



Defence Research and  
Development Canada

Recherche et développement  
pour la défense Canada



# Capability Based Planning Pilot Project

*A report on academic and research partnership opportunities relevant to intelligence and security initiatives*

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The scientific or technical validity of this Contract Report is entirely the responsibility of the Contractor and the contents do not necessarily have the approval or endorsement of Defence R&D Canada.

**Defence R&D Canada – CSS**

DRDC CSS CR 2011-07

February 2011

Canada

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## **Abstract**

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The Centre for Security Science (CSS) represents a joint endeavour between Defence Research and Development Canada (DRDC) and Public Safety Canada. The Centre is part of the Government of Canada's approach to address national public safety and security objectives; its goal being to deliver timely and relevant Science and Technology (S&T) research in support of an all-hazards approach to natural and accidental disasters, and terrorist and criminal acts. Toward this objective, the Centre seeks to engage academia, together with government, industry scientists, and responder communities, in collaborative partnerships from the early stages of any research initiative. The intent is not only to develop S&T tools, but to also contribute timely and relevant recommendations for public policy and public management consideration.

This Contract Report presents the findings of work conducted in support of the Capability Based Planning Pilot Project lead by the CSS Forensics Portfolio Manager. Specifically, the report identifies potential partnership opportunities with academic researchers that share a common interest and expertise pertaining to issues of intelligence and security; offers global findings relevant to development of a Canadian approach to Intelligence Fusion Centres; and, provides insights relevant to development of a national chemical, biological, radiological, nuclear and explosives resilience strategy.

## **Résumé**

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Le Centre des sciences pour la sécurité (CSS) est le résultat d'une entente de coopération entre Recherche et développement pour la défense Canada (RDDC) et Sécurité publique Canada. Le Centre constitue une des mesures prises par le gouvernement du Canada pour atteindre les objectifs nationaux en matière de sécurité publique, son but étant de réaliser en temps opportun des recherches et pertinentes en matière de science et de technologie (S et T) à l'appui d'une approche tous risques visant à contrer des catastrophes d'origine naturelle ou accidentelle ainsi que des actes terroristes et criminels. Pour atteindre cet objectif, le Centre entend mettre à contribution les universitaires, de même que les scientifiques du gouvernement et de l'industrie, ainsi que les communautés des intervenants, dans le cadre de partenariats de collaboration dès le début de tout projet de recherche. Le but visé est non seulement de développer des outils S et T, mais aussi de formuler des recommandations opportunes et pertinentes à l'intention des responsables de la politique officielle et de la gestion publique.

Le présent rapport de contrat fait état des conclusions du travail effectué à l'appui du Projet pilote de planification axée sur les capacités, qui est dirigé par le gestionnaire du portefeuille judiciaire du CSS. Plus particulièrement, le rapport détermine les possibilités de partenariat avec des chercheurs universitaires qui, comme nous, ont de l'intérêt et de l'expertise concernant les questions relatives au renseignement et à la sécurité. Il formule aussi des conclusions globales concernant l'élaboration d'une approche canadienne pour les centres de fusion des renseignements ainsi que des observations sur l'élaboration d'une stratégie nationale de résilience en cas d'incident liés aux dispositifs chimiques, biologiques, radiologique, nucléaires et explosifs.

## **Executive summary**

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### **Capability Based Planning Pilot Project: A report on academic and research partnership opportunities relevant to intelligence and security initiatives**

The Centre for Security Science Capability Based Planning Pilot Project represents a fundamental component in support of Canadian preparedness for response to terrorism and other hazards. The Pilot Project seeks not only to develop and validate a variety of S&T tools and Capability Based Planning processes in support of Government of Canada public safety and security objectives, it is also concerned with the question of how S&T research initiatives may inform public policy and public management decision-making. Identifying and facilitating partnership opportunities and innovative thinking through collaborative government/academic research initiatives is recognized to be a significant element toward successful achievement of the Centre's mandate and goals. This Contract Report presents the findings of work performed in support of these objectives.

To date, work on the Academic and Research Institute Database has identified opportunities for research partnerships with a number of individual academics having expertise of relevance to current CSS initiatives. Most notably, the database project has identified a potential research partnership with the University of Ottawa's National President's Dialogue which seeks to champion a more collaborative relationship between government and academia on public policy development in such areas as Foreign Affairs and security. While the database provides valuable insight into the current base of Canadian expertise pertaining to intelligence and security studies, the academic and research community is continually changing and growing; as such, the database represents a snapshot in time which will require periodic updates to remain accurate and current.

This Contract Report also offers global findings relevant to the CSS initiative to develop a Canadian approach to Intelligence Fusion Centres. In particular, attention is given to the functional relationship of Canadian Intelligence Fusion Centres within a Capability Based Planning security framework, as well as to structural and procedural challenges that will require further consideration. The findings indicate that Canadian Intelligence Fusion Centres represent a key enabler in support of a public safety and security decision-making and governance structure. However, there are several considerations that are critical to the efficacy and success of such an initiative. Specifically, attention should not only be given to the development and validation of tools and processes, but also to: the social and political context within which such a process is developed and effected; ensure that key stakeholder communities and public managers are actively engaged; and give consideration to how linkages can be forged between strategic planning processes, information-seeking, and performance measurement. Partnerships with Social Sciences

academic communities offer the necessary research expertise of relevance to the questions of how to align tools, processes and governance structures to the social, economic, political and legislative realities unique to Canada's public policy and public management context.

A third component of this Contract Report provides the global findings of research work conducted in support of the Capability Based Planning Pilot Project and its involvement in initiatives toward development of a national chemical, biological, radiological, nuclear and explosives resilience strategy. Review of the draft document *Canada's National Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Resilience Strategy, Version 7*, dated 6 March 2009, indicates that future iterations of the Strategy would benefit from closer alignment and consistency with other National-level policy documents in the area of public safety and security. The efficacy of the Strategy will also be affected by how well the policy's conceptual framework is able to integrate Capability Based Planning tools and processes toward meeting the practical realities of public safety and security associated with CBRNE events. Partnerships with social sciences academic research communities can offer critical insights of benefit to the development of such a multi-jurisdictional, multi-agency policy framework.

## Sommaire

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### **Projet pilote de planification axée sur les capacités : Rapport sur les possibilités de partenariat avec des universitaires et des chercheurs pour des projets relatifs au renseignement et à la sécurité**

Le Projet pilote de planification axée sur les capacités du Centre de sciences pour la sécurité constitue un élément fondamental à l'appui de la préparation du Canada à intervenir en cas d'acte terroriste ou d'autre situation de menace. Le projet pilote vise non seulement à développer et à valider divers outils S et T ainsi que des processus de planification axée sur les capacités à l'appui des objectifs du gouvernement du Canada en matière de sécurité publique, mais aussi il traite de la question visant à déterminer la façon dont les projets de recherche S et T pourraient documenter la prise de décision en politique officielle et en gestion publique. Il est reconnu que la détermination et la facilitation des possibilités de partenariat et de la pensée novatrice grâce des projets de recherche menées conjointement par le gouvernement et les universités constituent un élément important pour le succès du mandat et des objectifs du Centre. Le présent rapport de contrat porte sur les conclusions d'un travail réalisé à l'appui de ces objectifs.

À ce jour, l'étude de la base de données sur les établissements universitaires et de recherche a permis de déterminer des possibilités de partenariat avec un certain nombre d'universitaires ayant l'expertise requise pour des projets actuels du CSS. Plus particulièrement, l'étude de la base de données a permis de déterminer une possibilité de partenariat avec le Dialogue national des recteurs de l'Université d'Ottawa, qui vise à promouvoir des relations de collaboration plus étroites entre le gouvernement et les universités pour l'élaboration d'une politique officielle dans des domaines tels que les affaires étrangères et la sécurité. Bien que la base de données donne une bonne idée de l'expertise disponible au Canada en ce qui concerne les études en matière de renseignement et de sécurité, la communauté des chercheurs et des universitaires change et croît continuellement. La base de données constitue donc un instantané d'une situation à un moment donné, et elle doit être mise à jour périodiquement pour rester complète et utile.

Le rapport de contrat présente aussi des conclusions globales concernant l'élaboration d'une approche canadienne pour les centres de fusion des renseignements. Une attention particulière est accordée aux relations fonctionnelles des centres canadiens de fusion du renseignement dans un cadre de sécurité relatif à la planification axée sur les capacités, ainsi qu'aux problèmes structureux et procéduraux nécessitant un examen plus approfondi. Les conclusions indiquent que les centres canadiens de fusion du renseignement constituent un atout clé à l'appui de la prise de décision et de la structure de gouvernance en matière de sécurité publique. Cependant, il y a de nombreux facteurs qui sont essentiels pour l'efficacité et le succès d'une telle initiative. Ainsi, il

faut non seulement accorder l'attention au développement et à la validation des outils et des processus, mais aussi : prêter attention au contexte social et politique dans lequel ce processus est développé et mis en œuvre; veiller à ce que les communautés intervenantes clés et les gestionnaires publiques y participent activement; examiner la façon dont on peut établir des liens entre les processus de planification stratégique, la collecte de renseignements et la mesure du rendement. Les partenariats avec des universitaires œuvrant dans le domaine des sciences sociales offrent l'expertise de recherche requise pour les questions liées à l'harmonisation des outils, des processus et des structures de gouvernance avec les réalités sociales, économiques, politiques et législatives propres au contexte canadien de politique officielle et de gestion publique.

Le troisième élément du rapport de contrat comporte des conclusions globales d'un travail de recherche effectué à l'appui du Projet pilote de planification axée sur les capacités et sur sa contribution aux initiatives visant l'élaboration d'une stratégie nationale de résilience en cas d'incidents liés aux dispositifs chimiques, biologiques, radiologiques, nucléaires et explosifs. L'examen de l'ébauche de la *Stratégie canadienne de résilience en cas d'incidents liés aux dispositifs chimiques, biologiques, radiologiques, nucléaires et explosifs (CBRNE)* [septième version] datée du 6 mars 2009, indique que les nouvelles versions de la Stratégie gagneraient à avoir plus de concordance et de cohérence avec les autres documents de politique portant sur la sécurité publique. L'efficacité de la Stratégie reposera aussi sur la façon dont le cadre conceptuel de la politique pourra intégrer des outils et processus de planification axée sur les capacités en vue de s'adapter aux réalités pratiques de sécurité publique liées aux incidents CBRNE. Les partenariats avec les chercheurs universitaires en sciences sociales peuvent aussi donner un éclairage essentiel sur les avantages d'élaborer ce cadre stratégique plurigouvernemental et pluriorganisationnel.



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# **1 Introduction**

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## **1.1 Background**

Defence Research and Development Canada (DRDC), Centre for Security Science (CSS) is engaged in several initiatives in support of Canadian preparedness and response to terrorism and other hazards. The Capability Based Planning Pilot Project, lead by the CSS Forensics Portfolio Manager, is one such initiative which seeks to develop and validate a variety of Science and Technology (S&T) tools as part of an iterative process toward an integrated and sustainable all-hazard risk assessment and management process. A main deliverable from the Pilot Project will be the development and validation of a Canadian National Incident Management System (CNIMS). Other aspects of the Pilot Project will examine how concepts such as Canadian Intelligence Fusion Centres and risk assessment results may be most effectively used to shape capability and capacity decision-making across the emergency response spectrum, responder communities, and for policy and program development at non-federal levels. The Pilot Project also provides support to Public Safety Canada's multi-jurisdictional collaborative initiative toward development of a national chemical, biological, radiological, nuclear and explosives resilience strategy.

## **1.2 Aim**

The aim of this Contract Report is to document the global findings of research work conducted in support of the Capability Based Planning Pilot Project. The report addresses three specific areas of focus: Development of an initial database of Canadian academic research institutes, academics, and academic courses, specific to intelligence and security studies of relevance to the Centres' mandate and objectives; offers global findings relevant to development of a Canadian approach to Intelligence Fusion Centres; and, provides insights relevant to development of a national chemical, biological, radiological, nuclear and explosives resilience strategy.

## **2 Academic and Research Institute Database**

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This section covers the format of the electronic database of Canadian academic and research institutes that have been identified as sharing a common interest and expertise in intelligence and security studies of relevance to the Centres' mandate and objectives. In a limited number of instances, Centres of Expertise, Academics and Courses of more general relevance to CSS Capability Based Planning Project initiatives are also identified; these have been included in the Database with appropriate annotations.

The information contained in the Database is the result of a detailed review that was conducted across ninety-four Canadian universities and university colleges, including their associated academic research centres and institutes. The information reflected in the Database is drawn from the official public website of the respective academic and research institutes. A review of Canadian community college programs was not within the scope of this Contract Report.

### **2.1 Format**

The data contained in the Canadian Academic and Research Institute Database is found in three separate Excel Tables, (an electronic copy of the Database accompanies this report):

1. Centres of Expertise – Provides details pertaining to academic and research institutes with an expertise in intelligence, security and defence related studies identified for consideration in support of the Capability Based Planning Pilot Project. The data contained in this table is provided in Annex A.
2. Centres of Expertise Academics – Identifies and provides details pertaining to the academics across Canada that have developed an expertise relating to, or relevant to CSS intelligence and security related initiatives. The data contained in this table is provided in Annex B.
3. Academic Courses – Identifies and provides details of academic courses in the area of intelligence and security studies of specific relevance to CSS initiatives. The data contained in this table is provided in Annex C.

## **2.2 Description of Tables**

The Academic and Research Institute Database utilizes a generic DRDC CSS Database template and format. Use of the common template facilitates the merging of information between complementary data banks, when appropriate to do so, and allows for expansion and/or updates of the database over time. The format of Table 1 includes the following information categories: Academic Institute; Research Objectives; Relevant Research Programs; Primary Point(s) of Contact; Contact Information; and, Website. Table 2 contains information categories pertaining to: Academic Institute and Department; Academic Researcher Contact Information; Relevant Area(s) of Specialty. Table 3 contains the information categories: Academic Institute and Department; and, Relevant Courses.

### **3 Summary of Database**

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The Database has been developed to identify Canadian academic and research institutes that share a common interest and expertise in intelligence and security matters. The immediate objective is to facilitate future research partnerships and engagement of academic resources in direct support of the Centre's Capability Based Planning Pilot Project, in particular the initiative to develop a Canadian approach to Intelligence Fusion Centres.

To date, the Database has assisted with the identification of several Academic Centres of Excellence with a depth of expertise and research activities that complement DRDC CSS program initiatives. Most notably, the database project has identified a potential research partnership with the University of Ottawa's National President's Dialogue which seeks to champion a more collaborative relationship between government and academia on public policy development in such areas as Foreign Affairs and security.

#### **3.1 Global Findings**

The review of Canadian universities and university colleges identified twenty-six academic research centres and institutes that present potential research partnership opportunities of relevance to the CSS mandate and objectives. Twelve of these Centres of Expertise are affiliated with and receive funding through the Department of National Defence (DND) Security and Defence Forum, which is mandated to develop a domestic competence and national interest in defence issues of current and future relevance to Canadian Security. Seven non-DND funded Centres of Expertise are identified as having particular relevance for CSS intelligence and security related initiatives: The Canadian Centre of Intelligence and Security Studies – Carleton University; Human Security Report Project – Simon Fraser University; Centre International de Criminology Comparée - Université de Montréal; La Chaire de recherche du Canada sur les Conflits Identitaires et le Terrorisme - Université Laval; The International Centre for Criminal Law Reform and Criminal Justice Policy - University of British Columbia; The Trudeau Centre for Peace and Conflict Studies – University of Toronto; and, The Jack and Mae Nathanson Centre on Transnational Human Rights, Crime and Security – York University.

In addition, forty-three institutions offer one or more academic experts specific to intelligence and security, and/or studies of relevance to the CSS mandate and objectives. Eighteen primary academic institutions were identified as centres of expertise with respect to academic research capacity: University of Ottawa (28); Royal Military College of Canada (19); Carleton University (19); York University (17); Dalhousie University (17); Queen's University (14); Université Laval (12); University of Alberta (10); University of Calgary (9); Simon Fraser University (9); Wilfred Laurier University (9); Université de Montréal (8); McGill University (7); Concordia University (7); University

of British Columbia (7); University of Toronto (7); University of Manitoba (6); and, University of Windsor (6). The remaining twenty-five institutions respectively offer five or fewer academic experts in the desired areas of study.

Finally, the review conducted of relevant courses offered across Canadian universities and university colleges, found that forty-two institutions offer one or more courses specific to intelligence and security, and/or studies of relevance to the CSS mandate and objectives. Of those, five academic institutions are identified as primary centres of expertise with respect to course capacity: University of Ottawa (55); Royal Military College of Canada (32); Queen's University (14); Carleton University (13); and, Université de Montréal (7). The remaining thirty-seven institutions respectively offer five or fewer courses in the desired areas of study.

Notwithstanding the opportunities that concentrations of academic research capability and capacity offer, a word of caution is in order. Valuable expertise can also be found resident in many of the smaller institutions as well, and as such these should not be ignored when considering which academics, and/or which institutions, to engage in support of CSS objectives and initiatives. The Database presents the means by which to identify individual academics and/or institutions best suited to meet particular research requirements in the area of intelligence, security and related areas of Emergency Management.

While an assessment of capability and capacity gaps associated with current intelligence, security and emergency management studies was not within the scope of this Contract Report, it is worthwhile to note that while the US has well over 100 different Colleges and Universities that focus on Homeland Security and Emergency Management (McCreight 2009, 1; Blanchard 2006), Canada has only four at the university level, and these primarily focus on issues relating to natural and accidental events.<sup>1</sup> If universities are to address capability and capacity requirements of relevance to an all-hazards approach to public safety and security, educational programs will need to incorporate curriculum to also address the imperatives associated with terrorism. Further research in this area is recommended.<sup>2</sup>

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<sup>1</sup> University programs offered at the undergraduate and Master's level include: Applied Disaster and Emergency Studies – Brandon University; Program in Disaster and Emergency Management – York University; Disaster Recovery Studies – Canadian Mennonite University; and, Conflict and Disaster Management Program – Royal Roads University.

<sup>2</sup> Future research should seek to identify and assess capability and capacity gaps in higher education relevant to public safety and security, including questions relating to: educational standards; core curriculum; program availability; the balance between education, training, and skills development; and, finding consensus across academic disciplines on how “security” should be defined.



## **4 Conclusion**

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The Academic and Research Institute Database has been developed as a source of information to facilitate engagement of academic institutes, individual academic researchers, and/or those with specialized expertise, in the area of intelligence and security. This community of researchers is continually growing; as such the database represents a work in progress that will require periodic updates to remain accurate and current.

## **5 Canadian Intelligence Fusion Centres – Considerations**

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This section delineates the global findings of research work conducted in support of the Capability Based Planning Pilot Project specific to the CSS initiative to develop a Canadian approach to Intelligence Fusion Centres. The research work found in this Contract Report is independent of work currently being conducted by the CSS Project Management Lead for Canadian Intelligence Fusion Centres. The scope of work associated with this Contract Report gives consideration to the functional relationship of Canadian Intelligence Fusion Centres within a Capability Based Planning security framework. As such, this section provides an overview of the Capability Based Planning security framework concept, its essential components, the relevance of CSS initiatives generally in support of such a framework, and in particular the importance of Intelligence Fusion Centres within this construct. This section will also identify structural and procedural challenges which require further consideration toward development and implementation of Canadian Intelligence Fusion Centres within a Capability Based Planning security framework.

Information and key issues identified by this study result from the review and assessment of: Capability Based Planning documentation; a number of DRDC research initiatives conducted during the period from 2003 to 2009, including work performed in support of the DRDC CSS First Responder Workshop (Calgary) 31 October to 01 November 2007; as well as, relevant policies, programs, legislation, mandated authorities, selected publications, reports and procedural manuals.

### **5.1 The Capability Based Planning Security Framework**

Capability Based Planning has been a recognized process methodology for defence and security strategic level planning and management since 2000, when it was adopted by the Department of National Defence/Canadian Forces for the purpose of generating an end-to-end force development framework. More recently, since 2007, DRDC CSS, in collaboration with Public Safety Canada, has taken a leading role in shaping, developing and implementing a Capability Based Planning framework that is also relevant to meeting the broader public safety and security objectives of the Government of Canada. Specifically, what Capability Based Planning offers is a strategically coherent political decision-making and governance framework that provides a mission analysis framework, modern management principles, and analytical practices that optimize outputs for mitigating national security risk. Particularly valuable is how the framework facilitates both the opportunity to recognize and shape top-down imperatives with bottom-up realities in a coherent manner; allows multi-agencies and multi-tiered stakeholder communities to identify capabilities, capacities, and a means of aligning resources with common objectives in a collaborative and coordinated manner; and, provides the context

within which the necessary networks may be developed that recognize, promote and integrate a multi-disciplinary approach to meet public safety and security challenges.

The essential components of Capability Based Planning include: appropriate high level policy guidance; an assessment of the threat; a set of scenarios that reflect policy and the threat environment; a capability taxonomy to guide capability development; a set of actionable capability goals; an inventory of current and planned capabilities; a rigorous and justifiable capability gap assessment that leads to research and development priorities; a capability engineering process to develop solutions to priority gaps; and, a balance of investment analysis to determine funded capability solutions. The primary thrust of CSS initiatives in recent years has been toward the development and validation of tools and processes associated with these foundational components that are necessary for a fully functioning Capability Based Planning security framework. The work performed to date has seen considerable progress toward establishment of such enablers as: an integrated and sustainable all-hazard risk assessment and management process; a Canadian National Incident Management System; a Capability Management & Engineering process; a set of scenarios with sufficient detail and flexibility to guide capability development; and, a capability taxonomy, to name but a few. In addition, initiatives undertaken by the Capability Based Planning Pilot Project have also contributed to a number of key Capability Based Planning activity areas that support a collaborative and coordinated decision-making and governance structure. Of particular note are the benefits associated with the identification and development of academic partnership opportunities that contribute to building capability and capacity in relevant Canadian science, social science, and S&T communities across jurisdictions; the engagement of first responders in the identification and development of initiatives toward relevant technologies and processes; and networking efforts that establish and leverage the expertise of non-traditional partners across jurisdictions.

Canada's efforts toward a Capability Based Planning security framework have also benefited from the insights and lessons learned obtained from similar initiatives undertaken in countries, such as the United States, Australia, New Zealand, and the United Kingdom. However, application of such information within the Canadian context nevertheless poses its own set of challenges. While the fundamental principles<sup>3</sup> of Capability Based Planning remain the same across domains, knowledge transfer from one political and legislative venue to another always requires some measure of adaptation.<sup>4</sup>

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<sup>3</sup> The fundamental principles of Capability Based Planning are to: assure preparedness, flexibility and adaptability by considering and developing a broad range of security-related missions and scenarios; facilitate the promotion of joint perspectives, objectives, planning and programming activities across multi-jurisdictions and agencies; use of risk as a strategic measure of effectiveness; and, to promote a system-centric focus rather than a platform-centric one.

<sup>4</sup> Academic literature in the research area of policy transfer offers useful insights for consideration; authors of particular note are included in the Bibliography.

Consequently, initiatives that seek to incorporate and/or build on complementary bodies of work found in other venues must ensure that the Capability Based Planning tools and processes are appropriately aligned with the unique strategic, operational and tactical requirements of the particular nation for which it is intended to be used. It is in this area that partnerships with Social Sciences academic communities offer significant value, given that they bring research expertise of relevance to the question of how to align tools, processes and governance structures to address the social, economic, political and legislative realities that are unique to Canada.

## 5.2 Canadian Intelligence Fusion Centres<sup>5</sup>

Intelligence Fusion Centres within a Capability Based Planning security framework provide an essential component toward mapping the Canadian law enforcement, public safety, and security problem space. Not only do they provide the information necessary to understand and address the broad and complex reality that constitutes emergency management, but such Centres also offer a number of advantages toward establishing coherence and cohesion across government jurisdictions in how information and intelligence is gathered, shared, and applied. Specifically, such Centres provide both a mechanism and a process with which to identify, prevent, monitor, and respond to the broad spectrum of natural and accidental disasters, and terrorist and criminal acts. Within a Capability Based Planning framework, Intelligence Fusion Centres facilitate a risk-based, information-driven consequence management system that enables resource prioritization and decision-making, operational effectiveness, and comprehensive data oversight. There are however, a number of key considerations that are critical to the efficacy and success of such a construct: the social and political context within which such a process is developed and effected; whether key stakeholder communities and public managers are actively engaged; and whether consideration is given to how linkages can be forged between strategic planning processes, information-seeking, and performance measurement (Simonds 2009).<sup>6</sup>

The successful development and implementation of Intelligence Fusion Centres requires strong leadership at all levels of government that is committed and supportive of an open and collaborative approach across all the relevant stakeholder communities, including

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<sup>5</sup> How Canadian Intelligence Fusion Centres will ultimately be defined remains an open question. For the purposes of this Contract Report, Intelligence Fusion Centres are understood to be inclusive of information gathered across the law enforcement, public safety, and security spectrum; this is consistent with both the all-hazards approach to public safety and security in Canada, as well as with the model developed by the U.S. Department of Justice, the U.S. Department of Justice's Global Justice Information Sharing Initiative, and the U.S. Department of Homeland Security.

<sup>6</sup> Academic literature that expands on these themes is available in the research field of performance management and accountability. Authors of particular relevance have been included in the Bibliography.

those resident in the private sector. Lessons learned from the American experience with Intelligence Fusion Centres indicate that an inclusive approach is an essential component to ensure the efficacy of the process.<sup>7</sup> In this regard, those who contribute to the Canadian process should include: experts from both the academic and professional communities; law enforcement practitioners representing federal, provincial/territorial, and municipal jurisdictional levels; public safety, and private sector representatives.

To ensure that Canadian Intelligence Fusion Centres are able to provide the essential degree of strategic perspective and leadership, the development and implementation of such Centres will require that the mandate, purpose, role, and governance structure of each functional level (tactical, operational and strategic), is clearly defined in relation to its role within a Capability Based Planning security framework. As such, separate from the day-to-day intelligence and security function that Intelligence Fusion Centres contribute to, careful thought must be given to how the information gathered by these Centres will be applied within an analytical framework that will facilitate strategically coherent mid and long range political decision-making in support of Government of Canada national public safety and security objectives. In this regard, publications by the U.S. Department of Justice and the U.S. Department of Homeland Security, as well as insights gained from the American experience with Intelligence Fusion Centres represent a useful start point for CSS initiatives; however a word of caution is nevertheless warranted. In the area of public safety and security, sustainable capability development is faced with a number of systemic challenges related to financial, jurisdictional, and legislative constraints that are unique to the Canadian political context; it will be important to take these into consideration when developing the Canadian Intelligence Fusion Centre concept.

When establishing a governance structure for Canadian Intelligence Fusion Centres, a number of questions will require attention; of particular note are those pertaining to public policies and legislation that will govern and guide the mandate, authority, responsibilities, and accountabilities of such Centres.<sup>8</sup> For instance:

- How will the Anti-terrorism Act Bill C-36, and the Canadian Security Intelligence Service Act, influence the structure and activities of such Centres?
- How will Canadian privacy laws, access to information laws, and associated intelligence and security legislation influence the mechanics and the interface

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<sup>7</sup> Global findings are captured in the joint publication of the U.S. Department of Justice, the U.S. Department of Justice's Global Justice Information Sharing Initiative, and the U.S. Department of Homeland Security, titled *Fusion Center Guidelines Developing and Sharing Information and Intelligence in a New Era*, 2008.

<sup>8</sup> The list of questions identified is not exhaustive; rather they are intended to provide some insight into the scope of governance issues that should be considered.

between federal databases, and provincial/territorial, municipal, and private sector databases?

- Under what legislative authority and policy guidelines will Intelligence Fusion Centre information be gathered, analyzed, shared, used, or disclosed?
- To what jurisdiction and agency will Intelligence Fusion Centres, and any subordinate Working Groups, be accountable?
- What accountability and oversight/compliance framework will be used for the appropriate safe guarding of shared information with agencies or shareholders that have not traditionally been included in information and intelligence gathering processes?
- How will the reporting hierarchy be structured to ensure an appropriate flow of information and guidance that is responsive to decision-making requirements at the tactical, operational and strategic level?
- How will the necessary oversight of the capability development process across decision-making levels be effected?

Canada's public policy, public management, and governance structures are significantly different from those of the US and it will be necessary to consider how the multi-jurisdictional nature of Intelligence Fusion Centres can best be aligned with the political realities of Canada's Federal Constitutional and fiscal framework. While these are particularly sensitive issues, the social sciences academic community is well suited for engagement on these types of questions. They offer the expertise necessary to review and map relevant Intelligence Fusion Centre concepts and components in relation to Canadian public policy, processes, and standards, and can also provide critical insights relevant to accountability and consequence management.

In a similar vein, the social sciences are also well suited to consider capacity issues associated with current political, fiscal and human resources constraints. Capacity issues as they relate to a sustainable governance structure for Intelligence Fusion Centres should not be underestimated within the Canadian context. Examination of such issues must critically assess the number, location, level, and scope of responsibility of Intelligence Fusion Centres. The knowledge resident in the social sciences can contribute to an understanding of where opportunities exist within the Canadian context to streamline the American Intelligence Fusion Centre concept, ensure that unnecessary redundancies are avoided, and that fiscal and human resource capacity realities are addressed. In this regard, work toward an Intelligence Fusion Centre would benefit from an option analysis that considers the feasibility and benefits associated with co-location of Intelligence Fusion Centres with currently existing Operations Centres, or possibly with Regional Joint Task Forces (RJTF). Canadian Intelligence Fusion Centres must be seen by senior

decision-makers as credible, not only in terms of effectiveness and responsiveness, but also from a business-case perspective. As such, wherever possible, initiatives toward the development of Canadian Intelligence Fusion Centres should seek to build upon and incorporate existing procedures, standards, and processes so as to avoid redundancies, as well as overly bureaucratic or resource intensive processes.

For Canadian Intelligence Fusion Centres to achieve their mandate in relation to Capability Based Planning it will be important to establish which stakeholders and subject matter experts will be included as part of the consultation process and what measure of decision-making authority each will have, particularly as it relates to processes that determine:

- key indicators for what information is gathered;
- the criteria by which information will be analyzed and applied;
- the performance measurement criteria used to track progress in addressing identified capability gaps;
- the process by which resource implications are identified, coordinated, deconflicted, and/or leveraged;
- how capability analysis, conclusions and prioritization proposals will be captured for presentation to senior-level decision-makers; and,
- how and who will provide advice to senior-level decision-makers on the potential impact of intelligence and security related initiatives across capability areas and jurisdictions.

Notwithstanding the challenges, within a Capability Based Planning security framework Intelligence Fusion Centres can play an essential role in the process to determine the health of targeted capability areas, define existing capability deficiencies and trends, indicate developing deficiencies, and establish Horizon targets for mitigating deficiencies.<sup>9</sup> In this role, Intelligence Fusion Centres can contribute to sustainable strategic, operational and tactical level decision-making that enables senior-leadership to establish capability priorities based on:

- The relative importance of the requirement;

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<sup>9</sup> Capability Based Planning with Horizon targets enables planning, development, and implementation that align capability requirements with fiscal realities; for example, Horizon 1 (1 to 5 years), Horizon 2 (5 to 15 years), and Horizon 3 (10 to 30 years).

- The applicability of the proposed solution across stakeholder communities and/or jurisdictions;
- The technical feasibility of the proposed solution;
- The level of risk/impact of the proposed solution;
- The level of interoperability to be achieved across stakeholder communities and/or jurisdictions; and,
- The interdependencies across stakeholder communities and/or jurisdictions.

CSS initiatives toward development and implementation of a fully functioning Capability Based Planning security framework are of direct relevance to meeting Government of Canada public safety and security objectives. Canadian Intelligence Fusion Centres, in combination with other foundational components, such as an integrated and sustainable all-hazard risk assessment and management process, and CNIMS, are key enablers that address not only the imperatives and responsibilities delineated in *Securing an Open Society: Canada's National Security Policy* (2004) and the *Emergency Management Act* (2007), but also the gaps and priorities identified by the Auditor General of Canada (2005; 2009), and the Standing Senate Committee on National Security and Defence (2004; 2008). Specifically, the S&T tools and processes currently under development, when implemented and applied within a Capability Based Planning framework, will provide the necessary decision-making and governance structure for government officials to execute their responsibilities to establish, monitor, and subsequently assess relevant policies, programs and emergency management plans. In addition, the collaboration and coordination inherent to processes such as Canadian Intelligence Fusion Centres and Capability Based Planning represent a vital component toward promoting and achieving a common approach to emergency management. Such initiatives contribute not only to the development of a common understanding of capability and capacity requirements across jurisdictions, first responder communities, and non-traditional partners, but also facilitate constructive dialogue to address challenges associated with standards, education and training, and protection of critical infrastructure.



## 6 Conclusion

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Since 2007, DRDC CSS, in collaboration with Public Safety Canada, has taken a leading role in shaping, developing and implementing a Capability Based Planning framework in support of meeting the broader public safety and security objectives of the Government of Canada. Capability Based Planning offers a strategically coherent political decision-making and governance framework that provides a mission analysis framework, modern management principles, and analytical practices that optimize outputs for mitigating national security risk. Development of Canadian Intelligence Fusion Centres represents one of several foundational components toward a fully functioning Capability Based Planning security framework. Intelligence Fusion Centres play a pivotal role in the Capability Based Planning process by providing information seminal to the analysis process of the security environment. Specifically, Intelligence Fusion Centres facilitate the desired national perspective on matters of law enforcement, public safety and security through the collaborative networks and synergies that are established as part of the information gathering and analysis process. Assessments from this process are integral for the analysis, identification, and prioritization of capability requirements. The process informs decision-makers on capability performance in relation to strategic goals, which consequently contributes to the establishment of priorities for more effective risk management and response, capability prioritization, and resource allocation. In addition, assessments from this process contribute to the identification of research and development requirements for more effective and accelerated delivery of technology to first responder communities and other operational authorities.

Considerations that are critical to the efficacy and success of Intelligence Fusion Centres within a fully functioning Capability Based Planning security framework include not only the development and validation of tools and processes, but also: the social and political context within which such a process is developed and effected; whether key stakeholder communities and public managers are actively engaged; and whether consideration is given to how linkages can be forged between strategic planning processes, information-seeking, and performance measurement. The social sciences academic community offers the expertise and critical insight relevant for an understanding of how to most effectively develop, implement, and sustain, Intelligence Fusion Centres and a Capability Based Planning security framework within the Canadian public policy and public management context.

## **7 Developing Canada’s National Chemical, Biological, Radiological, Nuclear and Explosives Resilience Strategy – Considerations**

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This section provides the global findings of research work conducted in support of the Capability Based Planning Pilot Project and its involvement in initiatives toward development of a national chemical, biological, radiological, nuclear and explosives resilience strategy.

Information and key insights identified by this Contract Report result from the review and assessment of selected academic and professional practitioner publications, government reports, policy documents, and procedural manuals, including a review of the draft document *Canada’s National Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Resilience Strategy*, Version 7, dated 6 March 2009. The format and content of this section is structured so as to assist the development, alignment and consistency of future iterations of the draft strategy document with similar National-level policy documents in the area of public safety and security.

### **7.1 Introduction and Background**

The well-being, public safety and security of both individuals and communities can be profoundly affected by extreme events, whether they are the result of natural hazards, accidental disasters, or intentional acts. A community can quickly become overwhelmed and other jurisdictions impacted, when roles, responsibilities, and resources (human, physical, and financial) have not been considered within the context of a comprehensive emergency preparedness and response system. Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) events, particularly those resulting from intentional acts such as terrorism, pose unique challenges for emergency preparedness, incident management, and the development and sustainment of appropriate community-level capabilities and capacity. *Canada’s National CBRNE Resilience Strategy* (“the Strategy”), once finalized, will provide the conceptual framework toward meeting the practical realities of public safety and security associated with CBRNE events. Specifically, the Strategy is intended to establish the principles and elements of a comprehensive integrated decision-making framework that will provide a context for leadership and coordination through Federal/Provincial/Territorial emergency management systems relevant to CBRNE events.

Implementing a successful strategy for CBRNE resilience requires the combined and coordinated efforts of many organizations across the various levels of government, the private sector, and international partners.<sup>10</sup> While Public Safety and Emergency

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<sup>10</sup> Primary strategic coordination and governing bodies responsible to guide and implement the CBRNE Strategy of the Government of Canada are detailed in *The Chemical, Biological, Radiological and*

Preparedness Canada (PSEPC) has the lead responsibility to coordinate and implement the Government of Canada's CBRNE Strategy and all activities related to the Federal jurisdiction, it is the Standing Forum of Senior Officials Responsible for Emergency Management (SOREM), and the SOREM CBRNE Working Group, which is mandated to provide the necessary guidance, advice and recommendations in support of a National framework for CBRNE resilience across Federal, Provincial and Territorial jurisdictions. Within this context, the articulation of *Canada's National CBRNE Resilience Strategy* will build upon the commitment and collaborative efforts of Federal/Provincial/Territorial governments since 2004 toward a harmonized emergency management system. Consistent with the strategic policy context established by *An Emergency Management Framework for Canada*, development and implementation of a document such as *Canada's National CBRNE Resilience Strategy* will both recognize and respect provincial and territorial jurisdiction, as well as existing laws and plans specific to each government's jurisdictional requirements. The Strategy, once completed, will reflect input from: SOREM and its related Working Group(s); Federal, Provincial and Territorial government officials; first responders; national association representatives; and, community stakeholders. All partners in this process have a mandate and key role in the promotion and delivery of coordinated mitigation, preparation, response and recovery activities in support of Canadian resiliency to extreme and/or complex CBRNE events.

## **7.2 Foundational Principles and Elements**

Comprehensive emergency management of CBRNE events entails a balanced, proactive, and integrated all-hazards approach that considers all four phases of emergency management including: mitigation/prevention; preparedness; response and recovery. Development of *Canada's National CBRNE Resilience Strategy* is predicated on the principles and common elements of emergency management jointly developed by the responsible Federal/Provincial/Territorial Ministers in *An Emergency Management Framework for Canada*. Specifically, these principles as applied to the Strategy would include:

- A responsibility and accountability framework that reflects the shared and multi-jurisdictional nature of emergency management in Canada;
- A proactive, integrated and comprehensive approach to CBRNE events;
- An emergency management system that is based on inclusive and collaborative partnerships;

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*Nuclear Strategy of the Government of Canada, 2005; Canada's National Disaster Mitigation Strategy, 2008; and the, Standing Forum of Senior Officials Responsible for Emergency Management Terms of Reference, 2005.*

- Coherency of action based on collaboration, shared expectations, and clearly defined roles, responsibilities, authorities, capabilities and capacities as they relate to CBRNE;
- An all-hazards, risk-based approach that will inform decision-making for sustainable capability and capacity development consistent with multi-jurisdictional CBRNE needs and objectives;
- A focus on building sustainable resilience to CBRNE events within and across communities, governments, and social systems;
- A clear CBRNE-related communications strategy, structure and process relevant to each of the four emergency management phases; and,
- A commitment to continuous improvement of *Canada's National CBRNE Resilience Strategy*, its structures and processes through tangible incremental and/or transformational change that is integral to CBRNE-related emergency management functions and practices.

Development, implementation and continuous improvement to *Canada's National CBRNE Resilience Strategy* is recognized as a long-term commitment toward sustainable resilience of Canadian communities to extreme and/or complex CBRNE events. Development of the Strategy is the initial step toward addressing the gaps, challenges and opportunities related to maintaining an acceptable level of CBRNE resilience as identified by such collaborative forums as the *Roundtable on Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Terrorism: Progress, Challenges & Priorities for Action*, held in 2007, as well as the Federal/Provincial/Territorial sub-working group on CBRNE which convened early in 2008.

### **7.3 Assumptions**

In order for mandated CBRNE partners and stakeholders to deliver coordinated mitigation, preparation, response and recovery activities, a common set of principles and elements is essential for the effective and efficient use of available resources. Similarly, roles, responsibilities, training, and resources (human, physical and financial) must be clearly defined and developed such that multi-jurisdictional requirements are acknowledged and respected within a coherent, coordinated emergency management system.

A successful CBRNE emergency management system must be capable to plan for and address immediate, medium and long-term consequences that are associated with extreme and/or complex events. Consideration of the four main phases of emergency management, namely, mitigation, preparedness, response and recovery are understood as

fundamental for achievement of a comprehensive system and the attainment of multi-jurisdictional strategic objectives within an ongoing quality improvement cycle.

Recognizing that no single agency across the various levels of government, the private sector, and international partners possess the authority and/or expertise to act unilaterally when faced with extreme and/or complex CBRNE events, it is intended that this Strategy will provide the pan-Canadian and trans-jurisdictional framework within which to consider physical, population, social and organizational imperatives. As such, for the principles, elements and expected outcomes to be applied effectively across jurisdictions, the scope of the ideas and activities of the Strategy must be scalable to meet the reality of diverse needs, requirements and risk tolerance for CBRNE resilience.

#### **7.4 Strategic Objective**

In order to meet the desired end-state of a comprehensive emergency management system of Canadian resiliency to extreme and/or complex CBRNE events, it is intended that *Canada's National CBRNE Resilience Strategy* will represent the conceptual framework to provide a context for leadership and coordination through Federal/Provincial/Territorial emergency management systems. Core elements in support of such an objective include:

- Identify structures, mechanisms and processes that promote and facilitate coordinated multi-jurisdictional multi-agency leadership, and visionary policy and program development relevant to CBRNE emergency management;
- Work in collaboration with relevant specialist communities of practice to promote the development and implementation of consistent pan-Canadian all-hazard risk assessment methodologies;
- Work in collaboration with relevant subject matter experts and multi-jurisdictional representatives to promote the development and implementation of pan-Canadian Capabilities Based Planning structures, mechanisms and processes that facilitate decision-making for sustainable CBRNE capabilities and capacity, giving consideration to the principles of integrated concepts of operation and functional interoperability;
- Assess and provide advice, support, guidance and recommendations relative to sustainable interoperable CBRNE resource requirements (human, physical, financial and training) as identified by a Capabilities Based Planning process; and,
- Identify and develop CBRNE-related information, knowledge management and communications management structures, mechanisms and processes relevant to each of the four emergency management phases.

## 7.5 Implementation

Successful development and implementation of a pan-Canadian and trans-jurisdictional national CBRNE strategy is dependent upon strong leadership and coordination in the following areas<sup>11</sup>:

- The development and implementation of a comprehensive pan-Canadian framework that supports consistent and inter-operable approaches to meet the challenges of extreme and/or complex CBRNE events. Inter-operable approaches include consideration of multi-agency coordination challenges related to health, social, physical and economic consequences, as well as requirements that result from incidents relating to criminal activities;
- Development of knowledge management processes that incorporate best practices, timely and accurate information, and subject-matter expertise as an integral component of the framework. Key enablers include the ongoing collaboration with the Science and Technology community in support of consistent all-hazards risk assessment methodologies, Capability Based Planning processes, a Canadian National Incident Management System, and the potential offered by Intelligence Fusion Centres, and partnerships with relevant academic research communities toward sustainable public safety and security strategic planning processes;
- Development of standardized frameworks, protocols and guidelines that foster a national CBRNE resilience strategy while still recognizing jurisdictional differences and priorities; and,
- Identification and enhancement of existing mechanisms and processes that facilitate relevant resourcing, accountability and networking.

Development of *Canada's National CBRNE Resilience Strategy* requires not only careful consideration and delineation of the scope and flexibility of the conceptual framework across jurisdictions, but will also need to facilitate and promote a common understanding and approach in support of a comprehensive emergency management system for Canadian resiliency to extreme intentional and unintentional CBRNE events within the broader all-hazards risk assessment and management context. CSS initiatives offer important tools of direct relevance to the practical considerations of how *Canada's National CBRNE Resilience Strategy* can effectively meet its strategic, operational and tactical level objectives. As such, close collaboration and coordination across initiatives is essential to ensure appropriate alignment of tools, processes, and policies.

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<sup>11</sup> These recommendations are consistent with findings and recommendations from the October 2001 Special Task Force on Emergency Preparedness and Response, the 2003 Naylor Report on SARS, and the 2004 National Framework for Health Emergency Management Guideline for Program Development.

## 8 Conclusion

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Chemical, biological, radiological, nuclear and explosives events, particularly those resulting from intentional acts such as terrorism, pose unique challenges for emergency preparedness, incident management, and the development and sustainment of appropriate community-level capabilities and capacity. A successful emergency management system must be capable to plan for and address immediate, medium and long-term consequences that are associated with such extreme and/or complex events. Development of a national CBRNE resilience strategy is intended to provide the necessary conceptual framework toward meeting the practical realities of public safety and security associated with CBRNE events. Preliminary work on the Strategy represents an important step toward defining roles and responsibilities in support of a comprehensive, risk-driven, multi-jurisdictional decision-making emergency management framework. However, review of the draft document *Canada's National Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Resilience Strategy, Version 7*, dated 6 March 2009, indicates that future iterations of the Strategy would benefit from closer alignment and consistency with National-level policy documents in the area of public safety and security. Also of importance will be an alignment of tools and processes with the policy. CSS initiatives, such as the Capability Based Planning Pilot Project, CNIMS, initiatives for the development of Canadian Intelligence Fusion Centres, and efforts to establish partnerships with relevant academic research communities toward sustainable public safety and security strategic planning processes, are all directly relevant to the efficacy of the Strategy.

## **Annexes List of Annexes<sup>12</sup>**

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Annex A Centres of Expertise

Annex B Centres of Expertise Academics

Annex C Academic Courses

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<sup>12</sup> Annexes found in attached PDFs



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## **List of symbols/abbreviations/acronyms/initialisms**

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CBRNE	Chemical, Biological, Radiological, Nuclear and Explosives
CNIMS	Canadian National Incident Management System
CSS	Centre for Security Science
DRDC	Defence Research and Development Canada
DND	Department of National Defence
PSEPC	Public Safety and Emergency Preparedness Canada
RJTF	Regional Joint Task Force
SOREM	Senior Officials Responsible for Emergency Management
S&T	Science and Technology

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13. ABSTRACT

The Centre for Security Science (CSS) represents a joint endeavour between Defence Research and Development Canada (DRDC) and Public Safety Canada. The Centre is part of the Government of Canada's approach to address national public safety and security objectives; its goal being to deliver timely and relevant Science and Technology (S&T) research in support of an all-hazards approach to natural and accidental disasters, and terrorist and criminal acts. Toward this objective, the Centre seeks to engage academia, together with government, industry scientists, and responder communities, in collaborative partnerships from the early stages of any research initiative. The intent is not only to develop S&T tools, but to also contribute timely and relevant recommendations for public policy and public management consideration.

This Contract Report presents the findings of work conducted in support of the Capability Based Planning Pilot Project lead by the CSS Forensics Portfolio Manager. Specifically, the report identifies potential partnership opportunities with academic researchers that share a common interest and expertise pertaining to issues of intelligence and security; offers global findings relevant to development of a Canadian approach to Intelligence Fusion Centres; and, provides insights relevant to development of a national chemical, biological, radiological, nuclear and explosives resilience strategy.

Le Centre des sciences pour la sécurité (CSS) est le résultat d'une entente de coopération entre Recherche et développement pour la défense Canada (RDDC) et Sécurité publique Canada. Le Centre constitue une des mesures prises par le gouvernement du Canada pour atteindre les objectifs nationaux en matière de sécurité publique, son but étant de réaliser en temps opportun des recherches et pertinentes en matière de science et de technologie (S et T) à l'appui d'une approche tous risques visant à contrer des catastrophes d'origine naturelle ou accidentelle ainsi que des actes terroristes et criminels. Pour atteindre cet objectif, le Centre entend mettre à contribution les universitaires, de même que les scientifiques du gouvernement et de l'industrie, ainsi que les communautés des intervenants, dans le cadre de partenariats de collaboration dès le début de tout projet de recherche. Le but visé est non seulement de développer des outils S et T, mais aussi de formuler des recommandations opportunes et pertinentes à l'intention des responsables de la politique officielle et de la gestion publique.

Le présent rapport de contrat fait état des conclusions du travail effectué à l'appui du Projet pilote de planification axée sur les capacités, qui est dirigé par le gestionnaire du portefeuille judiciaire du CSS. Plus particulièrement, le rapport détermine les possibilités de partenariat avec des chercheurs universitaires qui, comme nous, ont de l'intérêt et de l'expertise concernant les questions relatives au renseignement et à la sécurité. Il formule aussi des conclusions globales concernant l'élaboration d'une approche canadienne pour les centres de fusion des renseignements ainsi que des observations sur l'élaboration d'une stratégie nationale de résilience en cas d'incident liés aux dispositifs chimiques, biologiques, radiologique, nucléaires et explosifs.

14. KEYWORDS, DESCRIPTORS or IDENTIFIERS

Capability Based Planning, Intelligence and Security, Academic and Research Partnership Opportunities; Intelligence Fusion Centres; CBRNE Resilience Strategy