group	Japan various	Bacteria: Anthrax <i>Bacillus anthracis</i> ; Neurotoxin: Botulinum (produced by Bacteria: <i>Clostridium botulinum</i> )	Prior to well known attacks using Sarin nerve agent, experimental release of aerosol sprays containing Anthrax and Botulism at least 10 times	Apparently no victims reported. In a case of Anthrax used 'Sterne' strain which does not affect humans, possibly as a test run
October 2001	Believed disgruntled Military Research Scientist	Senate Building Washington & New York media offices	Bacteria: Anthrax <i>Bacillus anthracis</i>  Military grade 'Ames'	Anthrax spores were dispatched through the US postal system in five envelopes to be opened by recipients	11 pulmonary cases, 5 of whom died, and 11 cutaneous who survived, thousands treated and 300 locations tested

Date	Organisation/ Perpetrators	Location/ Country	Biological Agent	Comments	Damage/ Casualties
			strain spores mixed with Bentonite to prevent clumping		
Failed attacks					
1979	Rhodesian Central Intelligence Organisation	London	Cytotoxin: Ricin (Produced from mash left after processing of Castor oil beans)	Plan to assassinate Robert Mugabe with a Ricin tipped bullet	The Conspiracy was allegedly called off when the assassin was already in London
1980s	German Red Army Faction / Extreme left terrorists	Paris, France	Neurotoxin: Botulinum (produced by Bacteria: <i>Clostridium botulinum</i> )	A large amount of the Botulinum toxin was found in the groups Parisian safe house	
1991	Minnesota Patriots Council / extreme right militia	Minnesota, United States	Cytotoxin: Ricin (Produced from mash left after processing of Castor oil beans)	Planned to smear Ricin on door handles in attacks on local police & tax officers	Conspiracy foiled by authorities
December 16 <sup>th</sup> 2002	Algerian GSPC extremists linked to the <i>Al Qaeda</i> network / terrorist group	Paris, France	Believed various Chemical weapons and toxins	Two cells in la Courneuve and Romainville associated with the Benchellali family were planning attack on Russian Embassy	Conspiracy to launch a 'non – conventional' attack on the Russian Embassy, Paris was foiled by the authorities
January 2003	Algerian extremists linked to the <i>Al Qaeda</i> network / terrorist group	Wood Green, London  Manchester	Cytotoxin: Ricin (Produced from mash left after processing of Castor oil beans)	Conspiracy to create Ricin, possibly to smear it on door and car handles to kill members of the public	Conspiracy foiled by the authorities in 'Operation Springbourne' but not without the murder of Detective Stephen Oake
Accidents					
1971	Soviet Accident	Aralsk, Aral Sea, Central Asia	Virus: Smallpox <i>Variola virus</i>	It has been suggested that a limited outbreak in Aralsk may have been due to a research accident	Around 10 people may have died in the outbreak, believed to have emanated from nearby Vozrozhdeniye 'Renaissance' Island
1972	Soviet Accident	Aral Sea, near Vozrozhdeniye 'Renaissance' Island,	Bacteria: Plague <i>Yersinia pestis</i>	Believed a local fishing vessel sailed too close down wind to test area and exposed	Several local Kazakh fisherman found dead from the Plague aboard their boat

Date	Organisation/ Perpetrators	Location/ Country	Biological Agent	Comments	Damage/ Casualties
		Central Asia			
1977	British Accident	United Kingdom	Virus: Smallpox <i>Variola virus</i>	Accidental release of virus from a research laboratory	One research scientist died
April 2 <sup>nd</sup> 1979	Soviet Accident	Soviet Institute of Microbiology & Virology, Sverdlovsk, (Yekaterinburg) Russia	Bacteria: Anthrax <i>Bacillus anthracis</i>	Failure to replace a filter at a research plant released a cloud of Anthrax spores which dispersed for at least 35 miles downwind	Believed around 100 deaths, probably more, others infected, tens of thousands vaccinated, and dead livestock
April 13 <sup>th</sup> 1988	Soviet Accident	Vektor Viral Research Centre, Koltsovo, Siberia, Russia	Virus: Marburg (Filovirus causing haemorrhagic fever)	A biological warfare scientist was accidentally injected with the virus	One research scientist, Nikolai Ustinov died from haemorrhagic fever

### Attacks involving chemical agents

Date	Organisation/ Perpetrators	Location/ Country	Chemical agent	Comments	Damage/ Casualties
<b>Large-scale attack plans</b>					
Late 1940s-early 1950s	British Forces	Malaya various	Trichlorophenoxyacetic Acid / 245 T	Defoliant: Herbicide killing crops and vegetation.  During Malayan Campaign 245 T was used to try and starve Communist Guerrillas	NA
1950s	Soviet experts	Various research and production sites mainly believed to have been	Soman (GD) Nerve Agent	Nerve Agent: Interferes with acetylcholinesterase, disrupting the mechanism by which nerves communicate	NA

Date	Organisation/ Perpetrators	Location/ Country	Chemical agent	Comments	Damage/ Casualties
		located in the Ural mountains		with organs, leading to overstimulation and death  In order to compensate for the US advantage in Nuclear weaponry, the Soviet Union developed stockpiles of various chemicals including Soman	
1950s to early 1960s	American Experts	Various US Research locations	Agent BZ / 3-Quinuclidinyl benzilate (QNB BZ)	Incapacitant: Affects the peripheral and central nervous systems, producing incapacitation, hallucinations, confusion and the effects associated with a drugs 'trip'  Hundreds of American servicemen and members of the public, were used to test the 'incapacitant' LSD and other similar drugs resulting in the development of BZ	At least one US patient receiving psychiatric treatment known to have died in 1953, having unknowingly been given an overdose of Mescaline during such clinical testing
1960s to early 1970s	US Air Force	South East Asia: Vietnam, Laos & Cambodia	Agent Orange / Containing 245T and Dioxin	Defoliant: Herbicide killing crops and vegetation  During the Vietnam War the US made extensive use of Agent Orange to strip jungle, reduce hiding places & limit ambushes	Despite being a defoliant, the minute traces of dioxin accumulated through the scale of usage, leading to birth defects, illness and cancers amongst those exposed.
1960s to early 1970s	US Military	South East Asia: Vietnam, Laos & Cambodia	Agent CS / CS Gas / 2-Chlorobenzalmalononitrile	Incapacitant: Causes stinging and burning of eyes and skin, runny nose, sneezing and coughing  Used by the US military during the war in Southeast Asia, in particular to flush Viet Cong out of tunnel complexes.	While not fatal, a high level of exposure, particularly in a non-ventilated area could cause longer term problems.
Late 1960s to 1990s	British Military	Northern Ireland	Agent CS / CS Gas / 2-Chlorobenzalmalononitrile	Incapacitant: Causes stinging and burning of eyes and skin, runny nose, sneezing and coughing  Regularly used by British Military against riots during the 'Troubles' in Northern Ireland.	While not fatal, a high level of exposure, particularly in a non-ventilated area could cause longer term problems.
1980- 1988	Iraqi Military	Iran-Iraq border areas	Mustard Gas (H) / 'Sulfur Mustard' / Dichlorethyl Sulphide and Nerve Agents, Tabun (GA), Sarin (GB)	During the course of the Iran-Iraq War, to counter the numbers and 'human wave' tactics of the Iranian forces, the Iraqis used extensive chemical weapons	Although no exact figures are available, one figure quoted by a US source estimated that around 20,000 Iranian soldiers had been killed in Iraqi chemical attacks.

Date	Organisation/ Perpetrators	Location/ Country	Chemical agent	Comments	Damage/ Casualties
March 1988	Iraqi Military	Halabja, Kurdish region, Northern Iraq	Mixture of : Mustard Gas and Hydrogen Cyanide (AC)	Blister and Blood Agents  During its attacks against the Iraqi Kurds, the Iraqi Air Force attacked Halabja with Chemicals	Between 3500 and 5000 Kurdish villagers were killed during the attack and 10,000 injured.
2001-2	Al- Qaeda (AQ)	Kandahar and other locations in Afghanistan	Cyanide	Blood Agent: Stops the cells ability to take up oxygen, either from the blood or from the air into the blood, via the lungs, causing unconsciousness, convulsions and death  In Afghanistan, Coalition forces discovered drums of Cyanide in AQ tunnels by Kandahar airport and videos of dogs being gassed.	Believed AQ attempted to develop a Chemical capability.
2003 onwards  e.g. three in February 2007	Tawhid Wal Jihad / al-Qaeda in Iraq	Iraq, various locations	Chlorine Gas (CL)	Pulmonary / Choking Agent: Attacks lining of lungs leading to pulmonary oedema and 'land drowning'  During the course of the ongoing conflict in Iraq, insurgents have enhanced their bomb attacks by utilising chlorine gas tankers to create a cloud of gas engulfing survivors and rescuers.	Coalition Forces and Iraqi civilians
April 2003	Possible extreme right wing. Three conspirators, no target or motive known: William Krar, Judith Bruey & Edward Feltus	Noonday, Eastern Texas, USA	Sodium cyanide (800gms) & acids (hydrochloric, nitric & acetic)	To be used to make Cyanide gas (highly lethal)  As well as the chemicals, police recovered 65 pipebombs, guns & 1m rounds of ammunition, forged official passes to the UN & the DEA	Potentially could have killed "thousands"
<b>Small-scale attacks and accidents</b>					
Attacks					
1959	Soviet KGB	Munich, Germany.	Prussic Acid / Cyanide	Blood Agent: Stops the cells ability to take up oxygen, either from the blood or from the air into the blood, via the lungs, causing unconsciousness, convulsions and death	Stefan Bandera, a Ukrainian dissident was assassinated.

Date	Organisation/ Perpetrators	Location/ Country	Chemical agent	Comments	Damage/ Casualties
				KGB agent Bogdan Stashinsky used a prussic acid ‘gun’ to fire the poison into his victims face.	
1964	Believed Soviet KGB	Zagorsk Monastery, near Moscow, Russia	Nitrogen Mustard Gas	Blister Agent / Vesicant: Causes severe blistering to skin, eyes and airways, often lethal  A technical specialist successfully ‘swept’ the German Embassy in Moscow for listening devices, before taking a sightseeing trip to the famous Zagorsk Monastery, where he was attacked.	German technical specialist Horst Schwirkmann had severe chemical burns to his buttocks and backs of thighs.
November 1979	Saudi Military with French and US Support	The Grand Mosque, Mecca, Saudi Arabia	Agent CS / CS Gas / 2-Chlorobenzalmalononitrile	Incapacitant: Causes stinging and burning of eyes and skin, runny nose, sneezing and coughing  On 20 <sup>th</sup> November 1979, followers of Juhayman al Uteybi, seized the Grand Mosque. During their attempts to recapture the Mosque and its buildings, Saudi security forces used CS gas.	Extremists linked to the Juhayman movement who had seized the Grand Mosque.
November 1976	The “Alphabet Bomber”  (Muharem Kurbegovic – lone actor)	Los Angeles, USA	Sodium cyanide	Possession of 25lbs of Sodium cyanide plus other chemicals e.g. acids. Could have been used to make cyanide gas or in the manufacture of tabun  Two years after arrest & conviction for making & planting an IED that killed 3 people, he revealed to police the location of other materials in his house	If he had not been caught, Kurbegovic would have gone on to commit a terrorist act with a chemical agent. He was particularly knowledgeable about nerve agents such as sarin & tabun
March 1987	“Captain Nemo of Force Majeure”	Cyprus	Dioxin	Highly detailed & initially credible threats to release dioxin unless \$15m is paid by the Cypriot government. Cited 1976 Seveso incident as a consequence of dioxin release.  Panos Koupparis arrested on May 14 <sup>th</sup> 1987 in London along with two members of his family (one a chemistry student at university)	No casualties



Date	Organisation/ Perpetrators	Location/ Country	Chemical agent	Comments	Damage/ Casualties
June 1990	Liberation Tigers of Tamil Eelam (LTTE)	East Kiran Sri Linkan Special Forces base.	Chlorine Gas (CL)	Pulmonary / Choking Agent: Attacks lining of lungs leading to pulmonary oedema and 'land drowning'  Attacking a military base, the LTTE placed drums of chlorine around the perimeter and released it when the wind direction was correct	Sri Lankan Army special forces.
June 27th 1994	Aum Shinrikiyo Cult	Matsumoto, Japan  Kamikuishiki, Japan	Sarin (GB)	Nerve Agent: Interferes with acetylcholinesterase, disrupting the mechanism by which nerves communicate with organs, leading to overstimulation and death  The religious extremist cult used home-made Sarin to attack an apartment block in Matsumoto district and a small village next to the ASK compound	The Matsumoto attack killed seven and injured three hundred.  In Kamikuishiki, no deaths but several people suffered identical symptoms to Matsumoto
December 1994	Aum Shinrikiyo Cult	Japan	Agent VX	Nerve Agent: Interferes with acetylcholinesterase, disrupting the mechanism by which nerves communicate with organs, leading to overstimulation and death  The religious extremist group managed to apply VX nerve agent to the skin of an opponent.	The victim died from exposure to Nerve Agent.
20 <sup>th</sup> March 1995	Aum Shinrikiyo Cult	Tokyo underground system, Japan.	Sarin (GB)	Nerve Agent: Interferes with acetylcholinesterase, disrupting the mechanism by which nerves communicate with organs, leading to overstimulation and death  Five members of the Aum Shinrikyo Cult got onto the tube in the morning rush hour at different locations. Each carried a plastic bag of Sarin, which were all punctured with umbrellas	Twelve people died and over five thousand were injured.
October 2002	Russian Army Special Forces	Dubrovka Theatre, Moscow	Believed Halothene or Fentanyl	Anaesthetic: Believed based around Opiate/Morphine  This gas knocked out the terrorists and stopped detonation of their suicide bombs, but lack of care left 155 hostages dead.	Chechen extremists were knocked unconscious and then shot by members of Russian Alpha & Vypel Special Forces units.

Date	Organisation/ Perpetrators	Location/ Country	Chemical agent	Comments	Damage/ Casualties
September 2004	Possibly Ukrainian officials with links to the Russian Federalnoye Slyzhba Bezopasnosti (FSB)	Kiev, Ukraine	Dioxin	In September 2004, Viktor Yushchenko was running as an opposition candidate for the Presidency of Ukraine, when he was struck down with an unexplained illness. This caused severe damage to his internal organs and severe facial acne. Medical investigations showed that he had been poisoned with dioxin and that his body had 1,000 times the normal concentration.	Despite the severe damage it caused to him, later President Yushchenko survived this assassination attempt.
Failed					
1980	The Covenant, Arm and Sword of the Lord	Northern Arkansas, USA	Potassium cyanide	was to be used to poison the water supply to a city (believed to be Washington)  The CSA had accumulated/manufactured 30 gallons of it in their own facility	No casualties caused
23 <sup>rd</sup> April 1997	Ku Klux Klan	Fort Worth, Texas, USA	Hydrogen Sulphide gas.	Plan by four members to hold up and rob an armoured car with cash in transit. To tie up police resources, they would cause an explosion at a nearby refinery to release the gas.	Four pre-emptive arrests made. No injuries. Estimated that if carried, up to 30 000 casualties possible.
2002	Al- Qaeda (AQ)	Rome, Italy	Potassium ferro-cyanide	Blood Agent: Stops the cells ability to take up oxygen, either from the blood or from the air into the blood, via the lungs, causing unconsciousness, convulsions and death  Four Moroccans were arrested by the Rome police planning to mount an attack on the US Embassy by putting Cyanide in its water supply.	Believed terrorists planning to attack US Embassy staff
April 2004	Kataeb al Tawhid  (linked to “AQ in Mesopotamia”- led by Abu Musab Zarqawi)	Amman, Jordan	Chemical mix containing sulphuric acid, blister, choking & nerve agents	Three specially adapted vehicles carrying 20 tons of “chemical mix” containing sulphuric acid, blister, choking & nerve agents  Was to have been series of suicide attacks on HQ of Jordanian security service, PM office, US Embassy & others. Vehicles stopped & arrests made.	If it had gone ahead as planned & intended, Jordanian officials estimated up to 80 000 casualties and very many deaths

Date	Organisation/ Perpetrators	Location/ Country	Chemical agent	Comments	Damage/ Casualties
August 2004	Al-Qaeda	London, UK various	Chlorine Gas (CL)	<p>Pulmonary / Choking Agent: Attacks lining of lungs leading to pulmonary oedema and 'land drowning'</p> <p>In a conspiracy led and organised by Dhiren Bharrot aka. Isa al Hindi, plans were proposed to utilise chlorine tankers as improvised chemical weapons in built up areas</p>	Believed terrorists planned the use of chlorine tankers as improvised chemical weapons
Accidents					
1952-61	British experts	Porton Down research establishment, Salisbury Plain, Wiltshire / Nancekuke production site, Cornwall	Sarin (GB)	<p>Nerve Agent: Interferes with acetylcholinesterase, disrupting the mechanism by which nerves communicate with organs, leading to overstimulation and death</p> <p>Four accidents during test experiments or facility maintenance involving Nerve Agents.</p>	Three staff left permanently affected by exposure and invalided and one serviceman acting as a 'guinea pig' killed by a drop of Nerve Agent applied to his forearm.
1952	British experts	Plant Protection Laboratory, Imperial Chemical Industries (ICI)	Agent VX	<p>Nerve Agent: Interferes with acetylcholinesterase, disrupting the mechanism by which nerves communicate with organs, leading to overstimulation and death</p> <p>While attempting to develop a new pesticide, Dr. Ranajit Ghosh discovers a more viscous and more powerful liquid nerve agent than the German 'G' series.</p>	NA
1976	Industrial accident	Seveso, Italy	Dioxin	<p>Release of dioxin from chemical plant after an accidental explosion</p> <p>Burns, sores on the skin in several residents near the plant. Symptoms of fatigue, loss of appetite &amp; nervousness in many more</p>	Italian authorities forced to slaughter 80 000 domestic animals as a protective measure
3 <sup>rd</sup> December 1984	Union Carbide Accident	Union Carbide Plant, Bhopal, India	Methyl Isocyanate (MIC)	<p>Pulmonary / Choking Agent: Attacks lining of lungs leading to pulmonary oedema and 'land drowning'</p> <p>After water entered one of the plants storage tanks, 42 tonnes of the gas were accidentally released, affecting the nearby town.</p>	Although no exact figures are available, it is estimated that anywhere up to 5000 local people died, and thousands more were seriously injured.

Date	Organisation/ Perpetrators	Location/ Country	Chemical agent	Comments	Damage/ Casualties
January 1997 Onwards	Not known but believed to be same perpetrator (lone actor?)	Sydney, Australia  Three locations	Chlorine and Sulphuric Acid	Devices designed to release quantities of Chlorine (x2) or Sulphuric Acid  No explosives involved.	Injuries to 11 (sulphuric acid), 20 and 4 (chlorine) from inhalation of fumes
2000	Striking Cellatex Employees	Cellatex Factory, Ardennes, France	Sulphuric Acid	During a strike over the closure of the factory, staff poured 1,500 gallons of acid into a tributary of the Meuse and threatened to use 56,000 tons of other chemicals in their possession	Environmental damage, no known fatalities.

### Attacks involving nuclear or nuclear-related material

Date	Incident	Material	Comment
Attacks			
June 1995	Czech Republic. Incident related to December 1994 arrests.	0.0004 gms HEU (87.7%)	Russia
June 1995	Czech Republic. Incident related to December 1994 arrests	0.017 kgs HEU (87.7%)	Russia
November 2006	Alexander Litvinenko dies in London, UK after exposure to radioactive material. Believed to be murder, suspects known but not yet arrested.	Polonium - 210	Russia (believed)
Seizure of nuclear materials and arrests			
May 1992	Seizure by police in Moscow, Russia as the result of an investigation into an employee of a nuclear facility suspected of stealing equipment	1.5kgs Highly Enriched Uranium (HEU) (90%)	Source of HEU was a State Research Institute in Russia
March 1993	Interception in Istanbul, Turkey by police of enriched uranium from the Former Soviet Union (FSU)	6kgs Uranium from FSU military source. Came in from Tashkent, Uzbekistan	

May 1993	Seizure by police in Lithuania. Probably a contaminant on the 4.4 tons of Beryllium that was the focus of the police investigation	0.1kg HEU (50%)	Source unknown
July 1993	Seizure by police in Murmansk, Russia of two fuel rods stolen from a naval facility. Arrests made.	1.8kgs HEU (36%)	
October 1993	Seizure in Istanbul, Turkey of Uranium. Four Turks and four Iranians arrested	2.5 kgs of U238.	Uranium believed to have been flown in by a private plane taking off from Hartenholm, Germany, a private airfield owned by Iranian arms dealers
November 1993	Seizure by police in Murmansk, Russia of several fuel rods stolen from a naval facility	4.5kgs HEU (20%)	Russian sourced material
March 1994	Seizure by police in St Petersburg, Russia of material smuggled out of a nuclear material production centre. Three arrests made as a result of trying to sell it	3.05kgs HEU (90%)	Russian sourced material
May 1994	Seizure by police in Tengen, Germany as a result of a possible “red mercury” scam	0.006kgs Plutonium-239 (99.75% purity)	Source unknown
June 1994	Seizure by police in Landshut, Germany as the result of an undercover operation	0.0008kgs HEU (87.8%)	Russian sourced material
July 1994	Seizure of 12 kgs of Uranium, Istanbul. Seven Turks arrested	12 kgs Uranium, weapons grade, originating in Azerbaijan	
July 1994	Seizure by police in Germany	0.00024kgs Plutonium	Russian sourced material
August 1994	Seizure by police at Munich Airport, Germany. Individuals involved came from Spain and Colombia. Arrests also made in Moscow.	0.4 kgs Plutonium (plus 200gms of Lithium)	Russian sourced material
October 1994	Bulgaria. Suspected radioactive material seized off a bus en route to Turkey		No further details
December 1994	Seized in the Czech Republic when attempts were made to sell it. Three “nuclear workers” arrested.	2.7 kgs HEU (87.7%)	Russia

February 1996	Failed attempt to sell highly enriched uranium in Switzerland leads to a large seizure and eight arrests in Turkey	1, 128 kgs of highly enriched Uranium, as used in nuclear power plant fuel rods. Origin unclear	
1997	Russia, Novosibirsk. Two men arrested trying to smuggle nuclear material to Pakistan or China.	Enriched Uranium, 11 pounds	Stolen from nuclear facility in Kazakhstan
March 1997	Failed attempt in Turkey to sell \$3m worth of Osmium	2.5gms of Osmium	Used with Plutonium to form a very rigid & heat resistant coating in nuclear missile warheads
June 1998	Seizure in Bursa, near Istanbul, Turkey of Antimony, Bismuth and Scandium. Three Turks arrested		Smuggled into Turkey from Azerbaijan
July 1998	Thirteen cylinders believed to contain nuclear material seized in Van, Turkey after attempt to sell them for \$1000 each. Five Turks and one Iranian arrested	Cylinders marked UPAT UKA3 M8 and stamped with three stars	
September 1998	Seizure in Istanbul, Turkey of Uranium and Plutonium. Nine arrests made	4.5 kgs of Uranium  6 gms Plutonium	Believed to have been smuggled in from Russia. Legitimate value of over \$3m, asking price \$1m
May 1999	Seizure by Bulgarian Customs at the border. Turkish national arrested	0.004 kgs HEU	Russia
October 1999	Seizure as a result of attempted sale in Kyrgyzstan	0.0015 kgs Plutonium	Unspecified source
April 2000	Four people arrested in Georgia. Their intention was to smuggle the material into Turkey and sell it	0.9 kgs HEU (30%)	Detected at the border as the result of a police investigation. Source may have been Russia
September 2000	Seized and arrests made in Georgia during an attempt to sell it	0.0004 kgs Plutonium	Source probably Russia but may have been Ukraine
January 2001	Greece. About 300 metallic plates found buried in a forest, probably awaiting the opportunity for resale	0.003 kgs Plutonium	Source unknown
July 2001	Three arrests in Paris, France	0.005 kgs HEU (80%)	Source unknown

2003	Two arrests in Brno, Czech Republic for attempt to sell bars of nuclear material for \$715 000	Unconfirmed but reported as low enriched Uranium in bars	Source unknown
2006	Georgia, arrest of Russian citizen trying to sell a small amount of refined Uranium. It was in a plastic bag in his pocket.	Weapons grade Uranium, small quantity	Unknown but Russia a possibility
November 2007	Two arrests in Bratislava, Slovakia and one in Hungary on suspicion of trying to sell nuclear material for \$1m.	Unconfirmed but reported as 2.2 pounds of enriched Uranium	
July 2008	Two arrests in Cherkassy, Ukraine and seizure of Uranium and Cesium. One worked at the Ukrainian Embassy in Germany.	Uranium and Cesium worth \$4.9m (no further details)	Stolen from a nuclear facility in Kiev
Accident			
December 2000	Germany. Radioactive contamination on aging nuclear waste material discovered through testing. A site worker was arrested	Less than 1 mg of Plutonium	German source, a closed spent fuel reprocessing plant

### Attacks involving radioactive material

Date	Incident	Material	Comment
November 1995	Radioactive material found in a park in Moscow after Chechen group informed Russian TV station	32 kg container believed to contain Cesium-137. Source may have been Budyonnovsk hospital, Russia that they had temporarily occupied earlier that year	Incident was to show that the Chechens could strike in Moscow if they wished
December 1998	Argun, Chechnya. A container with radioactive material inside and rigged to a landmine was found and defused		

**ANNEX 3: NON-EXHAUSTIVE LIST OF INTERNATIONAL AND EUROPEAN LEGISLATION AND NON-BINDING FRAMEWORKS CURRENTLY IN PLACE**

International legislation	Non-binding frameworks
<i>Chemical threats</i>	
<p>The Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (the Chemical Weapons Convention – CWC)</p> <p>Global Harmonised System of Classification and Labelling of Chemicals (GHS)</p>	The NATO International Task Force (ITF-25)
<i>Biological threats</i>	
<p>The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction</p> <p>World Health Organisation (WHO) norms and standards</p> <p>World Organisation for Animal Health (OIE) norms</p>	The Australia Group
<i>Radiological and nuclear threats</i>	
<p><u>International Atomic Energy Agency</u></p> <p>The IAEA Convention on Nuclear Safety</p> <p>The IAEA Convention on Early Notification of a Nuclear Accident</p> <p>The IAEA Convention on the Physical Protection of Nuclear Material</p> <p>The IAEA Convention for the Suppression of Acts of Nuclear Terrorism</p> <p>The Emergency Notification and Assistance Convention (ENAC)</p> <p>The IAEA Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency</p> <p>The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management</p> <p>Regulations for the Safety Transport of</p>	<p><u>International Atomic Energy Agency</u></p> <p>Code of Conduct on the Safety and Security of Radioactive Sources, and supplementary Guidance on the Import and Export of Radioactive Sources</p> <p>Code of Conduct on the Safety of Research Reactors</p> <p>Guidance on the import and export of radioactive sources</p> <p>Safety Requirements on Preparedness and Response to a Nuclear or Radiological Emergency</p> <p>Guidance and considerations for the implementation of INFCIRC/225/Rev.4, The Physical Protection of Nuclear Material and Nuclear Facilities</p>



Radioactive Materials  <u>United Nations</u>  The Non-Proliferation Regime (NPR): Treaty on the Non-Proliferation of Nuclear Weapons (NPT), a number of related acts (e.g. Resolution No. 1540), etc.	
<u>United Nations</u>  International Carriage of Dangerous Goods by Road (ADR) Regulations 2007  International Carriage of Dangerous Goods by Rail (RID) Regulations  International Carriage of Dangerous Goods by Inland Waterway (ADN) Regulations	

European legislation and non-binding frameworks <sup>33</sup>
<i>Chemical threats</i>
Council Directive 96/82/EC of 9 December 1996 on the control of major-accident hazards involving dangerous substances (Seveso II)  2006 Regulation concerning the registration, evaluation, authorisation and restriction of chemicals (REACH)
<i>Biological threats</i>
Directive 2000/54/EC to guarantee a better standard of safety and health for workers exposed to biological agents at work  Council Directive 82/894/EEC on the notification of animal diseases and its impact on humans  Council Directive 2000/29/EC on protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread within the Community
<i>Radiological and nuclear threats</i>
Council Directive 2003/122/Euratom of 22 December 2003 on the control of high-activity sealed radioactive sources and orphan sources (HASS Directive)  Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation ("Basic Safety Standards" Directive / BSS Directive)  Council Directive 2006/127/Euratom of 20 November 2006 on the supervision and control of shipments of radioactive waste and spent fuel

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For a comprehensive CBRN inventory, see the Council document 10382/08.

Council Regulation 93/1493/ Euratom of 8 June 1993 on shipments of radioactive substances between Member States („Shipment of Radioactive Substances” Regulation)

Council Directive 89/618/Euratom: on informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency

*Cross-cutting threats*

Framework Directive 2008/68/EC of 24 September 2008 on the inland transport of dangerous goods

Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work.

Regulation (EC) No 2320/2002 of the European Parliament and of the Council of 16 December 2002 establishing common rules in the field of civil aviation security

Regulation (EC) No 622/2003 of 4 April 2003 laying down measures for the implementation of the common basic standards on aviation security.

The EU Action Plan on Combating Terrorism

The European Programme for Critical Infrastructure Protection (EPCIP)

## ANNEX 4: FIRST SCREENING OF IDENTIFIED CBRN ACTIONS TO BE UNDERTAKEN

### 1) Actions applicable to CBRN prevention, detection and response

The following four tables present the outcomes of the first screening exercise. Actions identified through the work of the CBRN Task force and to be included in the CBRN Action Plan, are divided by strand, namely 1) Actions applicable to CBRN prevention, detection and response; 2) Prevention; 3) Detection and 4) Preparedness and Response.<sup>34</sup>

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiarity / proportionality issues
<b>0. Implementing the Action Plan</b>							
B.0	The EBN (European Bio-Network) should be created in order to support the implementation of the Action Plan. EBN would be a structure which would pull together European expertise on bio-preparedness from different sectors – research community, private sector and public sector (including the security and intelligence community). Its role would be to develop guidelines and codes of conducts for researchers concerning materials and resources for education about effective and secure bio-standards and best practices. The Network would promote and support development of bio-standards at EU level.	<b>Unfeasible</b> Stakeholders did not support this action which raises proportionality and subsidiarity issues. Creating a new European Bio-Network to support the implementation of the Action Plan, to pull together expertise, to develop guidelines and codes of conduct and to promote and support the development of bio-standards would take the form of a formal and permanent body at the EU level. This would necessitate the setting up of a whole administrative and managerial structure, leading to financial and responsibility issues and concerns. In addition, such a body would be a duplication of existing structures. Finally, most of the actions foreseen within this network should be the responsibility of Member States to define, develop and implement them according to their own experiences and structures.		X	X		
<b>1. Enhance international cooperation</b>							
H.01	The Member States and the Commission should continue to strengthen the international exchange of good practices with external partners concerning staff-awareness and training.	<b>Uncontroversial</b> The further development of exchange is positive, as it will allow in particular Member States with less experience and capacity to learn from other Member States or third countries which are more advanced in this area.	X	X	X	X	X

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The actions applying to the horizontal strand are marked by the letter H, chemical strand – letter C, biological strand – letter B, radiological/nuclear strand – letter RN.

H.02	The Member States and the Commission should, where appropriate, exchange information on their participation in various international forums and should strive towards coordination of positions in order to ensure that common EU objectives are achieved	<b>Uncontroversial</b> The economic costs of this action would be very low, and would at the same time help to strengthen the common EU approach towards terrorism. The EU is also well placed to ensure increased knowledge and information sharing..		X	X	X	X
<b>2. Improve communication with the public</b>							
H.03	The Member States and the Commission should regularly organise meetings of communication specialists from the Member States dealing with security issues (in particular CBRN events) with a view to encouraging the spread of good practices concerning communication strategies.	<b>Uncontroversial</b> The exchange of good practices of communication strategies is positive, as it will allow in particular Member States with less experience to learn from other Member States which are more advanced. It will also help Member States to develop common approaches, should this be considered useful.	X	X	X	X	X
H.04	The Member States and the Commission should review existing international guidelines and incorporate appropriate existing procedures or, when needed, should establish new guidelines for the development of security communication strategies involving CBRN incidents, which could be integrated with existing emergency planning and communications strategies, and would involve all relevant agencies.	<b>Uncontroversial</b> The compilation of existing international guidelines and procedures in a revised or renewed format is positive as it will allow an update of the existing information and a good reference material for relevant agencies to define their communication strategies. It will also help to identify possible gaps and inconsistencies.	X	X	X	X	X
H.05	Each Member State should look into the practical implementation of the good-practices on public and media relations identified in a joint effort by the Commission, Europol and the Member States.	<b>Uncontroversial</b> Making use of existing validated good practices on communication with the public and the media is positive, as it will build on proven expertise and allow in particular Member States with less experience to learn from other Member States which are more advanced in this area.	X	X	X	X	X
C.01	The Member States and the Commission should establish guidelines for the development of chemical security communication strategies	<b>Uncontroversial</b> Establishing guidelines for the communication strategies is positive as it will support the development of communication strategies at the national level which follow a common approach to the management of public crises.	X	X	X	X	X
B.01	Member States and relevant organisations should develop awareness and crisis communication strategies for the public living close to any facilities possessing any of the biological agents and toxins on the EU biosecurity list.	<b>Uncontroversial</b> A specific communication strategy with the main aim of informing and 'tranquillising' the public living close to facilities processing biological agents and toxins on the EU priority list is beneficial, as in the case of an incident their behaviour will be key in order to reduce the spread (if any) to other areas.	X	X	X		X
<b>3. Develop improved information tools for CBRN security</b>							
H.06	The Commission should establish a system in which good-practices on security could be shared. The use of existing systems should be explored in this regard.	<b>Uncontroversial</b> A system to exchange good practices on security is positive, as it will allow in particular Member States with less experience to easily access information from other Member States which are more advanced in this area.	X	X	X	X	X
H.07	The Commission should establish a library of resources which could be used by the relevant authorities (in particular the law enforcement community and public health authorities). Such a library would contain applicable information about the nature of CBRN agents and how to deal with them. This library could include national contributions from the Member States.	<b>Uncontroversial</b> The establishment of a library of resources is positive as it will give single access point to a source of information on the all the CBRN agents, which will be constantly updated with the experience of Member States. The need to secure the library is to be considered.	X	X		X	X

H.08	The Member States and the Commission should establish a law enforcement Early Warning System (EWS) for CBRN related incidents, taking account of existing systems and experiences and based on established common European lists of the most high-risk CBRN materials. Such a mechanism would include information on immediate threats, losses/thefts, and suspicious transactions and would in any case need to be accessible to the law enforcement authorities and relevant emergency responders of the Member States and to Europol. As a first step, the extension of the existing G6 system should be considered. The system should be without prejudice to the exchange of information on public health issues.	To be assessed in detail		X		X	
<b>4. Improve training</b>							
H.09	The EOD Network should address the need for developing minimum standards of CBRN training for EOD specialists. The applicability of the standards developed by the EDA to the non-military context may be assessed in this regard. Training should be provided to EOD personnel in terms of contacting relevant CBRN specialists and on forensic awareness.	<b>Uncontroversial</b> This action is positive as it aims at ensuring that EOD specialists will be properly trained to respond to CBRN issues. Making use of existing standards, or work on existing standards, in particular those developed by the EDA for the military context and adapted to the civilian context, will avoid duplication of efforts and help to develop targeted training.	X	X	X		X
H.10	The Member States should ensure that CBRN information, including on EOD matters, is integrated into training programmes for relevant first responders and local authority personnel. The Member States and the Commission should ensure that emergency response personnel receive training concerning available modelling tools.	<b>Uncontroversial</b> It is very positive to ensure that CBRN information is included in the training of first responders and local authority personnel as their actions will have an important impact on the immediate response as well as on investigative and forensic activities.	X	X		X	X
C.02	The Commission should provide support for the organisation of specific HazMat specialist trainings.	<b>Uncontroversial</b> Supporting the organisation of training of HazMat specialists is positive as it will ensure that the training targeted at handling and dealing with specific chemical substances is of high quality.	X	X	X	X	X
C.03	The Member States should organise regular exercises concerning the security of chemical facilities in order to test preparedness measures in place and raise awareness among staff.	To be assessed in detail	X	X			
B.02	Member States and the Commission should identify and spread: • Good practices on well targeted training for and education of individuals working with, having access to or handling biological agents and toxins on the EU biosecurity list; • Good practices on academic training on biosafety, potential misuse of information and biological agents and toxins, and bio-ethics for undergraduate, graduate and postgraduate students; • Good laboratory practices.	<b>Uncontroversial</b> Identifying and disseminating good practices on training and education within academia and laboratories will ensure a more harmonised approach in the EU Member States and enable countries with little experience in this area to learn from their peers.	X	X	X	X	X
B.03	Member States and the Commission should consider and develop: • Guidelines at the EU level for minimum training requirements for persons working with, having access to, or handling biological agents and toxins; • In conjunction with universities and professional associations, minimal requirements for academic training on biosafety, potential misuse of information and biological agents and toxins and bio-ethics for undergraduate, graduate and postgraduate students.	To be assessed in detail	X	X		X	
<b>5. Strengthen personnel security</b>							

H.11	Member States and the Commission should analyse the need to establish a system of mutual recognition of security vetting processes for certain categories of personnel.	<b>Uncontroversial</b>  Analysing the mutual recognition <i>per se</i> would be positive as it would be a step forward towards assessing the need for a more harmonised approach towards security vetting and thus ensuring a greater 'security level playing field' across the EU.		X	X	X	X
H.12	The Member States and the Commission should develop and introduce common graduated criteria for background checks and vetting requirements in relation to personnel having access to high-risk CBRN materials along the whole chain of production, storage, distribution and use. This should be done based on the establishment of a common European list of the most high-risk CBRN materials. These common criteria should be based on a graduated approach. In the course of the recruitment process, the recruiting organisation should ensure that the credentials of the candidates are properly checked and assessed. The Commission should launch a study concerning existing background check procedures and requirements within the CBRN industry.	<b>To be assessed in detail</b>				X	X
H.13	The Member States and the Commission should identify and exchange good practices on approaches to security of non-EU visiting staff and students; Member States should aim at common procedures across the EU.	<b>To be assessed in detail</b>	X		X	X	
C.04	The Member States and the Commission should identify and exchange good practices on robust management structures at commercial, industrial and research facilities possessing high-risk chemical agents ensuring regular appraisal of the staff and its monitoring	<b>Uncontroversial</b>  The identification and exchange of good practices on robust management structures is positive, as it will allow in particular Member States with less experience and capacity to learn from other Member States or third countries which are more advanced in this area. Appraisals should in particular identify whether staff is put under pressure by third parties, whether their ideas are radicalising, etc. They could also be linked to regular renewals of security clearance, and random checks, particularly to verify whether a person so employed has a 'change of circumstances'.	X	X	X	X	X
B.04	Member States should ensure that Each Member State and/or organisation has a secure registry of personnel having access to or information on biological agents and toxins on the EU biosecurity list (along the whole chain of production, storage, distribution and use). Law enforcement should have access to such a registry.	<b>To be assessed in detail</b>				X	X
B.04a	Developing mandatory professional code of conducts at EU level	<b>Unfeasible</b>  Stakeholders did not support the development of mandatory professional codes of conduct at the EU level. They expressed their views that self-regulation might be better in this sense. In addition, they stressed Member States' responsibility to ensure of the professionalism and ethic of people handling biological substances.		X	X		
B.05	The Member States and the Commission should identify and exchange good practices on robust management structures at commercial, industrial and research facilities possessing biological agents and toxins on the EU biosecurity list ensuring regular appraisal of the staff and its monitoring.	<b>Uncontroversial</b>  The identification and exchange of good practices on robust management structures is positive, as it will allow in particular Member States with less experience and capacity to learn from other Member States or third countries which are more advanced in this area. Appraisals should in particular identify whether staff is put under pressure by third parties, whether their ideas are radicalising, etc. They could also be linked to regular renewals of security clearance, and random checks, particularly to verify whether a person so employed has a 'change of circumstances'.	X	X	X	X	X

6. Strengthen and prioritise research						
H.14	The Member States and the Commission should improve the aggregation and spread of research results both at EU level as well as at national level across the EU Member States. For unclassified materials, this should be done by way of organising conferences and setting up a dedicated research web-portal (for all of CBRN security) which would contain a summary of the relevant research projects and contact information where further details can be obtained, as well as opportunities for future research collaboration and work.	<b>Uncontroversial</b> Improving aggregation and dissemination of research and especially for unclassified material, will give a single access to existing research, state of the art and prospects for new research, bringing together the work of researchers throughout the EU. The action will also help to focus research on the most relevant issues and to ensure increased European cooperation. The cost / benefits of this action would need to be assessed, given that conferences and a web-portal could require medium initial investments.	X	X		X
H.15	The Member States and the Commission should engage in further research cooperation with international partners with a view to enhancing synergies and avoiding duplications. The research work performed by the European Defence Agency and the JRC as well as the recommendations to be made by the European Security Research and Innovation Forum (ESRIF) should be fully taken into account in these efforts. The Commission should organise periodic meetings of CBRN experts, including specialists from other partner countries, in order to share and spread good practices on CBRN issues. The results of these meetings should be collected and the disseminated among the Member States.	<b>Uncontroversial</b> Fostering research and cooperation in the research field with the EDA and the JRC as well as integrating the work of the ESRIF is important and positive to take the most out of the existing work performed at the international level and to ensure a cross-border perspective to the research. The sharing of information on the meetings of CBRN experts will further help to inform Member States and to encourage them to engage in further research cooperation.	X	X	X	X
H.16	The Member States and the Commission should improve the use of existing scientific networks to enhance work in the detection area.	<b>Uncontroversial</b> Improving the use of existing scientific networks is positive in order to make the most out of existing techniques and to avoid duplication of efforts. It would be important to first map the existing networks in this area, in terms of their coverage, specific focus / features, etc.	X	X	X	X
H.17	The Commission should launch a study on the necessity and impacts of assessing scientific research and scientific publications against security aspects.	<b>Uncontroversial</b> Launching a study on the necessity and impacts of assessing scientific research and scientific publication is a useful action which will allow determining the state of the art, the gaps and the needs.	X	X	X	X
H.18	The Member States and the Commission should encourage funding organisations (be it public or private) to take security aspects of proposed research projects and other publications into account, as well as the suitability of the funds receiver (from both a safety and a security perspective) to work on the research the receiver is proposing. Best practices of funding organisations should be identified and exchanged across Member States.	<b>To be assessed in detail</b>	X			X
C.05	The Commission and the Member States should support research into the following areas: • Prevention: 1. Development of low-risk alternatives to high-risk chemicals. • Detection: 1. Ensuring interoperability and network application of detection devices in view of joint team operations; 2. Improving the presentation of detection results in a way that they can easily be understood by end-users, particularly first responders; • Response: 1. The potential psychological effect of CBRN emergencies on the population and the likely reactions of local populations in case of	<b>Uncontroversial</b> Supporting research in the mentioned areas is positive as it will ensure looking into new possibilities and alternatives to chemicals, developing new capabilities especially in the case of joint operations, further developing crisis management and new detection technologies. The earlier actions aimed at mapping existing research and sharing of information on research (e.g. H.15) will help to identify what has already been done in the areas listed.	X	X		X

	incidents • Technology research: 1. Further miniaturising detection equipment, which should combine various capabilities in one device. 2. The development of transportable equipment which can be used by emergency responders in the field.						
B.06	The Commission and Member States should enhance: • Research on capabilities for response and recovery from biological incidents; • The understanding of and research in emergency logistics and distribution operations (e.g., of medicines) at the regional, national and international level.	<b>Uncontroversial</b> Increasing funding to research will benefit overall response and recovery capabilities. Increasing understanding of emergency logistics and distribution operations will increase the chances of successful response and recovery in case of a real incident. Again, the earlier aimed at mapping existing research and sharing of information on research (e.g. H.15) will help to identify what has already been done in the areas listed.	X	X		X	X
B.06a	All scientific publications should be assessed by peer reviewers before their publication	<b>Unfeasible</b> Stakeholders did not support the review by peers of all scientific publications. A first concern is that peer review might have a negative impact on research: it might for example prevent researchers to investigate areas considered by some, and not by others, as being dangerous if the information was to fall into wrong hands. This could either stop the research on some areas or develop "illicit" and secret research. In addition, this kind of peer review might raise concerns as to its compatibility with fundamental rights such as freedom of science and speech by preventing researchers to publish their findings. Finally, it is not clear what further consequences and actions there would be in case a peer reviewer raises security concerns.			X		
B.06b	Publications of studies with sensitive biological dual-use research in two versions (public and restricted version)	<b>Unfeasible</b> Stakeholders showed little support for this option. The first point raised was that it would be overall impossible to conduct such a procedure in practice. This is in particular the case when a body or structure would need to be delegated the responsibility to decide on the issue. This would need to be agreed by all Member States and might raise proportionality and subsidiarity issues. In addition, this action might also raise concerns as to its compatibility with fundamental rights, such as freedom of speech and access to information.					
RN.01	The Commission and the Member States should support research into the following areas: • Detection: 1. Detection and identification of difficult to detect radioactive sources and nuclear materials; 2. Detection and identification of masked and shielded sources 3. Improving spectrometry based detection and addressing the problems of "innocent" and false alarms 4. Detection and location of radiation source in large crowds; • Response: 1. The potential psychological effect of CBRN emergencies on the population and the likely reactions of local populations in case of incidents, and possible action-oriented responses; 2. The further development of nuclear forensics; 3. The development of radiological forensics 4. Guidance on storage of contaminated evidence for an extended period of time; 5. Guidance on the disposal of contaminated materials; 6. Particle size distribution and potential chemical composition changes	<b>Uncontroversial</b> Increasing research will benefit overall detection, response and recovery capabilities. Mapping existing research and fostering European cooperation in this area, as proposed in the actions above (e.g. H.15) will help to identify gaps and opportunities. Evidence suggests that indeed current detection technologies and equipment are insufficient with regard to radioactive sources. Contamination and disposal of radiological materials is also an area which would require further EU efforts, especially because such activities are very costly and many Member States cannot bear such costs alone. Finally, undertaking research into new technologies will also help to improve control, monitoring and detection capacity and capability.	X	X		X	X



	following an explosion. 7. Other gaps identified based on a risk-assessment process • Technology research: 1. Detection technologies and electronic tracking systems for radioactive sources; 2. Integration of different technological solutions [address the current status when numerous devices are required for detection]; 3. Improving detection software; 4. Enhance mobility and portability of detection solutions. 5. The development of transportable equipment which can be used by emergency responders in the field (including neutralisation and detection equipment for bomb squads); 6. Decontamination equipment;						
<b>7. Ensure the criminalisation of acts involving high-risk CBRN materials</b>							
H.19	The Commission should analyse the penal legislation enacted in the Member States concerning CBRN terrorism, in order to assess whether any further work at EU level is necessary.	<b>Uncontroversial</b> Analysing the penal legislation enacted in Member States will be positive in order to focus the work of the EU on potential gaps and cross-border issues. It will also help to formulate proposals to further harmonise penal legislation, where possible, making sure that CBRN illegal acts are adequately criminalised throughout the EU.	X	X	X	X	X

## 2) Prevention strand

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiarity / proportionality issues
<b>1. Develop EU lists of high-risk CBRN materials and risk-based approaches to security</b>							
H.20	The Member States and the Commission should establish and regularly update EU lists of: • high-risk chemical agents; • biological agents and toxins (biosecurity list); • high-risk radioactive sources; of special security concern.  These lists should be developed based on a risk assessment analysis. This process should include the following steps: o Identifying and analysing relevant CBRN materials; o Assessing its potential for being used for malicious purposes;	<b>To be assessed in detail</b>				X	X

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiarity / proportionality issues
	<ul style="list-style-type: none"> <li>o Selecting the most dangerous material in terms of its potential for being used for malicious purposes;</li> <li>o Assessing its vulnerability in terms of theft/loss (ease of obtaining them);</li> <li>o Establishing possible preventive measures: physical / technical and administrative;</li> <li>o Carrying out a cost / benefit study on these possible measures.</li> </ul>						
H.21	<p>The Commission should:</p> <ul style="list-style-type: none"> <li>• establish fora for EU level dialogue between relevant authorities in the field of CBRN risk-management in order to take cross-border threats fully into account in national and EU planning processes. This should allow the attainment of a common understanding among the Member States and the Commission of the risks faced by the entire EU.</li> <li>• facilitate the exchange of best-practices concerning CBRN risk-management by organising regional/EU level meetings and channelling funding toward the development/identification/implementation of suitable methodologies</li> </ul>	<p><b>Uncontroversial</b></p> <p>Fostering cross-border cooperation via fora for EU level dialogue is positive to move towards a more harmonised understanding of the risks faced by the EU. The exchange of best practices is positive to go beyond existing bilateral agreements in terms of risk management.</p>	X	X	X	X	X
RN.02	The Member States should ensure that law-enforcement authorities keep the operators of facilities in which high-risk radioactive sources are present informed on a need-to-know basis about potential threats. If no system exists, each Member State should consider establishing a communication mechanism in order to quickly transfer security related information to security managers in facilities in which high-risk radioactive sources are handled.	<p><b>Uncontroversial</b></p> <p>Ensuring that information is adequately distributed to operators of facilities is very positive as it will enhance security of the facilities. It will particularly be important to ensure that they are aware of potential threats and are part of a system of information on security of high-risk radioactive materials.</p>		X	X	X	X
<b>2. Enhance the security of CBRN materials and facilities</b>							
H.22	The Member States and the Commission should develop criteria on assessing security arrangements at high-risk CBRN facilities. This should be done in the form of a good practice document.	<b>To be assessed in detail</b>			X	X	X
C.06	The Member States should ensure that relevant authorities engage in dialogue with the relevant site security managers and advise operators on the necessary levels of security. Member States should encourage the establishment of trusted relationships between security managers and law enforcement counterparts.	<p><b>Uncontroversial</b></p> <p>Increasing dialogue and relations between relevant security actors is positive in order to ensure exchange of information and experience. This will help to improve the prevention and response to incidents, making sure that security managers and law enforcement counterparts know whom to contact and what to do.</p>	X	X	X	X	X
C.07	The Member States should ensure that security plans/security management systems are in place in high-risk chemical facilities. The security plans should provide for graduated levels of security based on	<b>To be assessed in detail</b>		X		X	

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiary / proportionality issues
	the existing threat level. Member State authorities should be involved in assessing whether these security plans satisfy the necessary level of protection requirements.						
C.08	The Member States should: <ul style="list-style-type: none"> <li>• Ensure that the responsibilities of the operator and the State in terms of security of facilities should be clearly defined.</li> <li>• Ensure that local law enforcement authorities possess information on high-risk chemical facilities in their area.</li> </ul>	<b>Uncontroversial</b> Ensuring the definition of roles of operators and the State for the security of facilities and ensuring that information on high-risk chemical facilities is known by local law enforcement authorities is positive as it is a prerequisite to ensure that the security of chemical materials and facilities is enhanced. Clear links will need to be made to safety issues.	X	X	X	X	X
C.09	The Member States and the Commission should ensure that the chemical industry develops and implements the security side of the Responsible Care programme.	<b>Uncontroversial</b> Ensuring the development and implementation of the security side of the Responsible Care programme is positive as it will allow progress on existing basis and avoid duplication of efforts. In addition, this action is positive as it builds on voluntary action of the chemical industry.	X	X	X	X	X
C.09a	The Commission should investigate gaps with regard to the delivery documentation mechanism established under the Responsible Care programme.	<b>Unfeasible</b> Stakeholders showed little support for this action Their main concern was that there is no need for such an investigation and this will not be useful.		X	X		X
C.10	The Member States and the Commission should develop a high level approach to chemical facility security which identifies key objectives and steps to be taken in order to increase security, based on national risk assessment approaches.	<b>To be assessed in detail</b>	X	X			
C.11	The Member States and the Commission should encourage industry to replace, where possible, the use of high-risk chemicals with suitable lower-risk alternatives. The potential use of the REACH framework or of separate, more specific legislation should be examined in this regard as well, in close coordination with the authorities competent for chemicals of the Member States.	<b>Uncontroversial</b> Using suitable lower risk alternatives is very positive, as it would reduce the risks of certain industrial processes and products. Some considerable work has already been undertaken in this area by the industry itself and is being worked on within the REACH framework: these could be a relevant basis to work from and enhance the development of alternative solutions.	X	X		X	X
C.12	The Commission should bring together the relevant security authorities from the Member States in order to identify good practices concerning the security of high-risk chemical facilities. Based on this work, the Commission should develop a good practice document addressing such issues as: <ul style="list-style-type: none"> <li>• The responsibility of an authority to assess the security measures in place for various types of materials;</li> <li>• Creating varying levels of security measures adapted to the risk posed by particular chemical agents, amounts of certain materials or combinations of materials. These security measures should address inter alia: background checks for personnel, physical security measures and</li> </ul>	<b>Uncontroversial</b> The identification and development of good practices is positive, as it will allow in particular Member States with less experience and capacity to learn from other Member States or third countries which are more advanced in this area. It is also highly positive to adapt security measures to the risks, as only facilities using high quantities of high-risk substances or certain combinations of substances would require a maximum security level. Others may require less rigid (and costly) measures.	X	X	X	X	X

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiary / proportionality issues
	information security.						
C.13	The Commission should launch studies on: <ul style="list-style-type: none"> <li>the applicability of existing safety provisions to enhancing security.</li> <li>training requirements for inspection and enforcement entities, so that they can provide the highest possible levels of relevant security expertise.</li> </ul>	<b>Uncontroversial</b> Studies on the applicability of existing safety provisions which could also contribute to enhancing security and on training requirements for inspection and enforcement entities are a useful action which will allow determining the state of the art, the gaps and the needs.	X	X	X	X	X
C.14	The Commission should accelerate its work to support enhancing the protection of SCADA systems against cyber-attacks.	<b>Uncontroversial</b> This action is positive as cyber attacks in particular in relation to illegal and terrorist use of information is increasing.	X	X		X	X
B.07	The Commission should assist Member States in proper implementation of applicable procedures at "the laboratory bench level" and in developing mechanisms for assessing and monitoring its correct implementation.	<b>Uncontroversial</b> EU level assistance with the implementation of applicable legislation will be highly beneficial, as it will help to ensure a harmonised approach in the Member States. The same applies to the development of mechanisms for assessing and monitoring implementation - Member States will receive useful feedback on their strengths and weaknesses as well as concrete suggestions for improvements.	X	X	X	X	
B.08	The Member States should establish: <ul style="list-style-type: none"> <li>A secure registry of facilities possessing any of the biological agents and toxins on the EU biosecurity list within each Member State while allowing access to law enforcement;</li> <li>A process to verify and if necessary to enhance security arrangements of facilities, including diagnostic laboratories handling and possessing any of the biological agents and toxins on the EU biosecurity list.</li> <li>A mechanism within facilities storing biological agents and toxins on the EU biosecurity list to regularly review the need of such biological agents and toxins while keeping a good record of stored materials;</li> </ul>	<b>To be assessed in detail</b>		X		X	X
B.08a	Introduce the accreditation of a specific and limited number of laboratories, health institutions, and production establishments on the basis of compliance with minimum security standards.	<b>Unfeasible</b> Stakeholders did not support this action. They firstly raised the issue of costs associated to this additional accreditation. In addition, they stressed the fact that existing national authorisations and standards already provide minimum security standards and to a certain extent correspond to an accreditation scheme. This action would lead to an unnecessary duplication of efforts.		X			X
B.09	The Commission and the Member States should support: <ul style="list-style-type: none"> <li>A process whereby facilities (clinical, diagnostic, university, etc) would avoid keeping clinical samples containing any of the biological agents and toxins on the EU biosecurity list unnecessarily;</li> <li>The identification and development of good practices on handling clinical samples containing any of the biological agents and toxins on the</li> </ul>	<b>Uncontroversial</b> Supporting Member States in those areas will be very beneficial to prevent access to substances which are on the biosecurity list. Facilities should be allowed to handle dangerous biological agents and toxins only with specific authorisation. Establishing good practices on when facilities should be allowed access is beneficial, as it will increase clarity, make facilities aware of the dangers and reduce the risk of samples being 'lost'. The establishment of a wide network	X	X		X	X

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiarity / proportionality issues
	EU biosecurity list; • Progress in creating collaborative networks of facilities working on the biological agents and toxins on the EU biosecurity list while taking into account existing networks;	involving all relevant facilities and laboratories could contribute to increased cooperation and exchanges of good practices and experiences in general.					
B.10	The Commission and the Member States should ensure that: • A comprehensive overview of the relevant standards at hand and their relevance to biosecurity and biosafety is achieved; • Facilities possessing biological agents and toxins on the EU biosecurity list consider as appropriate the implementation of the CEN Workshop Agreement (CWA 15793), WHO Laboratory Biosecurity Guidance or their national equivalent standards; • Appropriate standards are met as part of a national authorisation or accreditation process or as a condition for issuing licences for work with biological agents and toxins on the EU biosecurity list. Regular control over the adherence to and implementation of such standards should also be ensured.	<b>Uncontroversial</b> The establishment of a comprehensive overview of existing standards is a useful exercise to map all what exists, to avoid duplication of efforts and to agree on the most relevant standards. It will indeed be beneficial if facilities will consider the implementation of standards set at international, EU or national level. Security standards should be an integrated component of authorisation, licensing and accreditation processes, as this will ensure that they are taken into account by facilities from the very start. The Commission and the Member States should closely follow both the adoption and the implementation of standards, in order to ensure some form of harmonised approach.	X	X	X	X	X
RN.03	The Member States and the Commission should analyse potential gaps and, if needed, propose solutions with regard to security requirements for facilities in which certain high-risk sources are manufactured and/or disposed of (and which are located outside of nuclear facilities).	<b>Uncontroversial</b> Improving the security requirements of the facilities manufacturing and/or disposing high-risk sources, based on an gap and need analysis, is positive as it will reduce the risks of loss or thefts of those sources.	X	X		X	X
RN.03 a	The Commission should bring together the relevant authorities from the Member States in order to identify good practices concerning the physical protection of various categories of sources. Based on this work, the Commission should develop a good practice guideline addressing such issues as: 1. The responsibility of an authority to assess the security measures in place for various types sources; 2. Linking the results of the above mentioned security assessment to the licensing/registration procedure; 3. Creating varying levels of security measures adapted to the risk posed by particular radioactive sources, amounts of certain sources or combinations of sources. These security measures should address inter alia: background checks for personnel, physical security measures and information security.	<b>Unfeasible</b> This action received little support from stakeholders. Most of the guidelines were said to have already been developed within the IAEA. This action would therefore lead to duplication of efforts. In addition, they stressed the lack of need to have this type of work at the EU level: it should be the Member States' responsibility to ensure the security of radiological and nuclear facilities and materials.		X	X		
RN.04	The Member States and the Commission should conduct an analysis of the feasibility of linking security vetting/background check requirements	<b>Uncontroversial</b> An analysis of feasibility will be very positive as a first step to assess the possibilities of linking	X	X	X	X	X

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiary / proportionality issues
	to existing licensing systems used to authorise the handling of high-risk radioactive sources.	security vetting/background check requirements to existing licensing systems.					
<b>3. Enhance control over CBRN substances</b>							
C.15	Member States and the Commission should make sure that where this does not take place already today, the chemical industry ensures that in line with international obligations, high-risk chemicals and equipment are only delivered to legitimate users. A sufficient customer qualification scheme should be established in this regard, which is proportionate to the risk and cost effective. The risks associated with trade of chemicals over the Internet should be investigated further.	<b>Uncontroversial</b> Ensuring that the chemical industry delivers high-risk chemicals and equipment only to legitimate users is positive as this is crucial to ensure control over the use of the substances and would limit their possible use and transformation by terrorist organisations. It would be important indeed to learn from successful schemes already in place in Member States. Indeed, the internet is a growing area of concern, and it would be important to look at the risks this medium represents.	X	X	X	X	X
C.16	Member States and the Commission should assess the benefits of establishing and if needed should consider creating a licensing scheme for certain high-risk chemicals (in particular for certain CWA precursors) similar to that existing for certain scheduled substances in the framework of the Drug Precursors Regulation. For chemicals covered by the CWC, the CWC licensing scheme should be considered as meeting some or all of the set-out objectives.	<b>Uncontroversial</b> Assessing the benefits of establishing a licensing scheme for high-risk chemicals is positive as it will assess the costs and benefits of establishing such a system before its potential development. The Drug Precursors Regulation provides a good starting point, given that the substances are often similar.	X	X	X	X	X
C.17	The Commission should perform a feasibility assessment on the possibility of using the delivery documentation mechanism to better understand and monitor the supply chain (possibly link it to tracking and tracing).	<b>Uncontroversial</b> A feasibility assessment on those issues will be very positive as it will assess the possibilities, costs, benefits and consequences of providing a new mechanism to monitor the supply chain, before potentially and eventually launching such as mechanisms.	X	X	X	X	X
C.18	The Commission should launch a study concerning the availability of certain high-risk chemicals to the general public.	<b>Uncontroversial</b> A study on the availability of high-risk chemicals to the general public is positive as it will allow assessing the extent to which the general public has access to (sufficient) high-risk chemicals. It would be important, again, to look at access through the internet or by making multiple small purchases, as terrorists have used similar approaches in the past.	X	X	X	X	X
RN.05	The Member States should ensure that national source registries contain information on all high-risk sources.	<b>Uncontroversial</b> National source registries with information on all high-risk sources will be very useful, especially if held by the Member States themselves. Such registries may already be in place in several countries, but the extent to which these are monitored, controlled and regularly updated varies.	X	X	X	X	X
RN.06	The Member States should launch recovery programmes for disused high-risk sources. The launch of a source recovery programme could be coupled with the creation of a source exchange system among the Member States, so that recovered sources can be made available to those states that need them (rather than manufacturing new sources).	<b>To be assessed in detail</b>		X		X	X

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiary / proportionality issues
RN.07	The Member States and the Commission should assess the potential and practicalities of establishing tracking systems for high-risk sources (e.g. user-accessible web-based systems; electronic tagging of sources).	<b>Uncontroversial</b> An assessment of the potential and practicalities of establishing tracking systems for high-risk sources will be a very useful as a first step before potentially establishing such a system.	X	X	X	X	X
RN.08	The Member States and the Commission should identify and exchange good practices for commercial, health care and research facilities possessing radioactive sources to ensure regular appraisal of the staff and its monitoring.	<b>Uncontroversial</b> The identification and exchange of good practices for facilities possessing radioactive sources is positive, as it will allow in particular Member States with less experience and capacity to learn from other Member States or third countries which are more advanced in this area. Appraisals should in particular identify whether staff is put under pressure by third parties, whether their ideas are radicalising, etc. They could also be linked to regular renewals of security clearance, and random checks, particularly to verify whether a person so employed has a 'change of circumstances'.	X	X	X	X	X
RN.09	The Commission should launch studies on the origin and consequences of the loss of control over radioactive sources, on the current status of used and disused sources in the EU and on transport patterns for legal uses of radioactive sources.	<b>Uncontroversial</b> Studies on the origin and consequences on those issues are a useful action which will allow determining the state of the art, the gaps and the needs. At this stage it is known that there is a high potential that sources are 'lost', i.e. disappear from regulatory control, due to poor accounting and licensing.	X	X	X	X	X
RN.10	The Commission should facilitate the exchange of experience on successful strategies concerning the detection and recovery of orphan sources (article 9 of the HASS Directive).	<b>Uncontroversial</b> The facilitation of exchange is positive, as it will allow in particular Member States with less experience and capacity to learn from other Member States or third countries which are more advanced in this area. It would in particular be useful to explore the different approaches adopted by the Member States to implement Article 9, as these may vary greatly - not every country will have the same capacity to identify and orphan sources, as this is also very costly.	X	X	X	X	X
RN.11	Europol should lead an analysis of losses and thefts of high-risk sources in the EU. This analysis should take due account of the nature of particular incidents and the nature of the actual source, including orphan sources. It could be carried out in cooperation with the IAEA, Interpol and other relevant authorities. It should be made available to the relevant national authorities and reviewed regularly.	<b>Uncontroversial</b> An analysis of the losses and thefts of high-risk sources by Europol, and in particular jointly with the IAEA, Interpol and other relevant authorities, is very positive as will mapping the nature of incidents and sources, covering the whole EU and making the information accessible to all relevant national authorities. It would be important, where necessary, to secure parts of the analysis if this could point at specific national weaknesses, as terrorists and criminals could be interested in knowing these.	X	X	X	X	X
<b>4. Contribute to the development of a high security culture of staff</b>							
H.23	The Member States and the Commission should identify, develop and spread good practices in security training and education of persons working with/having access to or handling high-risk CBRN materials. Consideration should also be given to developing EU guidelines for minimum security training requirements for persons working with, having access to, or handling CBRN materials, based on the national	<b>Uncontroversial</b> Developing minimum training requirements and exchanging good practices is beneficial as it will ensure increased awareness of persons working with or having access CBRN materials on specific security issues. It will also allow in particular Member States with less experience and capacity to learn from other Member States or third countries which are more advanced in this area. The exercise will also help to identify gaps and future needs.	X	X	X	X	X

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiarity / proportionality issues
	experience across the EU 27. This could be done by way of a peer review process through which experts from the Member States would visit each other with a view to learning from their experience and exchanging best practices in specific fields.						
H.24	The Member States should develop and implement specific training programmes for private security staff (in particular those involved in guarding specific sources).	<b>Uncontroversial</b> Developing and implementing specific training programmes for private security staff will ensure the more harmonised guarding of the sources and a common approach to the security of facilities handling dangerous substances and materials. Training certificates or other forms of proof could be made conditional for private security firms and staff in order to have permission / be licensed to guard certain sources.	X	X	X	X	X
C.19	The Member States and the Commission should ensure that the chemical industry develops and adopts codes of conduct concerning awareness of security-related issues.	<b>Uncontroversial</b> The development and adoption of code of codes of conduct is positive as they will contribute to increased awareness of security issues. The efforts and costs required will be relatively low. The threat of being excluded from a professional association (already used in some countries) is sufficient moral pressure and indeed a strong tool to make professionals comply with a code. There are good examples of national codes of conduct which work very well.	X	X	X	X	X
C.20	The Member States should implement specific security training for staff in industry and research, where high risk chemicals are present.	<b>Uncontroversial</b> The implementation of specific security programmes for staff in industry and research will ensure a common approach to the security of facilities handling high risk chemicals.	X	X	X	X	X
B.11	The Commission and the Member States shall encourage professional and other relevant associations to develop and adopt codes of conduct for their Members.	<b>Uncontroversial</b> The development and adoption of code of codes of conduct is positive as they will contribute to increased awareness of security issues. Codes of conduct should be linked to bio-ethics and the possible dual use of biological standards. The threat of being excluded from a professional association (already used in some countries) is sufficient moral pressure and indeed a strong tool to make professionals comply with a code. The efforts and costs required will be relatively low.	X	X	X	X	X
B.12	The Commission and Member States should define requirements for biosafety officers (roles, competences and training).	<b>Uncontroversial</b> Defining requirements for biosafety officers will ensure a harmonised and common approach to the roles, competences and training of the officers responsible for safety of the facilities handling biological substances.	X	X	X	X	Possibly
RN.12	The Member States and the Commission should use the capacity planned European Security Training Centre (EUSECTRA) to provide nuclear and radiological security related training and to support and complement such activities at the national level.	<b>Uncontroversial</b> The use of EUSECTRA is very beneficial as it will prevent duplication of work and efforts. It would also ensure a harmonised approach to training. The Centre's role could mainly be to 'train the trainers', to assist in the development of national training programmes, etc.	X	X	X	X	X
RN.13	The Member States and the Commission should engage with research stakeholders to raise awareness of security issues and facilitate the exchange of good practices on dealing with security threats. Particular	<b>To be assessed in detail</b>	X			X	X



No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiary / proportionality issues
	attention should be given to background check requirements for visiting researchers/students. This work should lead to an increased security culture within the research sector.						
RN.13 a	The Commission should launch a study on the implementation in the EU Member States of the IAEA Code of Conduct on the Safety and Security of Radioactive Sources.	<b>Unfeasible</b> Stakeholders did not support this action. Such a study would indeed not be needed: it might require a substantial amount of time to carry out such a study which not bring added value to the state of the art which is already known.		X	X		
<b>5. Improve the identification and reporting of suspicious transactions and behaviour</b>							
H.25	Member States and the Commission should: • identify and exchange good practices on the reporting of suspicious transactions in relation to CBRN materials used by private and public entities (e.g. industry, medical sector, research). • establish modalities for reporting loss or suspicious transactions while enhancing awareness of relevant stakeholders about suspicious transactions and encourage stakeholders to report such transactions to law-enforcement authorities	<b>To be assessed in detail</b>	X		X	X	X
H.26	Member States and the Commission should develop guidelines for the industry, the medical sector and the research community containing criteria identifying the forms of behaviour which may give rise to suspicion. Member State authorities should provide guidance to stakeholders on what suspicious transactions are.	<b>To be assessed in detail</b>	X			X	X
<b>6. Enhance the security of transport</b>							
H.27	The Member States and the Commission should establish an ad-hoc committee of experts on transport security with regard to CBRN materials. This Committee should bring together experts from the transport sector, the security services and law enforcement authorities. The Committee should address the following issues: • Assess whether existing transport security rules fully cover all CBRN materials. • Identify and exchange good practices in the Member States concerning the transport of high-risk CBRN materials (e.g. limited quantities in one transport; or tracking systems). • Identify and exchange current good practices in terms of tracking CBRN materials. • Requirements for the development of tracking and tracing systems for the transport of CBRN materials.	<b>To be assessed in detail</b>	X		X	X	

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiary / proportionality issues
	<ul style="list-style-type: none"> <li>Identify and exchange good practices concerning the implementation of current ADR (and RID and ADN) requirements such as the development of security plans.</li> <li>Identify security requirements for logistics enterprises.</li> <li>Consider establishing a notification system for the international transport of CBRN materials contained in the CBRN lists (identified under the risk-management process)</li> <li>Consider the feasibility and costs/benefits of introducing a requirement that only licensed transporters would be used for the transport of specifically identified CBRN materials. These licensed transporters would be obliged to follow agreed minimum security requirements. The work of the Committee should feed into existing processes such as the UNECE Ad-Hoc Working Group.</li> </ul>						
H.28	The Member States and the Commission should ensure that links between law enforcement authorities and transporters of CBRN materials are enhanced.	<b>Uncontroversial</b> Increasing the links between law enforcement authorities and transporters of CBRN materials is beneficial as it will enable early identification of problems and suspicious movements. It will also clarify who has to be contacted in case of a loss, theft or other type of incident.	X	X	X	X	X
H.29	The Member States should ensure that the training of transport staff concerning existing legislative requirements on the security of CBRN materials is improved where appropriate. Regular exercises on transport security should be organised.	<b>Uncontroversial</b> Any exercises concerning the secure transportation of dangerous CBRN materials are essential, in particular, when involving the physical response to an incident to iron out practical delays and problems that can only be identified in a practical exercise.	X	X	X	X	X
B.13	The Commission and the Member States should initiate the creation of an EU capability and mechanism to rapidly and safely transport biological samples, in accordance with international regulations, within the EU and into the EU.	<b>To be assessed in detail</b>	X			X	X
RN.14	The Member States and the Commission should assess the feasibility and potential costs/benefits of creating an electronic system for the control of cross-border transfers of high-risk radioactive sources.	<b>Uncontroversial</b> An analysis of feasibility will be very positive as a first step to assess the possibilities to create an electronic system for control of high-risk radioactive sources.	X	X	X	X	X
C.20a	Based on a risk-management approach, each Member State should work toward eliminating the transport of certain high-risk chemicals. This can be done by encouraging and supporting the development of relevant chemical manufacturing facilities at sites which require such dangerous chemicals (rather than transporting them). Enhance links between law enforcement authorities and transporters of chemical agents.	<b>Unfeasible</b> Stakeholders showed little support for this action. The first concerns are financial as creating such facilities would require substantial investments. In addition, creating such facilities might potentially be dangerous. For example, the potential multiplication of plants dealing with dangerous substances would increase the risks.				X	X
C.20.b	The Commission and the Member States should establish an ad-hoc committee of experts on transport security with regard to CBRN	<b>Unfeasible</b> These measures were highly supported by stakeholders. Studies and exchange of good practices	X	X			

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiarity / proportionality issues
	<p>materials. This Committee should bring together experts from the transport sector, the security services and law enforcement authorities. The Committee should address the following issues:</p> <p>Ø Assess whether existing transport security rules fully cover all high-risk chemicals.</p> <p>Ø Identify good practices in the Member States concerning the transport of high-risk CBRN substances (e.g. limited quantities in one transport; or tracking systems).</p> <p>Ø Identify current good practices in terms of tracking chemical agents.</p> <p>Ø Requirements for the development of tracking and tracing systems for the transport of high-risk chemicals.</p> <p>Ø Identify good practices concerning the implementation of current ADR (and RID and ADN) requirements such as the development of security plans.</p> <p>Ø Identify security requirements for logistics enterprises.</p> <p>Ø Consider establishing a notification system for the international transport of high-risk chemicals identified under the risk-management process mentioned in section 1.1.</p> <p>Ø Consider the feasibility and costs/benefits of introducing a requirement that only licensed transporters would be used for the transport of specifically identified high-risk chemicals. These licensed transporters would be obliged to follow agreed minimum security requirements.</p> <p>The work of the Committee should feed into existing processes such as the UNECE Ad-Hoc Working Group.</p>	<p>in relation to transport of chemical materials will be very useful as a first step to develop new measures as well as to inform those Member States which have a capacity less developed in those areas. It was however decided to put up the measures for further discussions in an ad-hoc committee of experts covering transport security regarding all CBRN materials.</p>					
C.20c	Enhance links between law enforcement authorities and transporters of chemical agents.	<p><b>Unfeasible</b></p> <p>These measures were highly supported by stakeholders. Studies and exchange of good practices in relation to transport of chemical materials will be very useful as a first step to develop new measures as well as to inform those Member States which have a capacity less developed in those areas. It was however decided to put up the measures for further discussions in an ad-hoc committee of experts covering transport security regarding all CBRN materials.</p>	X			X	
RN.15	The Commission should launch a study analysing whether (and how) all radioactive sources, and especially those identified as high-risk, are covered by existing legal regimes concerning transport. Depending on the outcome of the analysis mentioned above, the need for new transport rules in relation to high-risk sources should be assessed.	<p><b>Uncontroversial</b></p> <p>Studies on the coverage of existing legal regimes concerning transport are positive as they will allow determining the state of the art, the gaps and the needs for new transport rules.</p>	X	X	X	X	X
<b>7. Improve information Exchange</b>							

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiary / proportionality issues
H.30	The Member States should analyse whether potential problem areas exist in the horizontal and vertical flow of information among the entities dealing with high-risk CBRN materials sources both within and across the individual Member States. Each Member State should assess whether relevant need-to-know information about changing threat levels reaches license holders.	<b>Uncontroversial</b> Analysing the accuracy of the horizontal and vertical information flows is positive in order to ensure that information is indeed communicated and in particular to the relevant persons or groups of persons. This is a first step to improve the communication of information.	X	X	X	X	X
H.31	The Member States should ensure that each party within the supply chain informs without delay the relevant national authority in the event of any theft or loss of any high-risk CBRN materials. The relevant national authorities should inform without delay the relevant law enforcement authority responsible for gathering and responding to this information where this has not already been done by the party concerned within the supply chain.	<b>Uncontroversial</b> Improving information flow on thefts or losses of high-risk CBRN materials at the national level is positive as it will ensure relevant national and law enforcement authorities to be up to date and consider responses. Making supply chain parties aware of the need to provide any information on thefts and losses as soon as possible is essential to ensure a rapid and appropriate response. It would be important to ensure that supply chain partners know whom to contact.	X	X	X	X	X
H.32	The Member States should ensure a high level of information exchange between relevant actors by having a clearly established notification mechanism which would allow anyone to inform the relevant authorities about a loss/theft of high-risk CBRN materials or about a suspicious transaction. As a minimum requirement, facility security managers should have the necessary contact information for relevant local law enforcement authorities.	<b>To be assessed in detail</b>		X		X	X
C.21	The Member States and the Commission should ensure that public authorities provide, as appropriate, adequate security information to the entire supply chain of high-risk chemical agents, first responders (police, fire-departments, medical services, and other special units as needed) and educational establishments to focus attention on issues of concern.	<b>Uncontroversial</b> Ensuring that information is adequately distributed to the entire supply chain of high-risk chemical agents is positive to raise their awareness on issues of concern. It would however be important to ensure that such information does not cause overreactions and unrest.	X	X	X	X	X
C.22	The Member States and the Commission should consider establishing an alert mechanism in order to quickly transfer security related information to security managers in facilities in which high-risk chemicals are present.	<b>To be assessed in detail</b>		X	X	X	
RN.16	The Member States and the Commission should support the IAEA's Illicit Trafficking Database with a view to ensuring real time accessibility for law enforcement authorities, ensuring the highest possible quality of the recorded data. Enhanced EU cooperation in this area should lead to making sure that all relevant losses and recoveries of radioactive sources are reported.	<b>Uncontroversial</b> Supporting the IAEA's Illicit Trafficking Database is very positive as it will ensure that information is up to date, available and accessible to law enforcement authorities to track the losses and recovery of radioactive sources.	X	X	X	X	X
RN.16	The Commission should setup an EU Database of Illicit Trafficking	<b>Unfeasible</b>		X			X

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiarity / proportionality issues
a	Incidents.	Stakeholders showed little support for this action. The use of a database of illicit trafficking incidents in itself was welcome as being very useful and beneficial to ensure that information is up to date, available and accessible to law enforcement authorities to track the losses and recovery of radioactive sources. However, stakeholders raised their concerns of duplication of the already existing IAEA's Illicit Trafficking Incidents. Using this database and making the most out of it would prevent duplication of efforts and would allow working on a solid basis which could be improved.					
RN.17	The Commission should assess whether existing systems, in particular the IAEA's ITDB, provides sufficient information for the law enforcement community. Europol should be closely involved in this analysis. If the analysis leads to the identification of gaps, further feasibility work could be conducted on the need to setup a complementary EU Database of Illicit Trafficking Incidents.	<b>Uncontroversial</b> An assessment of existing information-sharing systems is positive in order to define the gaps and the needs for an improved system and potentially assessing the practicalities, costs and benefits of setting up a complementary EU Database of Illicit Trafficking Incidents. Whilst the latter could be beneficial as EU Member States may be more open to provide sensitive information into an EU database than into a database involving many third countries, there would be a high potential for duplication of efforts.	X	X	X	X	X
<b>8. Strengthen the import/export regime</b>							
RN.18	The Commission should assess the need to address the issue of import/export rules in relation to potential high-risk sources not covered by the HASS Directive	<b>Uncontroversial</b> Assessing the issue of import/export rules not covered by the HASS directive is very positive, to make sure that high-risk sources which are currently not covered are given appropriate attention.	X	X	X	X	X
RN.19	The Commission should assess to what extent the Code of Conduct and the IAEA Guidance cover the export and import of all high-risk radioactive sources and how these documents are implemented in the EU Member States.	<b>Uncontroversial</b> An assessment of the coverage of the Code of Conduct and the IAEA Guidance and of their implementation is very positive in order to map the situation in Member States. The exercise could also be used to identify good practices and to encourage peer learning.	X	X	X	X	X
RN.20	The Commission should examine the need and feasibility of drawing up common EU criteria for authorising imports and exports from and to third countries, following an assessment of how the EU Member States implement the IAEA Guidance on the Import and Export of Radioactive Sources.	<b>Uncontroversial</b> An assessment of the potential and practicalities of drawing up common EU criteria for authorising imported and exports from and to third countries is a very useful as a first step before potentially establishing such criteria.	X	X	X	X	X

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiarity / proportionality issues
<b>9. Strengthen cooperation on the security of nuclear materials</b>							
RN.21	The Member States and the Commission should progress the ratification of the amendment to the CPPNM by the EU Member States/Community.	<b>Uncontroversial</b> This action is very positive and useful in order to make sure that the amendments of the CPPNM are ratified by all EU Member States. The amendment includes some important new elements, for example making it legally binding for States Parties to protect nuclear facilities and material in peaceful domestic use and providing for expanded cooperation between and among States regarding rapid measures to locate and recover stolen or smuggled nuclear material, mitigate any radiological consequences of sabotage, and prevent and combat related offences.	X	X	X	X	X
RN.22	The Member States and the Commission should facilitate discussion among regulators, security specialists and performance assessment experts from the EU Member States, as well as the IAEA, in order to discuss progress on the implementation of the amended Convention and identify and exchange good practices concerning physical protection measures. Existing forums should continue to be used as appropriate.	<b>Uncontroversial</b> Facilitating discussion to discuss progress on the implementation of the amended Convention is positive in order to get an overview of state of the art in Member States. Identifying and exchanging good practices concerning physical protection measures, is positives it will allow in particular Member States with less experience and capacity to easily access information from other Member States which are more advanced in this area.	X	X	X	X	X

### 3) Detection strand

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiarity / proportionality issues
<b>1. Establish a scenario-based/modelling approach to identifying work priorities in the detection field</b>							
H.33	The Member States and the Commission should develop scenarios at EU level (including events with cross-border effects) building on national experience while using the "black box" mechanism, including the challenge of the time of detection and false alarm rates.	<b>Uncontroversial</b> Developing scenarios at the EU level will be positive as they will enable an enhanced level of awareness of the impact of such an event, and consequently in the method to be adopted to detect the substance which caused the damage. It will be specifically important to take account of cross-border effects. The black-box mechanism will help to secure the information that is to be provided to inform the scenarios.	X	X	X	X	X
H.34	The Member States should strengthen and support: • the exchange of methodologies for developing scenarios;	<b>To be assessed in detail</b>	X			X	X

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiarity / proportionality issues
	<ul style="list-style-type: none"> <li>networking of detectors at national level (centralising the analysis of detection data);</li> <li>the exchange of information and data regarding broader trends of what has been detected;</li> <li>the exchange and coordination of information on exercises among the Member States and other stakeholders when relevant.</li> </ul>						
H.35	The Member States and the Commission should develop a mechanism for information exchange among Member States on scenario development related to detection. Prepare an overview of Member State activities in this area.	<b>Uncontroversial</b> A mechanism to exchange information on scenario development related to detection , based on the mapping of existing national activities, is positive as it will allow in particular Member States with less experience and capacity to easily access information from other Member States which are more advanced in this area. It may also assist in the identification of gaps and needs.	X	X	X	X	X
H.36	The Member States and the Commission should carry out a gap analysis by creating a matrix for each developed scenario of what is needed to identify CBRN materials and the detection technology already available.	<b>Uncontroversial</b> A gap analysis of state of the art with regard to CBRN materials under specific scenarios and specific detection technology is positive as it allows making the most out of the available technology and using the most appropriate detection technology in case of an emergency. This will increase the efficiency and effectiveness of deploying detection technologies, increasing their targeted use. It will also help to identify further needs.	X	X	X	X	X
B.14	The Member States and the Commission should develop detection models for different biological pathogens and toxins, considering distribution, possible vectors, infectious dose and stability.	<b>To be assessed in detail</b>	X	X		X	
<b>2. Develop minimum detection standards</b>							
H.37	The Member States and the Commission should develop minimum detection standards (including within the context of border monitoring) based on relevant scenarios and threat assessments while building on existing work (e.g.: CEN). When developing such standardisation activities, adequate engagement of the private sector should be ensured and legal requirements for evidence considered.	<b>To be assessed in detail</b>	X	X	X	X	
B.15	Member States and the Commission should develop reference material of biological agents for both clinical and environmental samples (according to internationally accepted standards) in order to achieve quality assurance in detection.	<b>Uncontroversial</b> Developing reference material would allow laboratories and other actors involved in detection to use the most up to date and efficient material. This will ensure the best quality possible for detection and harmonisation amongst Member States.	X	X	X	X	X
B.16	Member States and the Commission should set requirements for the detection, identification and monitoring of pathogens and toxins within a civilian security context at the EU level	<b>To be assessed in detail</b>	X			X	X
<b>3. Establish trialling, testing and certification schemes for CBRN detection in the EU</b>							

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiarity / proportionality issues
H.38	The Member States and the Commission should: <ul style="list-style-type: none"> <li>• Map out and document the technical requirements necessary for the detection of CBRN materials, according to the field of application of the devices.</li> <li>• Establish an EU wide certification scheme to evaluate whether detection systems and tools meet set requirements relying on existing capabilities and facilities.</li> <li>• Establish an EU wide testing scheme for detection tools and systems to assess the performance and quality of solutions relying on existing capabilities and facilities.</li> <li>• Establish an EU wide trialling scheme to evaluate the quality of both detection tools and systems in practical field operations relying on existing capabilities and facilities.</li> <li>• Exchange good practices, approaches to and methodologies on quality assurance in CBRN in Member States.</li> </ul>	To be assessed in detail	X	X		X	
B.17	Member States and the Commission should establish: <ul style="list-style-type: none"> <li>• Sets of relevant simulants of biological agents for field tests, practical exercises and field technology trialling at national level and EU level, where appropriate;</li> <li>• Criteria for method validation across detection of human, animal and crop threats.</li> </ul>	<b>Uncontroversial</b> Establishing sets of simulants for field tests and criteria for detection is positive as it will ensure a common, harmonised and validated approach across the EU and Member States. The simulants will also help to better understand the climate, contextual and geographical differences within the EU.	X	X		X	X
<b>4. Identify good practices related to detection of CBRN materials, awareness raising and training</b>							
H.39	The Member States and the Commission should assess the feasibility of EU handbooks on detection of CBRN materials for practitioners (e.g. operators of detection devices) in view of the creation of joint investigation teams as well as an action card for first responders, building on existing work done at the EU level and within the Member States. This handbook should be translated into all official EU languages.	<b>Uncontroversial</b> An assessment of the potential and practicalities of establishing a handbook on detection of CBRN materials in order to create joint investigation teams is very useful as a first step before potentially establishing such a handbook. Some stakeholders considered that there may be security risks involved.	X	X	X	X	X
H.40	Member States and the Commission should enhance and support the cooperation between forensic laboratories, reference and specialised laboratories on CBRN materials.	<b>Uncontroversial</b> The Commission could have an important role in enhancing and supporting the cooperation of forensic, reference and specialised laboratories, as it would be very useful to develop an EU overview as well as promoting links between laboratories at national and EU levels. Whilst several cooperation structures between laboratories exist, these usually concern very specific areas and do not link the reference / specialised laboratories to those that deal with forensics.	X	X	X	X	X
H.41	The Member States and the Commission should: <ul style="list-style-type: none"> <li>• Establish a mechanism of exchanging best practises in the field of</li> </ul>	<b>Uncontroversial</b> A system to exchange good practices in the field of training and exercise, on the calibration of	X	X	X	X	Possibly



No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiarity / proportionality issues
	training and exercises, including awareness raising of front line officers; • Support EU and national projects aimed at calibrating detection devices in specific environments. Cooperation and information exchange among the Member States on such projects should be enhanced. • Support the exchange of good practices on how to respond when CBRN materials are detected; • Exchange good practices on detection methods and processes;	detection devices in specific environment on the appropriate response when CBRN materials are detected and on detection methods and processes is positive, as it will allow in particular Member States with less experience and capacity to easily access information from other Member States which are more advanced in this area. The mechanism and good practice exchanges will also be useful to identifying gaps and upcoming needs.					
H 42	The Commission should: • Launch a study on what is currently in place in terms of CBRN border monitoring in the EU; • Elaborate guidelines on optimal localisation of detection equipment	<b>Uncontroversial</b> Stock-taking exercise/study led by the Commission. Such an assessment is positive in order to define the gaps. It will allow mapping the existing border monitoring arrangements.	X	X	X	X	X
B.18	Member States and the Commission should initiate: • The development of mobile detection, identification and sampling capabilities at the EU level to be undertaken by commercial enterprises, research institutions and universities, and support mobile bio-forensic capabilities; • The establishment and maintenance of a network of reference laboratories within the EU (if not yet done so).	<b>To be assessed in detail</b>		X		X	X
B.19	Member States and the Commission should enhance and support: • Cooperation among laboratories assigned to deal with unknown pathogens and toxins at national level; • Support networking among existing laboratories which are competent and have capacity across the EU specialising in specific biological agents (particularly agents which will be identified on the EU Bio-security list).	<b>Uncontroversial</b> The central role to be played by the Commission in the networking of laboratories is very positive as it will allow a centralised and improved coordination of works and exchange of information between the relevant laboratories under EU responsibility. Member States will support in this at the national level.	X	X	X	X	Possibly
RN.23	The Member States and the Commission should develop an adequate and sustainable training programme at EU level for front line officers. The EU-SECTRA can play an important part in this process.	<b>Uncontroversial</b> A training programme at the EU level is positive as it will ensure a common and harmonised approach to the work of front line officers. The EU-SECTRA centre will have an important role in terms of developing training programmes, training the trainers, etc.	X	X	X	X	X
<b>5. Improve the exchange of information</b>							
C.23	The Member States and the Commission should communicate the technical requirements of detection devices to the private sector. They should acquire knowledge of available capabilities and future research plans of the private sector.	<b>Uncontroversial</b> Cooperation with the private sector with regard to technical requirements of detection devices is essential, as it would help to better match supply with the specific demand. It would also help to identify areas where further research and development is required. Member States would also have a better understanding of what the detection industry can provide in terms of technologies and systems. It would be important to address issues such as the security of information that is	X	X	X	X	X

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiarity / proportionality issues
		provided to industry and the possibility of 'unfair competition'.					
B.20	Members States and the Commission should support: <ul style="list-style-type: none"> <li>• EU and national projects performing measurements of biological background at specific areas, and enhance cooperation and information exchange among Member States on such projects;</li> <li>• Exchange good practices among Member States on cases and processes when a dangerous biological substance is detected.</li> </ul>	<b>To be assessed in detail</b>	X			X	
RN.24	The Member States and the Commission should promote and support EU and national projects performing monitoring of radiation for security purposes. Cooperation and information exchange among the Member States on such projects should be enhanced.	<b>Uncontroversial</b> Promoting and supporting projects on monitoring of radiation for security purposes is positive as it will allow increasing the knowledge and capability in this area. Cooperation and exchange will in particular beneficial for those Member States which have a less developed capacity.	X	X	X	X	X

#### 4) Preparedness and response strand

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiarity / proportionality issues
<b>1. Improve emergency planning</b>							
H.43	Each Member State should integrate CBRN emergencies into its response plans (where applicable into both national and local plans). The requirements of possible criminal investigations and forensics should be fully taken into account in these plans.	<b>Uncontroversial</b> Integrating CBRN emergencies into response plans with a particular focus on criminal investigations and forensic in positive as it will allow a better and more coordinate response to respond to those emergencies and to prevent investigative problems and possible damage to forensic evidence.	X	X	X		X
H.44	Each Member State should assess whether all operators handling high-risk CBRN materials possess emergency response plans. The feasibility of extending, where needed, emergency plan requirements to such operators should be assessed. Gaps in existing regulations should be identified.	<b>Uncontroversial</b> An assessment of emergency plans is positive in order to update the plans in light with gaps and needs identified.	X	X	X	X	X
H.45	The Member States and the Commission should develop and	<b>To be assessed in detail</b>	X	X		X	

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiarity / proportionality issues
	conduct regular exercises and training at all levels (national, European and international), involving and testing cooperation of all relevant organisations, particularly of health, first responders, security and judicial authorities; involvement of private sector in such exercises should be foreseen. Possible criminal investigations and forensics should be part of these regular exercises. The Commission should ensure coordination of relevant exercises at EU level.						
H.46	The Commission should launch a study concerning the organisation of State structures concerning CBRN incidents. The results of the study should be shared across the EU.	<b>Uncontroversial</b> An assessment of the State structures concerning CBRN incidents is positive as it will allow mapping the existing preparedness and response systems in Member States. Sharing the results will be particularly beneficial to those Member States who have less developed capacity in this area. Issues in relation to the sensitivity of information should be taken into account.	X	X	X	X	X
B.21	Member States and the Commission should constitute an EU level working group to consider: • Better cooperation among relevant agencies in crisis and consequence management, response and recovery management; it should develop a bio-specific checklist of requirements for consequence management, response and recovery. • Good practices on responding to security incidents involving the facilities possessing any of the biological agents and toxins on the EU biosecurity list;	<b>To be assessed in detail</b>		X	X	X	
RN.25	Each Member State should assess whether emergency plans exist for high risk public locations and high-risk public events.	<b>Uncontroversial</b> Assessing the extent to which emergency plans exist for high risk public locations and high-risk public events is a useful action which will allow determining the state of the art, the gaps and the needs. This action would be very beneficial if it were to cover all CBRN issues	X	X	X	X	X
RN.25a	Raise awareness among the public of radiological hazards, radioactivity and its effects on human beings and on the environment, the various types of radiological emergencies and their consequences for the population and the environment. Information should also be provided on the emergency measures envisaged to alert, protect and assist the population in the event of a radiological emergency as well as on action to be taken by the population in the event of a radiological emergency.	<b>Unfeasible</b> The need to inform the general public was not supported by stakeholders as they did not see an added value in the preparedness and very little in the response. It might be too risky to inform the public about issues which can appear to be dangerous in their everyday life and their direct environment. This might create unneeded panic of the general public which might become suspicious and scared of potential events. In addition, the emergency plans might not be improved as the general public might not necessarily be well trained or aware and might overreact as a consequence of accumulated panic.			X		
RN.25b	Develop plans on how to organise the dissemination of information in the event of a radiological emergency and	<b>Unfeasible</b> This action received little stakeholder support and raised subsidiarity issues. The first concern is			X		

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiarity / proportionality issues
	determine the content of the information. In order to ensure that the general public takes the message seriously without exaggerating the scale of the hazard, the information should be credible and allow the general public to see that the emergency plans drawn up would be implemented in the event of a real emergency.	the selection of the information which can be diffused to the general public, within a "reasonable" scale and scope. It would also require finding a right balance to inform and ensure an efficient implementation of the emergency plans without causing panic and fear. The second point raised by stakeholders was that it should be the responsibility of each Member State to define whether and how to inform its general public according to its own experiences and procedures. Only the Member States can assess what the costs and benefits associated to do so are and take the responsibility for it.					
<b>2. Strengthen the EU's countermeasure capacity</b>							
H.47	Each Member State should: <ul style="list-style-type: none"> <li>• Assess the required amounts and types of medical countermeasures in case of an incident involving high-risk CBRN materials;</li> <li>• Assess the availability of hospital beds and hospitals able to carry out the decontamination of victims, the availability of medical and paramedical personnel, transport possibilities and of required countermeasures in the form of technical CBRN equipment.;</li> <li>• Assess the possibility of sharing medical counter-measures across borders in case of an incident.</li> </ul>	<b>To be assessed in detail</b>		X	X	X	
H.48	The Commission should collect and disseminate good practices among the Member States concerning the ways in which medical staff can receive guidance on dealing with large scale emergencies and a rapid increase of the number of patients.	<b>Uncontroversial</b> The exchange of good practices on the guidance that should be provided to medical staff in case of large scale emergencies is positive, as it will allow in particular Member States with less experience to learn from other Member States which are more advanced in this area.	X	X	X	X	X
B.22	The Health Security Committee should consider: <ul style="list-style-type: none"> <li>• The possibilities to a) establish therapeutics and vaccine stockpiles towards the known threat of biological agents and toxins, and determine the necessary auxiliary medical supplies to stockpile (gloves, masks, syringes, etc.); b) establish a standby capacity to produce therapeutics, including vaccines, and c) establish sustained funding for a technology platform to secure countermeasures towards biological agents and toxins that are unknown today (public-private experts working group);</li> <li>• The possibilities to scale up the diagnostic capacity in crises situations. Involvement of the private sector in the working group should be considered.</li> <li>• Ensuring a sufficient amount of medical products to combat an</li> </ul>	<b>To be assessed in detail</b>	X		X	X	

No.	Policy action	First screening	Strong stakeholder support	Positive overall effects	Low financial costs	High EU added value / rationale	No subsidiarity / proportionality issues
	eventual threat; • Build an EU wide coordinated approach to access medical countermeasures allowing adequate protection of the EU population, based on risk assessment.						
B.23	The Commission and Member States should consider the creation of mechanisms for rapid licensing procedures of drugs and vaccines in crisis situations and possible exemptions from licensing procedures, taking existing work into consideration.	To be assessed in detail	X	X		X	
<b>3. Improve domestic and international information flows in case of CBRN emergencies</b>							
H.49	Member States should exchange information on emergency plans regarding CBRN incidents, involving all relevant agencies.	To be assessed in detail		X	X	X	
H.50	Member States and the Commission should setup an CBRN special units' network with a view to enhancing the exchange of information and good practices within the law-enforcement community dealing with CBRN threats	<b>Uncontroversial</b> The exchange of information and good practices on the guidance among the special units is positive, as it will allow in particular Member States with less experience to learn from other Member States which are more advanced in this area.	X	X	X	X	X
RN.26	Each Member State should ensure that public authorities provide relevant security information on a need to know basis to the entire supply chain of radioactive sources and nuclear materials, first responders (police, fire-departments, and medical services) and educational establishments in order to enhance preparedness levels.	<b>Uncontroversial</b> Ensuring that information is adequately distributed to groups who might be involved in an event involving radioactive/nuclear materials is very positive as it will ensure high level of preparedness from those groups. Issues in relation to the sensitivity of the information to be provided are to be taken into account. Also, different groups will require different forms of information.	X	X	X		X
RN.27	The Member States and the Commission should consider integrating and building upon existing platforms for international exchange of information during nuclear emergency situations, as well as assessing their applicability to all radiological and nuclear incidents of concern (scenario-based). An effort should be made to assess the possibilities of streamlining alert messages going through different rapid alert systems.	To be assessed in detail		X	X	X	
RN.28	The Member States and the Commission should establish a process in order to develop generic scenarios illustrating the law enforcement response to a potential event involving radioactive/nuclear materials at the national and the international level. This process should in particular identify the relevant stakeholders who need to be informed about a particular situation and the applicable thresholds for triggering information exchange	<b>Uncontroversial</b> Creating scenarios setting out the response of law enforcement to an event involving radioactive materials is positive, as it helps to determine which steps are to be taken and who is to be involved, at which level, thus increasing the response capacity. Whilst some Member States have advanced scenarios in place, other countries have much less experience in this area.	X	X	X	X	X

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	procedures. The process should at least involve representatives of the Member States, the Commission and Europol.						
<b>4. Develop improved modelling tools and strengthen decontamination capacity</b>							
H.51	The Commission should fund an assessment of existing modelling tools for the purpose of seeing whether there is need to invest in further research. The validation of existing modelling tools could be undertaken by the Commission's Joint Research Centre (possibly through the European Reference Network for Critical Infrastructure Protection). This work should include the organisation of meetings of modelling experts and emergency response personnel from EU Member States in order to assess practical requirements for modelling tools. Based on this analysis funding could be provided for further research into the development of robust modelling tools applicable to events involving dangerous substances. The Commission should fund an assessment of the role of modelling tools for either pre-event scenario studies or as decision-support systems.	<b>Uncontroversial</b> An assessment of the available modelling tools is very positive as it will allow update the existing ones in light of recent developments and to propose further investments where needed. Experts and Member States should be involved in all stages of the work so that they can ensure the practical implementation of the tools and also point out their specific needs and requirements.	X	X	X	X	X
H.52	The Commission should facilitate the preparation of an Emergency Response Guidebook (for first responders) applicable to the context of CBRN emergencies in the European Union. The guidebook would be provided to the Member States free of charge and could be translated into all official EU languages. As part of the process of preparing an Emergency Response Guidebook, a stocktaking of existing documents/guidebooks should be conducted.	<b>Uncontroversial</b> Creating a guidebook on CBRN emergencies is positive in order to present the common EU approach to respond to those emergencies and to guide on the steps to be followed in case of such an event. It will in particular be very beneficial for those Member States which have a less developed capability in this area.		X	X	X	X
H.53	Each Member should conduct a regular assessment of the available means for effective decontamination and their capacity to deal with mass casualties with reference to high-risk CBRN materials. Information about current decontamination solutions should be shared with all Member States.	<b>Uncontroversial</b> Regular assessments of capacity and capability to deal with contamination is positive in order to ensure that Member States check their capacity to deal with decontamination and mass casualties and make adjustments where necessary. In addition, information sharing will benefit those Member States with a less developed technical decontamination capacity and knowledge of risks.	X	X	X	X	X
H.54	The Commission should: • Launch a study on the economic and social consequences of a CBRN terrorism incident and identify practical and action-oriented responses, • Launch a study on rehabilitation of contaminated areas following malevolent dispersal of CBRN materials, which also addresses the	<b>Uncontroversial</b>  The mentioned studies will be very useful in order to assess and model the actual consequences following the use by terrorists of CBRN weapons, and start envisaging the most adequate measures to limit contamination at the same time as limiting the damages to forensic work.	X	X	X	X	X

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	question of acceptable levels of residual contamination. • Launch a study on decontamination procedures which do not damage forensic evidence.						
RN.29	The Commission should further investigate the possibility of using the RODOS and ARGOS DSS to address CBRN releases (e.g. radiological dispersal devices, events such as the polonium incident in 2006, etc.), as well as the development of transport and dispersion models for large buildings (e.g.: airports, railway stations) and underground systems.	<b>Uncontroversial</b> Investigating in the possibility of using International information exchange tools is very positive to foster the exchange of expertise and knowledge amongst Member States and to inform those which have a less developed capacity in some areas. RODOS and ARGOS in particular will be useful to get an overview of the situation, create a prognosis on the evolution and calculate the consequences of the incidents. The expanded use of a software could be looked into in order to improve access to information.	X	X	X	X	X
<b>5. Improve the capacity to conduct criminal investigations</b>							
H.55	Each Member State should ensure that first responders receive training on forensic awareness in a CBRN crime-scene.	<b>Uncontroversial</b> Training of first responders of forensic awareness will limit the loss of forensic evidence within the specificities of each Member State. It would be beneficial to include some EU level guidance as to the content of such training.	X	X	X		X
H.56	The Commission should analyse the issue of potential problems in the transport of CBRN contaminated materials across borders within the context of criminal investigations and emergency situations in general.	<b>Uncontroversial</b> The analysis of potential problems in the transport of CBRN contaminated material will be very positive in order to prepare the most adequate response in case of an emergency and to help forensic work.	X	X	X		X
H.57	Euro just should develop recommendations on ensuring that collected forensic evidence in a CBRN crime-scene is of a high enough quality to be admissible in court proceedings in the EU Member States. Eurojust, Europol, the European Network of Forensic Science Institutes, JRC-ITU and other relevant organisations should contribute to establishing laboratory practices such that results can be used during legal prosecution (e.g.: accredited measurement procedures; chain of custody). The exchange of experience and good practice concerning the transport, handling, and forensic analysis of contaminated materials in the context of criminal investigations should be pursued.	<b>Uncontroversial</b> Recommendations of forensic bodies of the EU with regard to the quality of evidence is positive and very beneficial as their experience as well as the exchange of practices will provide useful insight in order to set quality standards for forensic evidence so that such evidence is admissible in national courts in other EU countries. At present, such possibilities hardly exist also because Member States have different approaches to forensic laboratory practices.	X	X	X	X	
RN.30	The Commission should support the networking of forensic laboratories and laboratories equipped for measurement/analysis of radioactive material	<b>Uncontroversial</b> The central role to be played by the Commission in the networking of laboratories is very positive as it will allow a centralised and improved coordination of works and exchange of information between the relevant laboratories under EU responsibility. The networking will also improve the mutual recognition of forensic evidence as well as help to increase common	X	X	X	X	

		No subsidiarity / proportionality issues	
		High EU added value / rationale	
		Low financial costs	
		Positive overall effects	
		Strong stakeholder support	