

[PRACTICE]

D8.5 State of the Art Review

Review of CBRN research project for human and societal factors content

PRACTICE WP8 deliverable

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Summary of Work Package 8

The objective of WP8 is to improve public knowledge and awareness of CBRN incidents by providing a toolbox of information, procedures and processes to understand the human and societal factors that influence the impact of, and response to, CBRN incidents, as well as reduce the impact of CBRN incidents on society and individuals. The effectiveness of the 'human and societal' toolbox will be tested (via WP6) with members of the public and professional responders in an exercise at a conference/shopping centre in Birmingham in August 2013.

The output will include tools and measures (i) to inform, educate and prepare the mindset of the EU citizen for a CBRN event, (ii) to provide guidance about protective behaviour and to aid the identification of relevant information sources during events, (iii) to mitigate the societal impact on communities and individuals post event, and (iv) to identify solutions aimed at recovery.

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Abbreviations

Abbreviation	Meaning
ASSRBCVUL	ASSESSment of the VULnerability of modern societies to terrorist acts employing Radiological, Biological or Chemical agents
BIO3R	Bioterrorism resilience, research, reaction
BMA	British Medical Association
CBR	Chemical, Biological, Radiological
CBRN	Chemical, Biological, Radiological and/or Nuclear
CBRNE	Chemical, Biological, Radiological, Nuclear and Explosive
CIE	Chemical Incident Event
CORDIS	Community Research and Development Information Service
CRISYS	Critical Response in Security and Safety Emergencies
DECOTESSC	DEmonstration of COunterTERRORism System-of-Systems against CBRNE
DETECTER	Detection Technologies, Ethics, Human Rights and Terrorism
EDA	European Defence Agency
EU	European Union
FP	Framework Programme
HPA	Health Protection Agency
ICET	Innovative Concepts and Emerging Technologies
ISEC	Prevention of and fight against crime (EU)
JIP	Joint Investment Programme
JLS	Justice, Freedom and Security (EU)
KCL	King's College London
PASR	Preparatory Action towards a comprehensive programme for Security Research
PEMD	Pre-event message development
PIRATE	Public Information Responses After Terrorist Events
PRACTICE	Preparedness and Resilience against CBRN Terrorism using Integrated Concepts and Equipment
UK	United Kingdom
US	United States
WP	Work Package

1. Executive Summary

This document identifies and reviews the research projects that have been carried out in the area of the human and societal factors of CBRN resilience, and considers their relevance to Project PRACTICE.

Seven human and societal factors are defined. Four concern the psychosocial causes of mental or physical suffering as a result of choosing particular protective behaviours against CBRN incidents. Three concern the impact of such incidents on different levels of society.

Sixty-five research projects were identified and reviewed for the extent and depth to which they covered the seven factors. Because of the large number of projects, the content analysis was limited to short project descriptions and overviews. However, sufficient information was available to produce a shortlist.

The key findings are:

- Ten projects emerged as relevant to the concerns of WP8 of Project PRACTICE. The relatively small number indicates a shortcoming in current CBRN research.
- 'Health' and 'societal fabric' – both at the societal level – emerged as under-researched factors.
- Few projects were based on experimentation; the involvement of the public was noticeably lacking.

2. Introduction

Of the fifteen WP8 deliverables, two involve reviewing extant research [Ref 1]. D8.5 (State of the art review) is intended to assess past and present research projects in the area of human and societal factors in CBRN resilience. D8.8 (Systematic review of existing projects) is focused more on the lessons learned from the academic literature in the area of public psychological and behavioural responses to CBRN events. The distinction between the two deliverables has been clarified as follows:

- The D8.5 review should consider whether research projects into CBRN reliance take account of human and societal factors. If so, it should determine why, to what extent and whether these factors were empirically tested. The current document forms Deliverable 8.5.
- The D8.8 review should identify the variables relevant to CBRN responses: threat appraisal, the appraisal of responses by government (and governmental organisations), the appraisal of people's capabilities to respond and the quality of risk communication. This work is being carried out by King's College London (KCL) [Ref 2].

3. Objectives

The objective of this Deliverable is to describe the research that has been conducted outside Project PRACTICE into the human and societal factors associated with resilience to CBRN terrorism, and to reveal any gaps. This work will increase the value of the Project by supporting its novelty and relevance.

The results of the review will be used in the development of the three Project PRACTICE User Manuals (D8.11, D8.12, D8.13), as well as in the Resilience Matrix (D8.3, D8.6, D8.7).

4. Human Factors

The discipline of Human Factors is "*the application of scientific information concerning humans to the design of objects, systems and environment for human use*" [Ref 3]. It is a broad field, embracing elements of physiology, anthropometry and psychology as well as the optimisation of the usability of equipment, procedures and working environments.

In the context of Project PRACTICE, the emphasis is on how a person's vulnerability to CBRN attack is affected by their psychosocial characteristics: their behaviour, attitudes and perceptions. Figure 1, taken from the D8.8 review, illustrates the role played by the following four factors:

1. *Threat perception.* Resilience is increased if people understand correctly the nature of the threat, its severity and its likelihood (i.e. the risk). However, if the threat gives rise to an inchoate dread, people might behave in a manner detrimental to resilience.

2. *Trust in the authority, including the responders.* Trusting the authority responsible for responding to the attack is important for resilience. The level of trust depends *inter alia* on the perceived truthfulness, accountability and transparency of the authority. People’s perception of the responders’ effectiveness in dealing with the threat also affects their behaviour.
3. *Perception of efficacy.* Resilience is improved if (a) people have a high opinion of their ability to take protective action, (b) the cost of their response is not too high (children can be left at school uncollected, for example), and (c) they believe the suggested protective measures will be effective.
4. *Communications.* The quality and quantity of communications with the responding authority are also important for resilience.

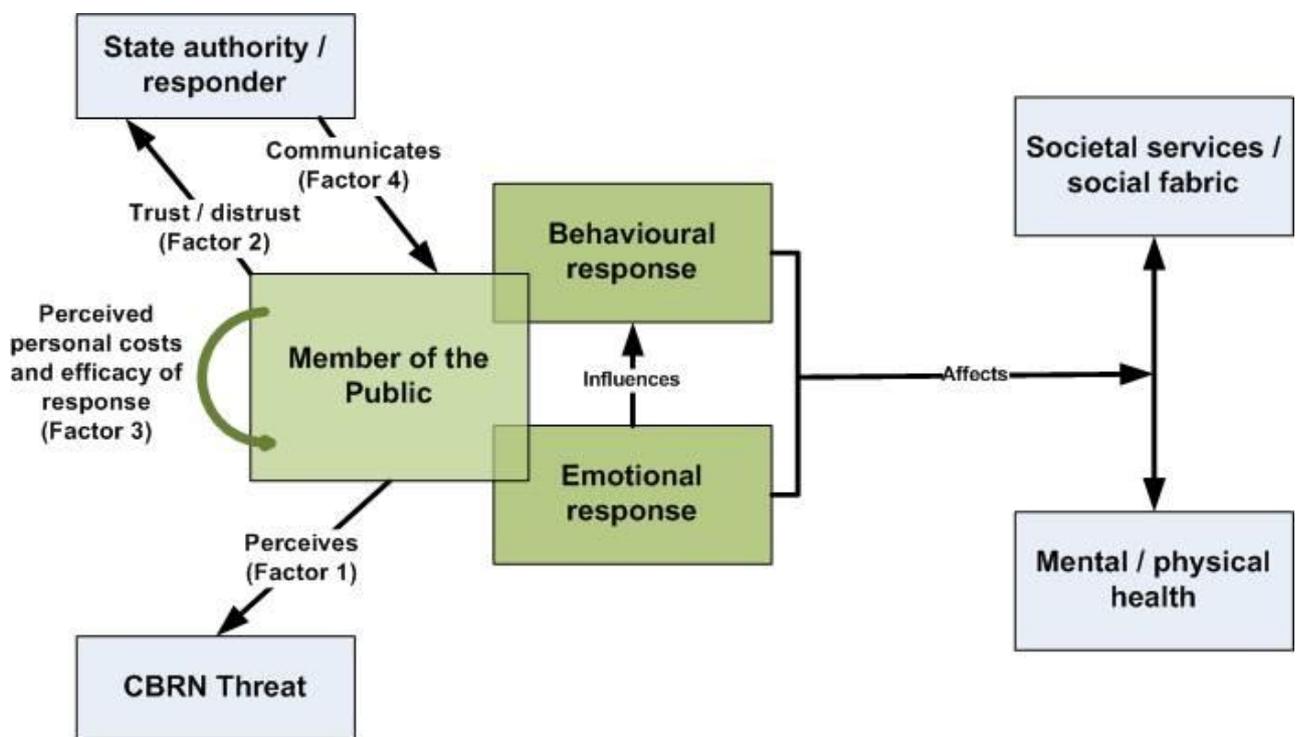


Figure 1: Factors affecting individual CBRN resilience

Tasks 8.1.3, 8.1.6 and 8.1.7 of WP8 are the development of the Resilience Matrix (otherwise known as the Vulnerability Matrix or Behaviour Knowledge Matrix). This tool permits an assessment of the knowledge possessed by (for example) first responders regarding how people affected by a CBRN incident perceive the factors contributing to their vulnerability to it. Using this data, the tool can be used to examine the extent of knowledge of how the people will behave in an incident. The factors used in the Resilience Matrix tool have been chosen to align with the four from D8.8 factors described above.

Thus within D8.3, D8.6, D8.7 and D8.8 people’s vulnerability to CBRN threats has been modelled as depending on (1) their perception of the threat, (2) their trust in the authority dealing with the emergency, (3) their perception of efficacy and (4) their communications with the authority. For

coherence and consistency within WP8 we have adopted these as the human factors to be reviewed in D8.5.

5. Societal Factors

At the societal level, the impacts of terrorism can clearly be many and various, from merely inconveniencing travellers to undermining a nation’s economy. The factors on which the impact depends are defined and developed in this section.

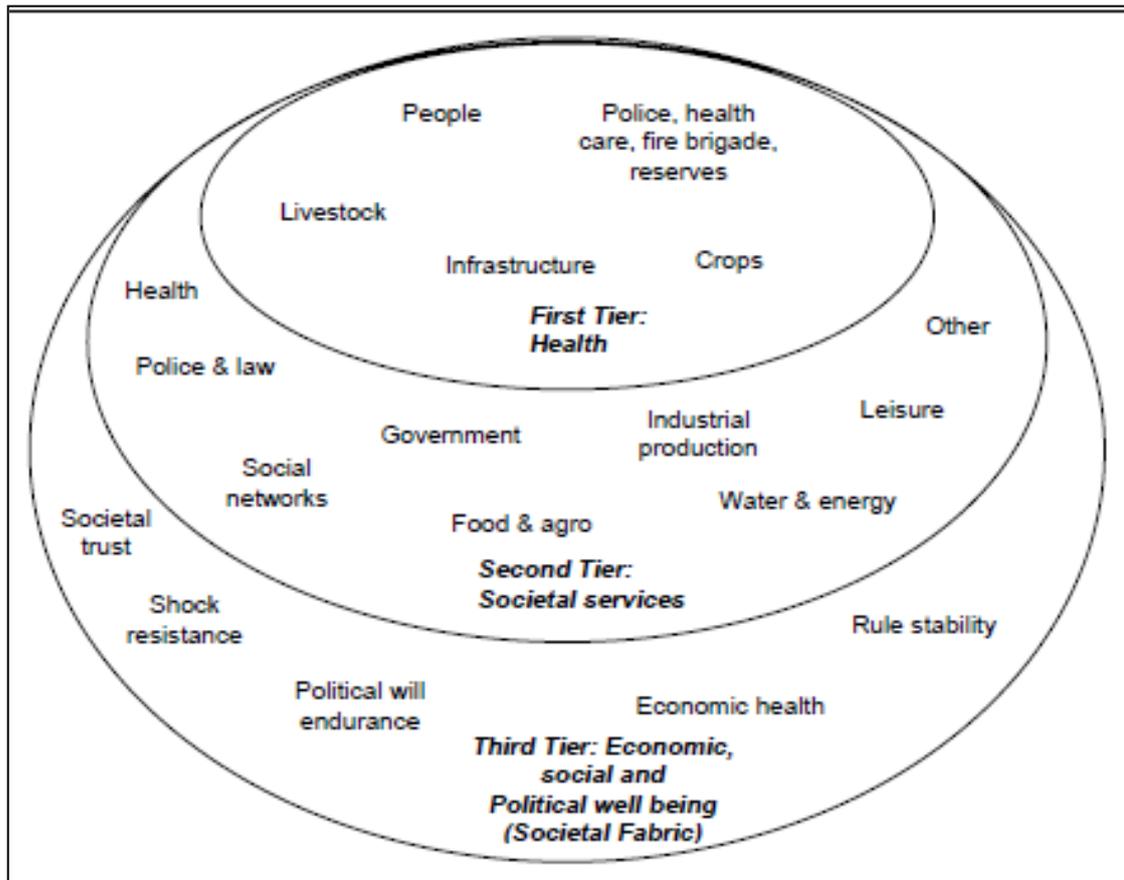


Figure 2: Impact tiers in European Society

Figure 2 shows the model developed for the ASSRBCVUL project [Ref 4], and used in the Project PRACTICE threat scenarios [Ref 5], for locating the impact of a CBRN incident. According to this model, the impact can be located in three tiers increasingly distant (in space and time) from the incident itself:

- A. Health. Emergency services, infrastructure and food production might be affected immediately by an attack
- B. Societal services. Industry, law enforcement and government might all be affected later.
- C. Societal fabric. At the highest level, CBRN terrorism might affect a country’s economy, its political well-being and the stability of its societal structures.

The tiers embrace topics ranging from politics to crops. Each topic might be affected by terrorism; each has qualities affecting its resilience to terrorism. For example, ‘Industrial production’ (second tier) might be organised such that flexible supply chains and diverse procurement routes minimise

the effect of a CBRN attack on a particular factory. Conversely, industrial production in a command economy might rely heavily on single sources of materials and labour, making it vulnerable to terrorist attack.

There is obviously considerable mutual overlap between the tiers; they are 'heuristics and their frontiers are not absolute' according to the authors [Ref 4]. Indeed, there is also an overlap with the 'Societal services/social fabric' area shown in Figure 1 and the inclusion of 'People' in tier A indicates the overlap with human factors 1 – 4.

The topics in the three tiers A – C represent comprehensively the mechanisms and structures of society that receive the impact of a CBRN incident, and adapt and respond to it. Moreover, each tier focuses on a particular societal level and immediacy. Therefore we consider the three tiers can serve effectively as the societal factors to be reviewed in this Deliverable. This approach provides consistency with PRACTICE D2.1 and other FP7 projects.

6. Causes and effects

It is clear that the human factors of Section 4 differ qualitatively from the societal ones of Section 5. One of the differences is that the human factors can be regarded as causes, insofar as they give rise to particular behaviours in a person involved in a CBRN incident, whereas the societal factors can be seen as receptors in that they describe the parts of society in which the effects are felt. It is to reflect this distinction, and to avoid the implication that they form a continuum with the human (or causal) factors 1 – 4, that we have designated the societal factors A – C.

Moreover, the influence of factors 1 – 4 can be seen as extending beyond the vulnerability of the individual. For example, several days after a CBRN incident at a conference centre, the facility management might announce that the building has been decontaminated. But if people do not trust this assurance, they might stigmatise the building and refuse to enter it. So distrust of the authority (factor 2) has impacted the civic infrastructure (factor A). In a more general example, the public's perception of the threat of terrorism (factor 1) might, through the democratic process, cause a government (factor B) to divert a greater or lesser amount of public funding to security measures. Thus factors 1 – 4 could be regarded as combined human and societal factors, or perhaps 'causal factors including human and societal aspects'.

As set out at the beginning of this document, one of the purposes of WP8 is 'to understand the human and societal factors that influence the impact of, and response to, CBRN incidents'. Implicit in this requirement is that the human and societal factors can each affect both the impact and the response to a CBRN incident. This gives rise to a 2x2 matrix of the form shown in Table 1, which has been populated with examples.

Table 1: Effect of the characteristics of the factors on impacts and responses (examples)

Factor set	Impact	Response
Causal/Human	The public’s perception of a chemical threat (factor 1) can affect the process of evacuating a building	The level of perceived self-efficacy (factor 3) might affect the extent of provision of first responders
Receptor/Societal	The security and extent of a country’s emergency food supplies (factor A) can affect the ability to distribute food after an incident	The legal framework and the professionalism of the police (factor B) can affect the need to introduce special powers after an incident

The analysis in terms of cause and effect provides valuable insight into the significance of the seven factors, and helps in the identification of research projects that address them.

7. Research gaps

As described in Section 3, one of the purposes of this Deliverable is to identify gaps in the research conducted in the field to date. A research gap is an aspect of a field of study that has received less research attention than its importance to the field would appear to justify. But the application of this definition is confounded by specialisation: a highly specialised aspect of a field will obviously receive less attention than a broader one. Unless the important aspects are of similar breadth, a simple count of the projects in which they are addressed will inevitably identify the most specialised of them as a gap. Moreover, an aspect of a field might be little researched for straightforward reasons – it might for example have been fully understood for many years. Finally, some research is best carried out collaboratively, in large-scale, expensive projects, while other research is efficiently conducted in multiple, small projects. The identification of a research gap is therefore a matter of judgement – balancing the breadth, depth, potential and priority of aspects of a field that might differ widely and profoundly.

In the current context, factors 1 – 4 and A – C are clearly the aspects of most importance in the field, since these are the human and societal factors that influence the impact of CBRN incidents and the responses to them. However, the intention underlying the definition of these factors was clarification rather than equal division. For example, at first glance factor 4 appears to be significantly more specialised than the others, involving as it does only two sub-concepts: the quality and quantity of the communications with the responding authority. However it is self-evident that communications are extremely important to the successful handling of CBRN incidents. Indeed one of the principal findings of the Stakeholder Workshop (D8.4) was that the members of the public regard the prompt and accurate provision of information as of the utmost priority in an emergency [Ref 6]. Thus the extra importance attaching to factor 4 can perhaps be regarded as compensating for its more circumscribed subject matter.

Bearing these strictures in mind, we believe the seven factors identified in Sections 4 and 5 can be used to identify gaps in the research into the human and societal factors affecting CBRN resilience, provided that the selection process includes an assessment of the importance of the factor as well as a mechanistic count of keyword hits.

8. Methodology

8.1 Searching

The first step was to compile a list of research projects carried out in the human and societal factors of CBRN resilience. Table 2 shows the data sources and the search engines used.

Table 2: Sources searched

	Source	Search engine
1.	EU research projects (FP6)	CORDIS: cordis.europa.eu/fp6/projects.htm
2.	EU research projects (FP7)	CORDIS: cordis.europa.eu/search FP7 security research projects [Ref 7]
3.	List of CBRN projects compiled for Project DECOTESSEC [Ref 8]	Microsoft Excel
4.	European Defence Agency Joint Investment Programme – Force Protection (EDA JIP-FP)	www.eda.europa.eu/Strategies/ResearchandTechnology
5.	European Defence Agency Joint Investment Programme – Innovative Concepts and Emerging Technologies (EDA JIP-ICET)	www.eda.europa.eu/otheractivities/randtjointinvestment
6.	Preparatory Action towards a comprehensive programme for Security Research (PASR)	cordis.europa.eu/partners/web/guest/home
7.	Justice, Freedom and Security Prevention of and fight against crime (JLS ISEC)	ISEC 2008 Action Grants - Accepted Proposals www.ceprobation.org
8.	Health Protection Agency (HPA)	www.hpa.org.uk Chemical Incident Report [Ref 9]
9.	British Medical Association (BMA)	www.bma.org.uk
10.	Other academic papers	The Project PRACTICE team

We searched the data sources in the Table for the following terms:

- CBR* – to return records containing CBR, CBRN or CBRNE
- Human Factor* – to return records containing ‘Human Factor’ or ‘Human Factors’
- Societ* – to return records containing ‘societal’, ‘society’ or ‘societies’
- Human Behavio* – to return records containing ‘Human Behavior’, ‘Human Behaviour’ or ‘Human Behaviours’
- Terroris* – to return records containing ‘Terrorist’, ‘Terrorists’ or ‘Terrorism’

Where the underlying database technology permitted it, we combined these terms with Boolean logic to optimise the efficiency of the search. It was not always possible to determine whether the whole, or only the abstract, of the document was being searched.

We stored the following data from the projects returned by the searches:

- Acronym, Title. To identify the project.
- Start date, End date. The official time span of the project.

- Reference. The grant reference, authorship and affiliation.
- Contact. The contact details of the report author or project manager.
- Purpose. A brief description of the nature and goals of the research.
- Relevance. The relevance of the project was scored as described in Section 8.2 below.

8.2 Scoring

In order to avoid nugatory work in reviewing projects with little relevance to PRACTICE, we associated a score in the range 0 – 10 with each project’s coverage of the seven factors. It should be noted that the scores do not reflect the proportion of the project budget dedicated to the factors; a project might score highly if the full range of human and societal issues were considered in a comparatively small work package. The score does attempt to reflect the level of detail of the investigation.

Research projects of an obviously technical nature, such as discussion of the instrumentation used for detecting or identifying biological agents, attracted a score of zero. We also decided not to include ‘roadmap’ projects that merely identify (rather than address) gaps and shortcomings in existing research.

8.3 Analysis

When the projects had been ranked, we constructed a shortlist. We then obtained as much information as possible about the shortlisted projects. In some cases, the final report was available on the World Wide Web; in others we applied directly to the researchers concerned.

For each shortlisted project, we considered the following questions [Ref **Error! Bookmark not defined.**]:

1. Which factors were studied? For example: knowledge of the threat or mistrust of the authorities.
2. Why were these factors deemed important? For example: non-compliance with behavioural guidance, mental health care or public policy making.
3. How were the factors empirically tested, if at all? For example: focus groups, live exercises or population surveys.

9. Results

9.1 Projects

We identified 65 projects by following the methodology in Section 8. Appendix 2 contains the raw data, imported from the spreadsheet in which they were stored, scored and sorted [Ref 10].

Inspection of the scores revealed a satisfactory screening value for identifying the projects of particular relevance. Table 3 lists those projects scoring more than 5, excluding PRACTICE itself.

The first finding is that there are 10 projects in the shortlist. This comparatively small number indicates that human and societal factors are in general under-researched, despite their crucial role in resilience against terrorist attacks.

Table 3: Shortlisted projects

	Acronym	Title
1.	CBRN Safe	Psychological response guidelines
2.	PEMD	Pre-event message development
3.	PIRATE	Public Information Responses after Terrorist Events
4.	CIE Toolkit	Chemical Incidents Emergencies Toolkit
5.	BIO3R	Bioterrorism resilience, research reaction
6.	SAFE-COMMS	Counter-Terrorism Crisis Communications Strategies for Recovery and Continuity
7.	BeSeCu	Behaviour, Security and Culture
8.	-	Citizens and Resilience. The balance between awareness and fear.
9.	ASSRBCVUL	CBR threat and vulnerability assessment
10.	DETECTER	Detection Technologies, Terrorism, Ethics and Human Rights

9.2 Content analysis

It was difficult to obtain detailed information about some of the shortlisted projects. For example, the final reports for SAFE-COMMS (#6) and PIRATE (#3) are not yet available. However, we believe we have in all cases been able to obtain enough information to assess the projects sufficiently accurately for the purposes of this deliverable.

Table 5 in Appendix 1 contains the detailed findings and the answers to the questions posed in Section 8.3.

9.3 Coverage

Table 4 shows the frequency of coverage of the seven factors in the shortlisted projects.

Table 4: Coverage

Factor		Number of projects
1.	Threat perception	4
2.	Trust in authority and responders	5
3.	Perception of efficacy	6
4.	Communications	6
A	Health	2
B	Societal Services	5
C	Societal Fabric	1
Total		29

It can be seen that all seven factors are investigated to some extent. This indicates that the factors as defined in Sections 4 and 5 are generally considered pertinent. However, there was seldom complete overlap. For example, a project might address the behaviour of people affected by a CBRN incident, but not their perception of such behaviour.

As can be seen from the Table, factor 3 (efficacy perception) and factor 4 (communications) are best covered by extant research. The emergence of factor 3 is perhaps because of its breadth – as described in Section 4, it includes people’s perceptions of their self-efficacy, the cost and the protective measures. An area as broad as this can be expected to attract a considerable amount of research funding. The attention paid to factor 4 reflects the obvious relevance of communications to the handling of the incident and the increasing use of new media (text messages, twitter etc) to reach those impacted. The most frequent reason for studying these factors was to generate new guidance for responding to CBRN incidents.

The Table also shows low project numbers for factors A (health) and C (societal fabric). This finding might represent a real paucity of research into these factors or it might result from their definitions. From Figure 2, factors A and C involve the following topics:

- People. While people are central to society, discussion of their behaviour might be preferentially assigned to human factors 1 – 4.
- Emergency services. Projects concerned with the role of the police and fire brigade (etc) might be associated with factor 2 (perception of responders).
- Health care. Due to the overlapping content, some investigations of this topic might be assigned to factor B (societal services).
- Infrastructure. Secure water and energy supplies, effective transport and broadcasting are vital for society. But current research interest might be reduced because the issues, problems and solutions in this topic have been studied for many years.
- Agriculture. The inclusion of crops reflects their importance to the food supply following a disaster. A chemical attack, for example, might contaminate the supply of fresh vegetables to population centres. The food chain also depends on the presence of

healthy, uncontaminated animals. Livestock and crops are critical in feeding the population after a CBRN event and should be at the forefront of research

- Political will endurance. Research into the politics of CBRN resilience might be assigned to 'government', which falls into factor B.
- Societal trust. The measure of mutual trust in society is an area of sociological research which appears neglected, although perhaps its treatment in some projects might have been assigned to factor 2 (Trust in authority/responder).
- Shock resistance. Including shock resistance in factor C perhaps results in a circularity of definition, since it is conceptually similar to resilience itself. Rule stability is however a topic of research interest, albeit a small one.
- Economic health. The effects of terrorism on the economic health of a society are possibly so various and complex that they can be researched only in very large, expensive (and therefore few) projects.

One of the objectives set out in Section 3 is to identify shortfalls in the research into the human and societal factors associated with resilience to CBRN terrorism. We conclude from the above discussion that research into the health and fabric of society appears to be lacking. Within these factors, three particular topics emerge: societal trust, rule stability and agriculture.

9.4 Research methods

The projects listed in Table 3 were conducted using the following research methodologies, listed in descending order of frequency:

- Desk research, including reviews of academic literature (4 projects)
- Interviews with Subject Matter Experts (3)
- Public opinion gathering, including focus groups and telephone surveys (2)
- Case-studies (1)
- Trials (1)

As may be seen from the list above, many projects were based primarily on academic ('desk') research and there is a lack of experimentation or trials using 'real' subjects – that is, naïve members of the public. The need for such involvement was also emphasised at the D8.4 Stakeholder Workshop [Ref 6].

9.5 General

The general impression gained from the review is that few of the research projects treat human and societal factors analytically. There is much generation of guidance but comparatively little testing of it. This is probably a reflection of the small number of projects and the lack of funding of research into the field. The problems attaching to the recruitment of naïve subjects for exercises and workshops is discussed further in D8.4 [Ref 6].

It is however important to note that an additional research gap can be identified – not in this case in respect of the subject matter but rather in the methodology. Future work in CBRN resilience should prioritise practical exercises to test the many behavioural theories that have been developed.

10. Conclusion

The review of CBRN projects specified for D8.5 has been carried out. Four human factors relevant to CBRN resilience have been defined, preserving the broad equivalence necessary for the identification of research gaps. Similarly, three societal factors have been defined, utilising previous FP7 research.

A search of 10 data sets revealed 65 projects in which these factors had been studied in the context of CBRN terrorism. The analysis shows:

- Only ten projects were found in which the factors have been researched in significant depth. This represents a significant shortfall, considering the importance of the factors to the understanding of CBRN resilience.
 - The most popular factors in terms of research are 'perception of efficacy' and 'communications'
 - 'Health' and 'fabric of society', at the societal level, have received the least research attention.
 - Few research projects appear to have included trials involving members of the public, and this is in itself a research gap.
-

11. Literature

- 1 Preparedness and Resilience to a CBRN crisis
FP7 THEME SEC-2010.4.2-2
Grant agreement no: 261728
Deliverables D8.5 & D8.8, page 36
01-Mar-2011
- 2 D8.8 Lessons learned from existing research on the role of human and social factors in achieving resilience and preparedness to CBRN incidents
Kristian Krieger, KCL
March 2012
- 3 Institute of Ergonomics and Human Factors
www.ergonomics.org.uk
- 4 Assessment of the vulnerabilities of modern societies to terrorist acts employing radiological, biological or chemical agents with the view to assisting in developing preventive and suppressive crisis management strategies
Deliverable #9. Final report (ASSRBCVUL), 2007-05-04, EU Restricted.
M W Leeuw (Project Coordinator) 2007
- 5 Scenario template and overview of some existing CBRN scenarios and historical incidents
PRACTICE WP2 deliverable D2.1
Monica Endregard, Hanne Breivik, Hege Schultz Heireng, Elin Enger, Therese Sandrup, Forsvarets Forskninginstitut (FFI), Dominic Kelly (CBRNE Ltd)
August 2011
- 6 D8.4 Stakeholder Workshop
WP8 deliverable
D M Usher (CBRNE Ltd)
March 2012
- 7 Towards a more secure society and increased industrial competitiveness. Security projects under the 7th framework programme for research
European Commission, Directorate-general Enterprise and Industry
Unit H4 Security Research and Development
May 2009
- 8 DEmonstration of COunterTErrorism System-of-Systems against CBRNE (phase 1)
DECOTESSEC1
EU FP7 Grant agreement 242294
July 2011
- 9 Chemical Hazards and Poisons Report (2003-2011) and Chemical Incident Report (1999-2003) Index
Health Protection Agency, 2011
- 10 CBRN research projects.xls
Dave Usher, CBRNE Ltd
February 2012

12. Appendix 1

Table 5: Detailed findings

	Project		Factors studied (see Section 4)	Reason for choice (see Section 8.3)	Method of testing (see Section 8.3)	Source documents
1.	CBRN Safe	Psychological response Guidelines	1, 2, 4	To provide guidance on the psychosocial responses of members of the public affected by terrorism and how these can be anticipated and managed by emergency first responders.	Review of case studies and relevant academic research	CBRN Safe: psychological response guidelines Beverley Raphael 2008
2.	PEMD	Pre-event message development	1, 2, 3, 4, A	Selection of suitable medium and content for messages warning the US public of radiological attack. To improve compliance with protection procedures.	Focus groups	Pre-event message development for terrorist incidents involving radioactive materials: year 2 report
3.	PIRATE	Public Information Responses After Terrorist Events	1, 3, 4	To improve the way public health bodies communicate with the public about risks and recommendations during a major CBRN incident.	Focus groups (UK and Germany) Telephone surveys	Public Information and Responses to Terrorist Events Short summary G. James Rubin, M Brooke Rogers, Julia Pearce, Rosa Nieto-Hernandez & Simon Wessely (KCL) Piet Sellke & Ortwin Renn (University of Stuttgart) Richard Amlôt, Fiona Mowbray & John Simpson (HPA) December 2010
4.	CIE Toolkit	Chemical Incidents Emergencies Toolkit	2, 3	'Chaos and intense emotion' are likely after a terrorist attack, so the psychosocial factors must be taken into account. Levels of mistrust and anger are generally high in affected communities, and these can also affect perceptions of, and cooperation with, the emergency services	Interviews with health services managers.	A deeper dive into the psychosocial aspects of a Chemical Incident Emergency (CIE) Annelieke Drogendijk, Esther Tossaint Institute for Psychotrauma, Netherlands 14-Apr-11



	Project		Factors studied (see Section 4)	Reason for choice (see Section 8.3)	Method of testing (see Section 8.3)	Source documents
5.	BIO3R	Bioterrorism resilience, research, reaction	A, B	To reinforce the awareness and preparation of EU citizens regarding the threat of Biological terrorism	Literature-based analysis of scenarios	Preparatory Action for Security Research (PASR) summary
6.	SAFE-COMMS	Counter-Terrorism Crisis Communications Strategies for Recovery and Continuity	2, 3, 4, B	A recognition of the need to understand the human factors when attempting to improve communications on terrorist issues, before and after an attack	Analysis of 25 case studies of terrorist attacks in EU and outside	Safe-Comms: The Terrorism Crisis Communication Manual for public authorities
7.	BeSeCu	Behaviour, Security and Culture	2, 3, 4	To investigate whether culture plays a significant role in evacuation behaviour. If so, the attitude of the evacuees to the first responders will be affected.	Unannounced evacuation trial in a library (carried out in Czech and in Turkey)	Investigating the impact of culture on evacuation behaviour Edwin Galea (et al) Proceedings of the 12th International Fire Science & Engineering Conference 5-7th July 2010, University of Nottingham, UK, Volume 1, pp. 879-892.
8.	-	Citizens and Resilience	3, B	The perception that most victims of disasters are helped to recovery by other victims, and the finding that people who have high self-esteem seem to be more resistant to stressful events	Literature based research, plus expert interviews and site-visits to countries including US, Spain and Israel	Citizens and resilience from concept to practice: the balance between awareness and fear JHM te Brake, MJTP van der Post, AM de Ruijter Tijdschrift voor Veiligheid, 2008(7) 2
9.	ASSRBCVUL	CBR threat and vulnerability assessment	1, 4, B	Since 'terror is evidently a psychosocial concept' the research must be informed by psychosocial considerations. 'Intent has an inherent psychosocial connotation' and affects the 'sensitivity of [...] children and the elderly, psychiatric patients and people with past history of mental illness, refugees and ostracized subgroups'	Risk (threat, impact, vulnerability) assessment approach. No specific testing of factors.	Assessment of the vulnerabilities of modern societies to terrorist acts employing radiological, biological or chemical agents with the view to assist in developing preventive and suppressive crisis management strategies Deliverable #9. Final report (section 3.4.3)



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	Project		Factors studied (see Section 4)	Reason for choice (see Section 8.3)	Method of testing (see Section 8.3)	Source documents
10.	DETECTOR	Detection Technologies, Terrorism, Ethics and Human Rights	B, C	New surveillance technologies make possible new kinds of illegality and immorality, as well as new kinds of protection of life and liberty. Surveillance, detention or denial of entry may be based on bad identification evidence, or may be unjustified for other reasons. The human rights risks of current detection technology have neither been comprehensively listed nor studied	Research meetings (Birmingham) 6 meetings with policy makers, technology developers and law enforcement officials	Publishable summary February 2012 www.detector.bham.ac.uk



13. Appendix 2

Acronym	Title	start date	end date	Reference	Contact	Purpose	Score (out of 10)
PRACTICE	Preparedness and Resilience against CBRN Terrorism using Integrated Concepts and Equipment	01/05/2011	31/10/2014	FP7 SEC-2010.4.2-2 Ref 261728	Svenja Stoven Umeå Universitet European CBRNe Center svenja.stoven@cbrne.umu.se	To improve the preparedness and resilience of the EU member states and associated countries to an attack from a terrorist group using non conventional weapons such as CBRN (Chemical, Biological, Radiological and/or Nuclear agents) materials.	10
CBRN Safe	Psychological response Guidelines	01/03/2008	01/03/2008	B Rafael, G Stevens SCIMHA Unit, Medical School, University of Western Sydney	Professor of Population Mental Health and Disasters University of Western Sidney Australia	To (1) provide guidelines for Emergency Service and Health workers who assist survivors of major incidents involving Chemical, Biological, Radiological & Nuclear (CBRN) agents (2) provide information and guidance on the likely emotional and psychosocial responses of affected members of the public and how these can be anticipated and managed by emergency first responders.	9
PEMD	Pre-event message development	01/01/2002	10/12/2004	Health Communication Research Laboratory Saint Louis University School of Public Health Office of Communication Center for Disease Control and Prevention	Dr Ricardo Wray Health Communication Research Laboratory Saint Louis University School of Public Health USA	To (1) investigate the general public's current knowledge, concerns, and potential responses to threats (2) test existing agent-specific informational materials developed by CDC (3) develop and pretest new message materials on the basis of the findings from item 1, and (4) assess study findings against relevant published research.	8



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Acronym	Title	start date	end date	Reference	Contact	Purpose	Score (out of 10)
				Grant # A1104-21/23			
PIRATE	Public Information Responses After Terrorist Events	01/12/2007	30/09/2010	JLS/2007/ISEC/563	Dr Brooke Rogers Department of War Studies King's College London 020 7848 1395	To gain a better understanding of how the EU public would respond during a CBRN terrorist attack and inform the preparation of risk communication strategies for two terrorism-related risks: the deliberate release of smallpox and the use of a radiological device hidden on a commuter train. To ensure that risk communication strategies are maximally effective, the iterative and time-consuming process of designing, testing and revising communication materials must begin before a major incident occurs.	7
CIE Toolkit	Chemical Incidents Emergencies Toolkit	01/04/2008	01/06/2011	Richard Amlôt Paul Riley Holly Carter Emergency Response Department, HPA	Behavioural Science Research Team Emergency Response Department Health Protection Agency Porton Down Salisbury, Wiltshire, UK richard.amlot@hpa.o	To develop a toolkit and manual for the training of public health officials to facilitate rapid and effective responses to acute chemical incidents. The toolkit will include fact sheets, guidelines for conducting training exercises, generic case studies identifying likely scenarios in the form of table top training cards and a manual.	7

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Acronym	Title	start date	end date	Reference	Contact	Purpose	Score (out of 10)
					rg.uk		
BIO3R	Bioterrorism resilience, research reaction	01/02/2007	01/08/2008	PASR 2006 Ref SEC6-SA-204300	Prof Jean-François Daguzan Fondation pour la Recherche Stratégique France jf.daguzan@frstrategie.org	To research the identification of operational requirements and to determine the reinforcement of crisis management policies through an improvement of networking and a better integration of public and law strategies at European, national and local levels. To make EU societies stronger and more resistant to aggression by reinforcing the awareness and the preparation of the EU citizens regarding the biothreat, through providing reliable information, education and training, and thus acting on their perception.	7
SAFE-COMMS	Counter-Terrorism Crisis Communications Strategies for Recovery and Continuity	01/04/2009	31/03/2011	FP7 SEC-2007-6.1-03 Ref 218285	Prof. Shlomo Shpiro Department of Political Studies Bar Ilan University Bar Ilan Campus Ramat Gan 52700 Israel sshpiro@bezeqint.net	To develop a comprehensive and flexible communication strategy for authorities to react after terror attacks, by analyzing the communication activities that followed terror attacks in many different countries, as well as the requirements for effective crisis communications.	7

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Acronym	Title	start date	end date	Reference	Contact	Purpose	Score (out of 10)
BeSeCu	Behaviour, Security and Culture	01/05/2008	31/12/2011	FP7 SEC-2007-6.1-02 Ref 218324	Prof Ed Galea Fire Safety Engineering Group University of Greenwich Greenwich Maritime Campus Old Royal Naval College Queen Mary Building Greenwich SE10 9LS Tel: 020 8331 8730	To investigate cross-cultural and ethnic differences of human behaviour in crisis situations in order to tailor security related communication, instructions and procedures with a view to improving evacuation and protection. Two types of research findings and products will be provided: (1) An evidence base to enable designers of buildings to develop culturally appropriate emergency operating procedures. (2) An evidence base of inter-individual differences to develop culture sensitive communication training to improve emergency interventions.	7
--	Citizens and Resilience. The balance between awareness and fear.	01/01/2005	01/01/2007	Inke A. Schaap, Femke M. van Galen, Ariëlle M. de Ruijter, Elizabeth C. Smeets Impact, Dutch knowledge & advice centre for post-disaster psychosocial care Tafelbergweg 25 1105 BC Amsterdam The Netherlands	Hans Te Brake Dutch Knowledge and Advice Center for Post-disaster Psychosocial Care, Amsterdam Meibergdreef 5 1105 AZ Amsterdam The Netherlands	To (1) develop a publicity campaign on resilience, to be used in all EU Member States (2) develop musical and complementary teaching materials; for strengthening primary pupils' resilience (3) develop strategies for community-based interventions, so that relief workers, policy-makers and administrators know what they need to organise in support of collective resilience and the natural recovery of the population.	6

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Acronym	Title	start date	end date	Reference	Contact	Purpose	Score (out of 10)
ASSRBCVUL	CBRN threat and vulnerability assessment	01/03/2004	28/02/2007	FP6 SSP 8.1.B.2.7 Ref 502476	Maarten Nieuwenhuizen Nederlandse Organisatie Voor Toegepast Natuurwetenschappelijk Onderzoek maarten.nieuwenhuizen@tno.nl	To assess the vulnerability of modern societies to terrorist acts employing CBR agents with a view to assisting in developing preventive and suppressive crisis management strategies.	6
DETECTER	Detection Technologies, Terrorism, Ethics and Human Rights	01/12/2008	30/11/2011	FP7 SEC-2007-6.5-01 Ref 217862	Tom Sorell Centre for the Study of Global Ethics University of Birmingham Edgbaston, Birmingham, B15 2TT Tel: 0121 414 3344	To identify human rights and other legal and moral standards that detection technologies in counter-terrorism must meet, while taking into account the effectiveness of these technologies as judged by law-enforcement bodies responsible for counter-terrorism and other relevant authorities.	6
IMPACT	Innovative Measures for Protection against CBRN Terrorism	01/12/2004	30/11/2006	PASR 2004 Ref SEC4 PR-8000		To (1) construct a CBRN agent database (2) To analyse the role of first responders throughout Europe (3) to propose a European doctrine for first responders (4) to create a database for the requirements for immediate response, C, B R/N detection, physical protection, decontamination and sampling (5) to provide an overview of current and emerging detection techniques for B, C and R/N (6) to perform a task analysis of first responders in CBR-scenarios (7) to test the equipment against the	5

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Acronym	Title	start date	end date	Reference	Contact	Purpose	Score (out of 10)
						requirements.	
COPE	Common operational picture exploitation	01/02/2008	31/01/2011	FP7 SEC-2007-4.3 Ref 217854	Jari (Dr) Hamalainen TECHNICAL RESEARCH CENTRE OF FINLAND Vuorimiehentie 3, FINLAND Tel: +35 820 722 646 7	To integrate COTS solutions and novel technologies to improve information flow between first responders in order to increase situational awareness across agencies and at all levels of the command chain. The project will apply a wide range of human factors methods to understand the processes of individual agencies to ensure that new systems both match requirements and can be integrated with legacy processes and technologies.	5
SIAM	Security Impact Assessment Measure - A decision support system for security technology investments	01/02/2011	31/01/2014	FP7 SEC-2010.6.3-3 Ref 261826		To ease the complexity associated with the assessment of security measures and technologies. To pass the needed information in a structured manner to the decision maker. To tie together those strands and reduce their complexity by providing a number of guidelines and a database for easy decision making.	5
MASH	Mass casualties and health care following the release of toxic chemicals or radioactive material	01/01/2008		HPA Ref 2007/209	John Ferguson Professor and Director of the Centre for the Study of Global Ethics University of Birmingham Edgbaston, Birmingham, B15 2TT	To achieve (1) effective links between key experts in EU countries (2) a minimum level of competence in the pathophysiology of toxicity (3) a minimum level of response preparedness (4) harmonised training material for first responders (5) improved response ICT (6) rapid detection, screening and diagnostic tools.	5

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Acronym	Title	start date	end date	Reference	Contact	Purpose	Score (out of 10)
ADABTS	Automatic Detection of Abnormal Behaviour and Threats in crowded Spaces	01/08/2009	31/07/2013	FP7 SEC-2007-2.3-03 Ref 218197		To facilitate the protection of EU citizens, property and infrastructure against threats of terrorism, crime, and riots, by the automatic detection of abnormal human behaviour. Current automatic detection systems have limited functionality, struggling to make inferences about the acceptability of human behaviour.	5
CHORIST	Integrating communications for enhanced environmental risk management and citizens safety	01/06/2006	31/07/2009	FP6 IST-2005-2.5.12 Ref 33685		To increase the rapidity and effectiveness of interventions following a natural or industrial disaster, by integrating communications for enhanced environmental risk management and citizens' safety. Thus optimizing people's safety and communications between rescuers.	5
VITRUV	Vulnerability Identification Tools for Resilience Enhancements of Urban Environments	01/05/2011	30/04/2014	FP7 SEC-2010.2.3-1 Ref 261741		To plan, (re)design, and (re)engineer urban areas to make them less vulnerable and more resilient to security threats (such as CBRNE).	5
SICMA	Simulation of crisis management activities	01/03/2008	31/08/2010	FP7 SEC-2007-4.3-02 Ref 217855		To improve decision-making capabilities through an integrated suite of modelling and analysis tools providing insights into the collective behaviour of the whole organisation in response to crisis scenarios.	4

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Acronym	Title	start date	end date	Reference	Contact	Purpose	Score (out of 10)
LOTUS	Localisation of threat substances in urban society	01/01/2009	31/12/2011	FP7 SEC-2007-1.3-03 Ref 217925		To address the issue of detecting bomb (and drugs) factories. The concept and objectives are (1) to create a system by which illicit production of explosives and drugs can be detected during the preparation and production phase of a terrorist plot, and (2) to provide intelligence of a sort that is otherwise not available.	4
BOOSTER	BiO-dOSimetric Tools for triagE to Responders	01/07/2010	30/06/2013	FP7 SEC-2009-4.3-02 Ref 242361		To address the requirement for effective management of an incident involving exposure of large numbers of people to radioactive material, whether accidental or malevolent. Current biodosimetric approaches frequently involve cytogenetics. and optimisation of such analyses involves the automation of various steps in the process.	4
CAST	Comparative assessment of security-centered training curricula for first responders on disaster management in the EU	01/05/2009	30/04/2011	FP7 SEC-2007-6.2-01 Ref 218070		To assess security-centered training course curricula on disaster management for first responders in EU member states with specially developed matrix-based software, as derived from international best practices in the US, Russia, and Israel.	4
CBRNEMAP	Road-mapping study of CBRNE demonstrator	01/06/2010	2011-0-30	FP7 SEC-2009-1.1-02 Ref 242338		To evaluate the complex matrix of temporal events (before, under and after), against sectors (law enforcement, civil protection rescue and health together with such	4

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Acronym	Title	start date	end date	Reference	Contact	Purpose	Score (out of 10)
						processes as e.g. norder control, mass transport), taking in consideration that each of the letters CBRNE, may have its own aspects of vulnerabilities, priorities and possible solutions.	
ESS	Emergency support system	01/06/2009	31/05/2013	FP7 SEC-2007-4.2-01 Ref 217951		To provide actionable information to crisis managers during abnormal events, from a suite of real-time data-centric technologies.	4
FESTOS	Foresight of Evolving Security Threats Posed by Emerging Technologies	01/03/2009	31/08/2011	FP7 SEC-2007-6.3-01 Ref 217993		To identify and assess evolving security threats posed by the abuse or inadequate use of emerging technologies and new S&T knowledge. Robotics, Cognition, New Materials, Nano and Biotechnologies are some of the fields to be scanned. To stimulate anticipatory thinking and construct threat scenarios by analysing the impact of the identified threats to envisioned security climates (societal context of security issues).	4
ANTHRAX-EURONET	Anthrax and Beyond	01/01/2004	31/12/2006	FP6 POLICIES-2.7 Ref 503616		Networking activities to develop safe products and policies to protect our citizens from the threat of anthrax attacks and other agents of bioterrorism.	3
CORPS	Cross-Sectorial observations of threat perceptions and research priorities in European	01/01/2007	31/12/2009	FP6 POLICIES-2.7 Ref 44323		To analyze biological security and threat perceptions, and R & D values in order to strengthen cross-sector communication and knowledge-sharing between agencies in the field of biological homeland security in the	3

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Acronym	Title	start date	end date	Reference	Contact	Purpose	Score (out of 10)
	Biological Homeland Security					EU.	
MIDAS	The Development and Validation of a Rapid Millifluidic DNA analysis system for forensic casework samples	01/09/2010	31/08/2013	FP7 SEC-2009-1.3-04 Ref 242345		To deliver a self-contained, portable instrument to produce DNA database compatible results from crime samples in 2 hours. In high profile crime and terrorism cases it is crucial to access DNA results promptly to provide intelligence to investigators.	3
SECUR-ED	Secured Urban Transportation - European Demonstration	01/04/2011	30/09/2014	FP7 SEC-2010.2.1-1 Ref 261605		To federate major operators and top industrial integrators to enhance the security of urban public transportation in medium and large cities, through live demonstrations.	3
AETHER	Air passenger transport security in the case of CBRN threat by terrorists	01/04/2009	31/03/2011	JLS/2008/ISEC/048		To establish rules to protect the security of civil aviation against acts of unlawful interference by achieving harmony between air safety standards.	2
BTRA	Bioterrorism Risk Assessment Project	01/01/2006	01/01/2006	Department of Homeland Security, Science and Technology, Chemical and Biological Division, USA		A computer-based tool to assess the risk of the intentional release of biological threat agents.	2
CRESCENDO	Coordination action on Risks, Evolution of threatS and context assessment by an Enlarged Network	01/07/2009	30/06/2011	FP7 SEC-2007-7.0-02 Ref 218026		To create a network of stakeholders to enhance the European security market and strengthen European competitiveness in the security sector.	2

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Acronym	Title	start date	end date	Reference	Contact	Purpose	Score (out of 10)
	for r&D rOadmap						
DECOTESSC1	DEmonstration of COunterTERRORism System-of-Systems against CBRNE phase 1	01/04/2010	31/05/2011	FP7 SEC-2009-1.1-02 Ref 242294		To demonstrate a consistent portfolio of countermeasures for CBRNE along the chain from prevention to response and recovery (Phase 1).	2
GSCT	Generic scenarios, alerting system and training modules relating to release of chemicals by terrorists	01/08/2005	01/09/2007	HPA Ref 2003/217		To enhance cooperation and preparedness on public health threats from chemical agents, including deliberate release threats, across Europe. It includes (a) generic scenarios describing the release of chemicals agents by terrorists (b) a pilot alert system for the rapid identification of deliberate releases of chemicals within a country and (c) core teaching models for public health management of terrorist chemical releases.	2
SECURESTATION	Passenger station and terminal design for safety, security and resilience to terrorist attack	01/06/2011	31/05/2014	FP7 SST-2010.4.1-1 Ref 266202		To improve passenger station and terminal resilience to terrorist attacks and safety incidents through technologies and methodologies enabling design to reduce the impact of blast, fire and the dispersion of toxic agents on passengers, staff and infrastructure.	2
SUBITO	Surveillance of unattended baggage and the identification and tracking of the	01/01/2009	31/10/2011	FP7 SEC-2007-2.3-01 Ref 218004		To detect unattended goods and their owners.	2

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Acronym	Title	start date	end date	Reference	Contact	Purpose	Score (out of 10)
	owner						
TWOBIAS	Two Stage Rapid Biological Surveillance and Alarm System for Airborne Pathogenic Threats	01/07/2010	30/06/2013	FP7 SEC-2009-1.3-01 Ref 242297		To develop a close-to-market demonstrator of a stationary, rapid, reliable, vehicle-portable detection system for airborne biological threats with extremely low false alarm rates. To provide reliable information to command control systems and first responders within seconds, enhancing security related to biological threats at high profile public sites.	2
BIO-PROTECT	Ionisation-based detector of airborne bio-agents, viruses and toxins for fast-alert and identification	01/06/2010	31/05/2013	FP7 SEC-2009-1.3-01 Ref 242306		To protect European citizens from criminal use of biological agents and viruses. Although attacks to date have been perfunctory and crude, more sophisticated attacks on dozens or hundreds of injured or killed people are conceivable.	1
COCAE	Cooperation across Europe for Cd(Zn)Te based security instruments	01/10/2008	30/09/2011	FP7 SEC-2007-1.3-01 Ref 218000		To develop technology that can (1) make spectroscopic measurements with efficiency equivalent to that of NaI detectors and energy resolution close to that of HPGe devices but without using cryogenic systems (2) find the direction and the distance of the radioactive source (3) localize the source within a cargo (4) estimate the radioactive source activity, and (5) work at a wide range of absorbed dose rates by adjusting the effective volume	1

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Acronym	Title	start date	end date	Reference	Contact	Purpose	Score (out of 10)
						of the detector.	
COPRA	Comprehensive European Approach to the Protection of Civil Aviation	01/09/2011	28/02/2013	FP7 SEC-2010.2.4-1 Ref 261651		To meet the requirements for the protection of civil/commercial aviation	1
CREATIF	CBRNE related testing and certification facilities - a networking strategy to strengthen cooperation and knowledge exchange within Europe	01/02/2009	31/07/2011	FP7 SEC-2007-7.0-03 Ref 217922		To establish a network of testing facilities for security related products and services focused to CBRNE detection.	1
EFFISEC	Efficient integrated security checkpoints	01/05/2009	31/10/2013	FP7 SEC-2007-3.2-03 Ref 217991		To guarantee airport-type security at all borders. Airport checkpoints controls are technically improving, but land and seaport checkpoints are not and they are more complex to process.	1
EPIDARM	European Protective Individual Defence Armour	01/02/2008	31/01/2011	EDA JIP-FP A-0377-RT GC		To construct multifunctional individual ballistic and CBRNE protective systems from innovative, cheap natural fibres. The system integrates functions like modular protection, heat stress	1

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Acronym	Title	start date	end date	Reference	Contact	Purpose	Score (out of 10)
						regulation and medical monitoring.	
FOOD CONTAMINATION	Food contamination	09/02/2009	08/06/2012	FP7 PEOPLE-2007-4-1 Ref 220444		To analyse the risk of contamination of food with biological agents.	1
FRESP	Advanced first response respiratory protection	01/06/2008	30/11/2011	FP7 SEC-2007-4.3-03 Ref 218138		To develop new nanoporous adsorbents that protect against a wide range of toxic chemicals (industrial and military) and biological threats, under severe and wide-range environmental conditions. This provides brief but quick respiratory protection to first responders and the public.	1
GAS TERRORISM	Ventilation-based strategies to control terrorism involving CBR agents	01/09/2005	31/08/2007	FP6 MOBILITY-2.1		To review and develop techniques for predicting health risks, for designing concepts for protection of buildings and their occupants, and for simulating accident scenarios. Problems to be analysed by Computational Fluid Dynamics and/or experimental methods include: detection, transport of airborne hazardous substances, confinement, or removal of such substances.	1
IMSK	Integrated mobile security kit	01/03/2009	28/02/2013	FP7 SEC-2007-1.2-02 Ref 218038		To combine technologies for (1) area surveillance (2) checkpoint control (3) CBRNE detection and (4) support for VIP protection into a mobile system for rapid deployment at venues and sites (hotels, sport/festival arenas, etc) which temporarily need enhanced	1

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Acronym	Title	start date	end date	Reference	Contact	Purpose	Score (out of 10)
						security. The IMSK accepts input from a wide range of sensor modules, either legacy systems or new devices brought in for a specific occasion.	
PATCH	Personal biological aerosol tester for exposure control with high efficiency	01/10/2010	30/09/2012	EDA JIP-ICET A-1087-RT-GC		To provide a small, portable and robust device that can be integrated with the soldiers' combat suit, for collecting biological aerosols that he/she may be exposed to during a mission. This device will allow for the discovery of airborne biohazards that may have not been detected by "detect to warn" subsystems, and will provide direct individual exposure information so that appropriate medical treatment can be administered as soon as 24 hours after inhalation.	1
PREVAIL	PRecursors of ExplosiVes: Additives to Inhibit their use including Liquids	01/09/2010	31/08/2013	FP7 SEC-2009-1.3-03 Ref 241858		To develop additives to precursors to explosives to prevent them from being used to manufacture IEDs.	1
PROTECTRAIL	Railway-Industry Partnership for Integrated Security of Rail Transport	01/09/2010	28/02/2014	FP7 SEC-2009-2.2-01 Ref 242270		To make single asset-specific solutions interoperable. To address the following security sub-missions: protection of signal and power distribution systems against any terrorism act, track clearance, clearance of trains before and after daily use, staff clearance, luggage clearance control, passenger clearance	1

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D8.5 Review of CBRN research projects for human and societal factors content

Acronym	Title	start date	end date	Reference	Contact	Purpose	Score (out of 10)
						control, freight clearance control, tracking and monitoring of rolling stock carrying dangerous goods, protection of communication and information systems, stations, buildings and infrastructure protection.	
SALIAN	Selective Antibodies Limited Immuno Assay Novel Technology	01/09/2010	31/08/2013	FP7 SEC-2009-1.3-04 Ref 242377		To develop a hand-held device for the real-time analysis of trace levels of explosives, toxic chemicals and drugs.	1
TERASEC	Active TeraHertz Imaging for Security	01/01/2005	31/12/2006	PASR 2004 SEC4-PR-004000		To improve homeland security by delivering a new technology which will detect threats, explosives, pathogens and chemicals which are hidden by a person or inside an object such as letters or luggage.	1
CRISYS	Critical Response in Security and Safety emergencies	01/02/2011	30/04/2012	FP7 SEC-2010.4.1-1 Ref 261682	Luigi REBUFFI AVENUE DE TERVUREN BRUXELLES BELGIUM Tel: +33 672767930	(1) To identify and analyse the state of the art in the current legacy environment of crisis management (CM) across the EU (policies, systems, societal) (2) To gather information from users regarding their operational, procedural, regulatory, technological and standards requirements (3) To protect citizens by engaging and developing close contact with local and national administrations responsible for CM and first response and (4) To assess capacity and competency gaps in current and foreseen performance to recommend validated	0

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Acronym	Title	start date	end date	Reference	Contact	Purpose	Score (out of 10)
						demonstration cases regarding user's requirements (5) To propose a strategic roadmap for Phase2, set in the context of current and future relevant factual and political trends, as well as economic and supply market issues (6) To ensure EU wide dissemination of information with these activities being supported by an enlarged User platform and other key EU and international stakeholders (7) To recommend validated demonstration cases regarding user requirements.	
FORESEC	Europe's evolving security: drivers, trends and scenarios	01/02/2008	30/11/2009	FP7 SEC-2007-6.3-01 Ref 218199	Bastian Giegerich Research Associate International Institute for Strategic Studies (IISS), WC2R 3DX London Tel: 020 7379 7676	The project (1) ties together the multiple threads of existing work on the future of European security (2) enhances the common understanding of the complex global and societal nature of European security (3) enhances the shared vision and facilitates the emergence of a coherent and holistic approach to current and future threats and challenges for European security (4) identifies the security responses in which there is a particular added value and shared interest to work at the European level, and (5) builds a pan-European network around the European security foresight processes.	0



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Acronym	Title	start date	end date	Reference	Contact	Purpose	Score (out of 10)
ANTIBOTABE	Neutralizing antibodies against botulinum toxins A,B,E	01/09/2010	31/08/2014	FP7 SEC-2009-4.3-01 Ref 241832		Botulinum neurotoxins (BoNTs) are used as class A bioweapons. Currently licensed animal derived antibodies can induce adverse effects and their stockpiles are limited. The antibodies will be directed against the C-terminus of the heavy chain and the light chain of each of these three BoNTs, as these domains contain neutralizing epitopes.	0
BONAS	BOmb factory detection by Networks of Advanced Sensors	01/04/2011	30/09/2014	FP7 SEC-2010.1.3-3 Ref 261685		To design, develop and test novel wireless sensors network for increasing citizen protection and homeland security against terrorist attacks, in particular against the threat posed by IED devices. The sensor network will focus on the detection of traces of precursors used in IED production (particulates, gases and/or waterborne) present in the environment surrounding the vicinity of a 'bomb factory'.	0
COMMONSENSE	Development of a Common Sensor Platform for the Detection of IED "Bomb Factories"	01/01/2011	2013-12-31	FP7 SEC-2010.1.3-3 Ref 261809		To develop Common Sensor Platform for the Detection of IED "Bomb Factories".	0
GUARDED	Generic Urban Area Robotized Detection of CBRNE Devices	01/01/2008	31/12/2010	EDA JIP-FP Ref A-0378-RT GC		To demonstrate a remote controlled mobile platform for sniffing a suspect and/or dangerous area, using a set of complementary CBRNE sensors to provide a safe diagnosis from data fusion between various sensors. It will	0

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D8.5 Review of CBRN research projects for human and societal factors content

Acronym	Title	start date	end date	Reference	Contact	Purpose	Score (out of 10)
						use technologies like Ground Penetrating Radar techniques for localisation (even through walls or buried objects), Proton transfer Reaction coupled with Mass Spectrometry, Chemical and Biological based on handheld devices.	
MULTIBIODOSE	Multi-disciplinary biodosimetric tools to manage high scale radiological casualties	01/05/2010	30/04/2013	FP7 SEC-2009-4.3-02 Ref 241536		To analyse a variety of biodosimetric tools and adapt them to different mass casualty scenarios. The following biodosimetric tools will be validated: the dicentric assay, the micronucleus assay, the gamma-H2AX assay, the skin speckle assay, the blood serum protein expression assay and EPR/OSL dosimetry in components of pocket electronic devices.	0
MULTISENSE	A device for the identification of biological pathogens on nucleic acid and immunological level	01/06/2011	31/05/2015	FP7 SEC-2010.4.2-2 Ref 261810		To develop a detection and identification system for biological pathogens. Disruptive technologies, lab-on-chip technology, and innovative instrumentation are key to identifying pathogens.	0
OPTIX	Optical technologies for the identification of explosives	01/11/2008	30/04/2012	FP7 SEC-2007-1.3-01 Ref 218037		To develop a transportable system for the standoff detection and identification of explosives in real scenarios at distances of around 20m using alternative or simultaneous analysis of three different complementary optical technologies.	0

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SECUREAU	Security and decontamination of drinking water distribution systems following a deliberate contamination	01/02/2009	31/01/2013	FP7 SEC-2007-1.3-05 Ref 217976		To limit the impact on the population of safe water deprivation because of contaminated networks, and to launch an appropriate response for rapidly restoring the use of the network after a deliberate contamination.	0
SEREN	Security research ncp network	01/02/2008	01/07/2009	FP7 SEC-2007-7.0-06 Ref 217937		To link the different National Contact Points of the Security research programme, to initiate coordination in the network, and to improve the quality of the network and the ability of its members to deliver a high level of service to the community.	0
UNCOSS	Underwater coastal sea surveyor	01/12/2008	31/07/2012	FP7 SEC-2007-3.3-02 Ref 218148		To support surveillance in wide maritime areas through active and passive means. Stand off scanning and detection of hidden dangerous materials and/or stowaway, fast and reliable alerting and specification..	0
VIRTUOSO	Versatile Information Toolkit for end-Users oriented Open Sources exploitation	01/05/2010	30/04/2013	FP7 SEC-2009-3.2-03 Ref 242352		To exploit Open Source Information in support of decision-making processes.	0

