Welcome to the Spring/Summer 2016 Edition of *CSSP Connect*

The global and domestic context of societal safety and security continues to be dynamic. The scope and dimension of this context is broad and ranges from efforts to deal with the increased frequency of weather related events to the prevention and mitigation of ideologically inspired terror events. Through the CSSP, we strive to bring together the best minds to identify and frame the challenges and to collaboratively develop the right solutions and/or evidence and advice needed for safety and security actors to address the challenges. As you know, this collaborative approach is at the heart of everything we do.

This issue tells two stories about CSSP-funded projects that change the way we interact across the safety and security space. One is about the fourth annual Canada-United States (U.S.) Enhanced Resiliency Experiment (CAUSE IV), in which emergency management officials and responders used innovative technologies to exchange information fluidly during a fictional disaster scenario that impacted both sides of the border. The other reports on the Royal Canadian Mounted Police's Suspicious Incident Reporting system, which helps alert the RCMP about critical infrastructure threats.

You will also read that Canadian scientists are playing a key role in developing nuclear forensics capabilities and that the impact of this work is evident in Canada and worldwide. This issue also presents a first-hand account of a fire chief's participation in an exercise in which a train derailment has caused a flammable-liquids fire.

As always, it has been an active period for DRDC CSS. In May, the federal government launched the CSSP Call for Proposals 2016, and DRDC CSS and the U.S. Department of Homeland Security Science and Technology Directorate co-hosted their second Twitter Chat about the CAUSE series. In June, we participated in our first Google + Hangout session, hosted by the Canadian Advanced Technology Alliance. Our experts also presented at several events.

We look forward to your on-going contributions to *CSSP Connect* as we continue to share the success of our program within our partner and stakeholder networks.

Enjoy.

Mark A. Williamson, Ph.D
Director General,
DRDC Centre for Security Science

Stéphanie Durand
Director General,
Policy and Outreach
Emergency Management and Programs Branch
Public Safety Canada

The Innovation Challenge

By Dr. Mark Williamson

The default meaning of "innovation", within a science and technology (S&T) context, has often been related to a single, novel idea or technology, or an application of pre-existing ideas to new or long-established requirements. Being innovative in this specific sense, although necessary, will not enable the Canadian Safety and Security Program (CSSP) to achieve its desired outcomes. Therefore, the CSSP seeks, by design, to innovate in four distinct but connected domains. This approach has its roots in the precursor Chemical, Biological, Radiological-Nuclear and Explosives Research and Technology Initiative (CRTI) model.

Innovation in Partnership

This speaks to the continuing need to network across the entire safety and security space bringing together decision-makers, policy owners, operators and responders, innovators, S&T experts, and federal, provincial and territorial as well as municipal governments. This ensures a thorough understanding of the problem and potential solution spaces, relative priorities and requirements and associated urgencies. Innovation in this domain is designed to develop a sense of the priorities, increase the chance of successful project outcomes and promulgate a shared and unified approach to safety and security.

Innovation in Governance

Although CSSP is a federal program, it has to have impact across all parts of Canadian society. In addition to touching four levels of government, the program reaches into more than 20 federal departments, each with a role in shaping the nation's safety and security. For such a program, a strong, coherent and linked governance structure is vital. In an effort to be more inclusive, we are designing a partitioned governance model that seeks more direct links between those that own the problems and those with responsibility for implementing and sustaining solutions. This moves the program away from a one-size-fits-all governance model to one that is tailored to specific domains within the broad safety and security landscape.

Innovation in Mobilization

For the CSSP, translating our discussions with our partner networks into prioritized and active, collaborative projects in a manner consistent with competitive procurement imperatives has been largely accomplished by working closely with Public Services and Procurement Canada. Although the model has proven successful and by any measure is innovative, we continue to develop additional instruments for investment such as a contribution program, linkages to other government programs (e.g. Build in Canada Innovation Program, Industrial Research Assistance Program), as well as international agreements. We have observed that once the challenge has been designed, broadcast, competed and partnerships have been formed for delivery, there is no shortage of S&T innovation on the pathway to results.

Innovation in Exploitation and Transition

Achieving the desired impact of CSSP investments goes beyond the delivery of individual project outputs. Whether it's a technology, system, process or evidence-based advice, transitioning outputs from CSSP investments demands a proactive and systematic approach, which is applied throughout the life of the project and beyond. We recognize that success in stimulating innovation is only part of how we deliver on outcomes and that considerable effort is needed to develop the permissive partner environments needed to facilitate transition.

Twitter Chat:
CAUSE IV Lessons Learned

DRDC CSS and the U.S. Department of Homeland Security Science and Technology Directorate held a LIVE Twitter Chat (#STTechTalk) on May 24th 2016 to share lessons learned from CAUSE IV (see page 7), ask and answer questions, share ideas for what may be next, and increase public participation.

@DRDC_RDDC contributed 28 tweets, and responded directly to 13 questions from various Twitter users. @DRDC_RDDC also engaged with 40 tweets, including statements and responses from @dhscitech and participating stakeholders using the hashtags #CAUSE4 and #STTechTalk.

Top media Tweet earned 6,917 impressions

For the first time, Paramedics established 3way video comms with U.S & CDN hospitals #CAUSE4 #STTechTalk
pic.twitter.com/uY5AcjFjxD

← 1   ⇄ 25   ♥ 24

6900+ impressions; most successful tweet of May 2016

Lessons Learned in Exercise Vulcan Will Help Further Develop a Training Curriculum for Emergency Responders Across Canada

By Tom DeSorcy

A fire chief reflects on a weekend that highlighted specialized firefighting skills and identified resources useful in handling flammable-liquid fires linked to train derailments.

On March 12 and 13, 2016, I, along with firefighters from 10 Fraser Valley departments in British Columbia (B.C.), took part in an exercise that will shape the standard by which first responders deal with Class 3 flammable liquids (such as crude oil, alcohols, paints, pesticides) delivered by rail in Canada. Transport Canada, along with Defence Research and Development Canada's Centre for Security Science (DRDC CSS), conducted Exercise Vulcan, a pilot training exercise that will help improve response capabilities in the event of an incident involving a train carrying flammable liquids, such as crude oil.

As a firefighter for 33 years and a chief for 16, I am convinced that the knowledge that firefighters gained through this exercise will change the way fire departments respond to these types of incidents.

How I Got Involved

My involvement in Exercise Vulcan, an exercise funded by the Canadian Safety and Security Program (CSSP), began in November 2015, when I was invited to take part in a table top event in advance of what would become a full-scale exercise. Also in the room were representatives from Transport Canada and DRDC CSS, as well as members of the Fire Department of Saint John, New Brunswick. We were focused on a train derailment exercise involving Class 3 flammable liquids in a community with a population under 200.

As another prerequisite to the March exercise, I and other participants took part in a telephone interview that gauged our knowledge of flammable-liquids responses. The interview was followed by a two-hour, interactive, online training session about dealing with incidents involving flammable liquids.

The information gathered through the table top exercise and interviews provided valuable information to help design the full-scale exercise, which would take place in March.

The Live Exercise

Saturday, March 12 began with a presentation by Lac-Mégantic Chief Denis Lauzon, followed by information from hazardous materials (hazmat) specialists from Canadian National and Canadian Pacific railways, and industry experts. Participants then toured two scenario scenes and a static display of specialized equipment such as an Emergency Response Trailer, a Firefighting Foam Trailer and air monitoring equipment.

On the Sunday, participants rotated through two live scenarios: arriving on the scene of a derailment; and discovering a pool of liquid on fire near a tank.

The live portion of the exercise concluded with another evaluation to measure participants' new levels of knowledge compared to before the exercise. The evaluations will also help Transport Canada change the course structure and content to fit into a weekend setting.

For me, the exercise was eye-opening. We learned the importance of non-intervention—of launching neither an offensive nor defensive attack on the flames, at least at first. We were taught not to put water on the fire right away, as structural firefighters are trained to do; we learned instead to cool the tanks first and then apply foam to the flames. ❯

Canadian first responders observing strategies and tactics to use in case of a train derailment incident involving flammable liquids.

Canada

Feedback from Partners and Observers

For Transport Canada, the most significant aspect of the exercise was to gauge the existing knowledge and capacities of firefighters to determine the standard level of hazmat training and the type of response that can be expected in mostly rural areas.

Louis Marcotte, chief of response operations for the transportation of dangerous goods with Transport Canada, explained the ground-breaking nature of the exercise—the change of culture in teaching structural firefighters the "TASC" response concept, where TASC stands for timely, appropriate, safe and coordinated.

Marcotte said Transport Canada is improving outreach to emergency responders and raising awareness of the Emergency Response Assistance Plan (ERAP) program. He further explained that Transport Canada has several remedial measures specialists who will go to a site to help responding fire departments with knowledge of the product and assist in remediation of the incident, while keeping local fire officials in charge and working under unified command. Marcotte also said CANUTEC (Canadian Transport Emergency Centre) is a phone call away and, while firefighters carry the Emergency Response Guidebook, a call to CANUTEC will provide links to important resources, particularly the contact information for the ERAP holder responsible to activate their ERAP.

Canadian first responders fighting a crude oil tank fire as part of Exercise Vulcan. Photo credit: Tom DeSorcy

Ibrahima Sow, the manager of emergency preparedness, exercises and programs with Transport Canada, emphasized that it's important for first responders to realize they can quickly and efficiently seek help when dealing with flammable-liquids incidents and that significant resources—including government, the railway company involved in the incident, industry and contractors—are available.

John deHooge, retired chief of Ottawa Fire Services and former executive member of the Canadian Association of Fire Chiefs, attended Exercise Vulcan as an observer representing the CSSP's Fire Services Community of Practice. He says Canada's approximately 111,000 firefighters—including 80,000 who are volunteers— will benefit greatly from a training curriculum that provides them with the knowledge and skills to respond safely to Class 3 flammable liquid incidents in their communities.

It's important for first responders to realize they can quickly and efficiently seek help when dealing with flammable-liquids incidents and that significant resources are available.

"Every firefighter needs to develop awareness and learn the curriculum related to rail incidents," says deHooge. "Even though trains with dangerous goods are not routed through all Canadian communities, the curriculum can address what to do in cases such as Lac-Mégantic and it will be made available to all communities that have that risk."

Final Thoughts

Exercise Vulcan emphasized the importance of conducting a site survey or scene assessment before responders rush into an incident. Learning directly from the experts also helps to develop a network of responders; in small or rural towns and cities, there are only so many of these experts in the area, so the networking aspect of the exercise was crucial.

As a firefighter for 33 years and a chief for 16, I am convinced that the knowledge that firefighters gained through this exercise will change the way fire departments respond to these types of incidents. In addition, it will give smaller departments the confidence to be able to handle them, knowing that resources are available, and that they are not alone.

To learn more, please visit the Exercise Vulcan Web page.

Tom DeSorcy is the fire chief in Hope, B.C., as well as the communications director and conference committee chair of the Fire Chiefs' Association of B.C.

Nuclear Forensics in Canada:
Investing in a Coordinated and Comprehensive Capability

By Elizabeth Inrig

On an otherwise uneventful winter morning, a suspicious package was intercepted in a government mail room after a routine X-ray scan detected a dense, metallic object inside the package. The Royal Canadian Mounted Police (RCMP) immediately dispatched officers from the National Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Response Team and, after determining that there was no explosive device present, transported the package to their mobile laboratory. With assistance from members of the Federal Radiological Assessment Team, the officers examined the package and determined that it contained a highly-radioactive Cobalt-60 source—a serious hazard, initially masked by a heavy, lead-shielding vessel.

Members of the RCMP and the Federal Radiological Assessment Team prepare to screen a package before transferring it to the RCMP's Mobile Forensic Laboratory. Photo credit: Sgt Doug Morris, RCMP

If you're wondering why this story never made the news, there's a good reason: it's a fictional scenario created for a recent exercise designed to test the capabilities of Canada's Nuclear Forensics Laboratory Network. Thanks to the proliferation of CSI-type TV shows, most people are familiar with forensics—the scientific examination of evidence to discover linkages among people, places, things, and events—but nuclear forensics (NF) may be less familiar.

According to the International Atomic Energy Agency (IAEA), nuclear forensics is "the examination of nuclear or other radioactive material, or of evidence that is contaminated with radionuclides, in the context of legal proceedings under international or national law related to nuclear security." (See IAEA NSS #2-G).

Sergeant Dave Rolston, member of the RCMP's National CBRNE Response Team, is keenly aware of the need for a strong nuclear forensics capability. "If we were called upon to investigate an event like the one in the exercise scenario, there would be many questions to be answered. Conventional trace evidence from the package, such as fingerprints or DNA, would be a very important component of the investigation.

"Equally important would be the ability to analyze the radioactive material itself to determine the isotope and its origin, and how it came to be in the possession of someone other than the licensee/regulated recipient."

At the 2012 Nuclear Security Summit, held in Seoul, South Korea, Canada described its plans to expand its NF capabilities, as noted in the following statement captured in the National Progress Report presented by Canada during the Summit:

Canada is finalizing a strategy to enhance its domestic nuclear forensics capabilities, which will include the formalization of the Canadian nuclear forensics laboratory network, the creation of a national library of nuclear and radiological signatures, and the enhancement of Canada's capacity for the forensic analysis of radiologically-contaminated evidence.

Canada began delivering on this commitment in 2012 with the launch of the Canadian National Nuclear Forensics Capability Project (CNNFCP), funded under the Canadian Safety and Security Program (CSSP). Atomic Energy of Canada Ltd. was project lead, via its implementing agent, the Canadian Nuclear Laboratories.

Work was divided into two streams, one focusing on the establishment of a laboratory network for analysis of radiological and nuclear (RN) materials, and another aiming to establish a National Nuclear Forensics Library (NNFL). Over the past three years, the project has brought together federal RN scientists, law enforcement personnel, forensic experts, regulators, and international policy analysts to begin developing a coordinated NF capability, and ultimately a formal framework with which to sustain that capability. ❯

"Canada has taken incredible strides in the advancement of our nuclear forensics capabilities. The brain power that came together to work on this is a real testament to the world-class knowledge and expertise we have here in Canada."

Canada

"Given the depth of experience, expertise, and facilities, the Chalk River Laboratories are uniquely equipped to support the nuclear forensics initiative," says Bhaskar Sur, Director of CNL's Safety & Security program. "Coupled with the strengths of the other partners and through the CSSP, Canada has taken incredible strides in the advancement of our nuclear forensics capabilities. The brain power that came together to work on this is a real testament to the world-class knowledge and expertise we have here in Canada."

This whole-of-government effort demonstrated successful collaboration among several organizations: the Department of National Defence, including the Canadian Armed Forces, Defence Research and Development Canada (DRDC) and the Royal Military College of Canada, as well as Atomic Energy of Canada Ltd. (Canadian Nuclear Laboratories), the Canadian Nuclear Safety Commission (CNSC), Health Canada, the National Research Council, the RCMP, Public Safety Canada, and Global Affairs Canada.
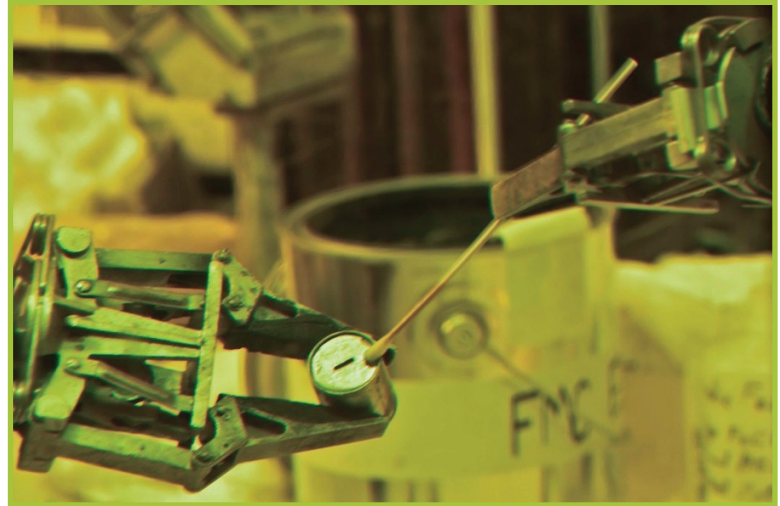
A radioactive Cobalt-60 source is examined in a hot cell at the Canadian Nuclear Laboratories in Chalk River, Ontario, during an exercise in February 2016.
Photo Credit: Sgt. Doug Morris, RCMP

The project has now drawn to a close, and it has clearly succeeded in addressing a number of critical issues. The project team has conducted a comprehensive assessment of the gaps in Canada's national NF capabilities, and has recently drafted requirements and guidelines covering topics from sampling and evidence collection to laboratory quality assurance and chain of custody. A prototype National NF Library has been developed to collect signatures of RN materials, and a data analysis tool has been created to support the categorization of unknown uranium ore concentrate samples.

"The tools and knowledge generated through the CNNFCP project have been invaluable in building Canada's nuclear forensic capabilities," said Dr. Mark Williamson, Director General of DRDC's Centre for Security Science (DRDC CSS). "It's a great example of the role of government science in developing capabilities and evidence in support of the nation's security. Moving forward, the CSSP will continue to invest in targeted research and development activities to address gaps identified over the course of the project."

At the April 2016 Nuclear Security Summit, Canada reiterated its commitment to formalizing a nuclear forensics network to "support the prosecution of acts of nuclear terrorism and the criminal use of nuclear materials." (See Canada's National Statement).

"Through this work, if the unthinkable were to happen and a nuclear terrorism event occured, Canada would be well positioned to carry out a timely and comprehensive investigation to support the prosecution of the perpetrators."

The CSSP's investments in nuclear forensics to date have provided a solid foundation, and the CNSC is now taking the lead by developing the framework for a formal, multi-departmental NF program and securing resources to sustain and further develop national capabilities.

Kathleen Heppell-Masys, Director General, Directorate of Security and Safeguards at the CNSC, speaks confidently about the outlook for nuclear forensics in Canada. "We look forward to building on the achievements of this project, and to working with our federal partners to establish an operational national nuclear forensics capability. Through this work, if the unthinkable were to happen and a nuclear terrorism event occurred, Canada would be well positioned to carry out a timely and comprehensive investigation to support the prosecution of the perpetrators."

Elizabeth Inrig is a defence scientist, Radiological Analysis & Defence, at Defence Research and Development Canada's Ottawa Research Centre and a project manager for the Canadian Nuclear Forensics Capability Project.

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CAUSE IV: Experiment's Major Breakthrough Highlights Value of Technology to Support Emergency Responders

By Denis Gusty and Danya Vidosa

In April 2016, Defence Research and Development Canada's Centre for Security Science (DRDC CSS) and the United States (U.S.) Department of Homeland Security Science and Technology Directorate (DHS S&T), in partnership with Public Safety Canada, converged in Sarnia, Ontario and Lake Huron, Michigan to explore how technology could enhance response and recovery operations during a cross-border disaster.

The experiment was set against a fictitious scenario, which described a post-tornado landscape where paramedics had to bring patients from overcrowded hospitals across the Canada-U.S. border, driving through blowing debris, fallen power lines, and car wrecks.

"CAUSE IV involved two vignettes, the first led by DRDC CSS and the second by DHS S&T," explained Philip Dawe, Section Head, Multi-Agency Crisis Management, DRDC CSS. "They aimed to highlight critical elements such as situational awareness, reliable communications tools, public alerts and warnings, and access to real-time data for decision-making, planning and resource allocation."

Every CAUSE experiment builds on lessons learned from previous years and focuses on different capabilities. For CAUSE IV, the Exercise Design Team deliberately intertwined the vignettes to demonstrate how different participants—emergency management and border officials, paramedics, digital volunteers and the public—are connected and must work together to improve disaster response.

Vignette 1: Maintaining Constant Communication is Key

During the experiment, digital volunteers on social media provided information about a road obstruction. They shared it with the Emergency Operations Centre (EOC), which enabled the dispatcher to divert the ambulance.

Even before participants reached the border, accurate information-sharing was critical. Border officials had to clear ambulances for crossing quickly without compromising security. "Currently, we receive information by phone and transcription errors could delay the screening process," said Eugene Rosso, Chief of U.S. Customs and Border Protection at the port of Port Huron, Michigan. "Getting the information electronically, having it scanned, allows us to run it perfectly and we are prepared when the emergency responders arrive."

"Sharing this type of information between the ambulance and border officials allows for decreased response times across the border," said Doug Socha, who was at the time Paramedic Portfolio Manager at DRDC CSS and first vignette lead. "That, combined with the paramedics having the ability to communicate and share patient information with key officials, could literally save a life."

But how can we share information effectively when each country operates on different networks? "Currently, when an ambulance, fire truck or police vehicle crosses from one country to the other, we lose signal and have to reconnect with the American network or vice versa," said Jeff Brooks, Deputy Manager, County of Lambton's Emergency Management Services.

"Establishing seamless connectivity, what we call 'session persistence', was one goal of the first vignette," said Joe Fournier, Wireless Technology Portfolio Manager, DRDC CSS. "We worked closely with Communications Research Centre Canada (CRC) and Texas A&M University to set up two temporary public safety ▶
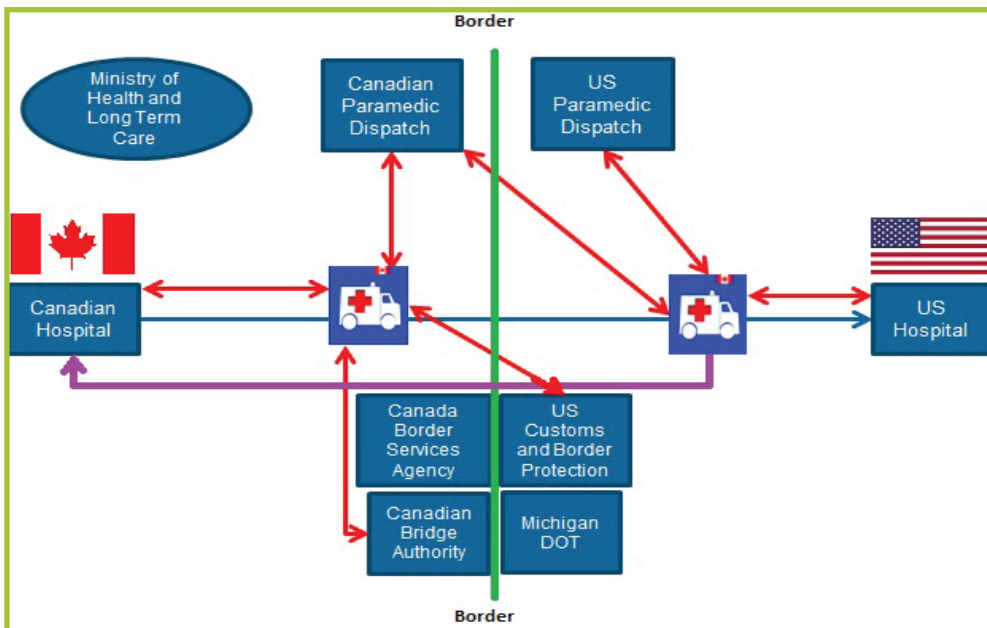

Illustration of how information flowed during Vignette 1

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broadband networks, one in each country."

Testing conducted prior to the experiments demonstrated that mobile devices and the software applications they supported could move from one network to the other without any break in connectivity. During the experiment, this allowed participants to continuously transmit data such as patient vital signs, electrocardiograms and live video in real-time from hospital to hospital and ambulance to hospital.

"This was a major breakthrough. The temporary networks we built allowed paramedics to stay connected for their entire trip, even when moving across the international border, from network to network."

"This was a major breakthrough," said Eric Lafond, Principal Engineer at CRC. "When people cross the border and roam from one network to another, there is a break in communications and a connection needs to be re-established. It's not a big problem for average citizens, but for emergency responders, precious minutes lost could be devastating. The temporary networks we built allowed paramedics to stay connected for their entire trip, even when moving across the international border, from network to network. This has never been done before!"

Vignette 2: Multiple Data Sources Provide Critical Information to Decision-Makers

In the second vignette, participants tested how information from social media and digital volunteers, as well as 211 call centres—where the public can call for information about community, social, non-clinical health and related government services—could enhance situational awareness. This data was analyzed in real-time and used to generate maps to enable EOCs to improve response planning and decision-making.

"We've used social media to get information out to the public but it's always been kind of a one-way street," said Mark Wetering, Emergency Management Coordinator, County of Lambton. "The digital volunteers program allows us to pull information from the public who are posting on social media."

During the experiment, trained weather spotters shared information from the field using a specialized form, and digital volunteers submitted information to the EOC on road blocks, downed trees, and flash floods, which they gathered from social media posts from the public (on Twitter accounts created for the CAUSE IV experiment).

"CAUSE IV showed us how to mine social media and extract what is critical and apply it instantly to our maps," said Jeff Friedland, Director of Homeland Security Emergency Management for St. Clair County, Michigan. ❯

Emergency management officials and digital volunteers working together in the Emergency Operations Centre in St. Clair County.

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211 call centres also provide a rich source of data. "We have all this information from callers that we're able to share with municipalities and hopefully that information can help inform the decisions that are made in an EOC during an emergency," said Jennifer Tanner, Project Manager for 211 in Southwest Ontario.

The 211 centres can also provide information to the public on subjects such as road closures, emergency shelter locations, keeping pets safe and how to help victims. This helps reduce the number of non-emergency calls to 911.

The second vignette also looked at issues surrounding resource allocation during post-disaster damage assessment, activation of mutual aid agreements, and technologies that can alert the public about impending danger.

Lessons Learned and Lasting Relationships

Preliminary results indicate that the experiment was a resounding success. The technologies performed as expected and participants identified processes that need to be refined to maximize their usefulness in operations. Most importantly, the experiment strengthened new and existing relationships between emergency management officials.

"This is one of the major benefits of the CAUSE experiments," concludes Dr. Mark Williamson, Director General, DRDC CSS. "Participants work together in a fictitious scenario but what they learn and the relationships they build continue well beyond the experiments and have a lasting impact on real operations in the region."

The CAUSE IV after-action report will discuss experiment findings and lessons learned. It will be available in the DRDC publications database within the next few months. Click here for more information about CAUSE IV.

Denis Gusty is the program manager for the DHS Science and Technology Directorate's First Responders Group. Danya Vidosa is the senior communications advisor at DRDC CSS. Christopher Solomon, a communications analyst with Teracore, was also a contributor to this article.

Google + Hangout Highlights the International Forum to Advance First Responder Innovation

On June 7, 2016, Colin Murray, Director, Knowledge and Technology: Community Safety at DRDC CSS, was interviewed as part of a Google + Hangout hosted by the Canadian Advanced Technology Alliance (CATA*Alliance*). The interview provided a great opportunity to highlight the International Forum to Advance First Responder Innovation (IFAFRI), and has provoked interest and engagement from elements of Canada's innovation sector that are non-traditional partners to DRDC CSS.

This evolving initiative is made up of representatives from 14 countries, representing the capability needs of more than seven million responders and budgets of more than $400 billion. The main goal is to enhance and expand the development of affordable and innovative technology that will help first responders. The need for the forum arose in recognition that responders around the world share common capability gaps, and that industry has an opportunity to leverage this common understanding to develop commercial technology that will address these priority gaps.

"The forum offers a unique opportunity for DRDC to leverage innovation on a global scale, and support responders in the interest of a safer Canada," said Colin Murray. "A key aspect of the forum is to present industry with in-depth 'Responder' market intelligence across the participating nations, along with insight into the priority capability gaps that are expected to draw investments in coming years. It is a privilege to serve Canada's responders through this forum."

Click here to view the video of the Hangout.

For more information on the forum, please visit the International Forum to Advance First Responder Innovation Website.

International Forum to Advance FIRST RESPONDER INNOVATION

A Modernized Suspicious Incident Reporting System

By the National Critical Infrastructure Team, RCMP

Canada is not immune to terrorist threats. This was most recently highlighted in October 2014 when two terrorist attacks—in Saint-Jean-sur-Richelieu, Québec, and Ottawa, Ontario—targeted members of the Canadian Armed Forces and people on Parliament Hill.

Most terrorist attacks are preceded by pre-attack indicators that can be identified, reported, analyzed and acted upon. Capturing reports of these isolated suspicious incidents (i.e. individuals taking photographs of security measures or infrastructure at a facility) and analyzing them within a broader context could help identify a potential threat against national security and prevent attacks.

Modernizing the SIR

In 2015, the Royal Canadian Mounted Police (RCMP) received Canadian Safety and Security Program (CSSP) funding to modernize the Suspicious Incident Reporting (SIR) system. According to David Cassidy, Senior Project Manager for the SIR system, "advances in technology have necessitated the retirement of the current platform, and have warranted a modernized system to better serve both stakeholders and the RCMP."

Sandy Harvey, Director of the National Critical Infrastructure Team (NCIT), says the role of the SIR system is "to facilitate secured sharing, exchange, and gathering of information between industry, government and law enforcement stakeholders about suspicious incidents that may indicate a potential criminal threat to Canada's critical infrastructure."

Furthermore, she adds, "this information is reviewed, assessed and combined with other information and intelligence available to the RCMP to assess trends and criminal threats to critical infrastructure and, when appropriate, initiate or support criminal investigations."

The SIR system has become a cornerstone of the Government of Canada's critical infrastructure (CI) protection initiatives, directly supporting the RCMP's mandate to detect, deter, disrupt and investigate threats to Canadian CI.

Cassidy says that the modernized system, currently under development, "will not only be more effective and efficient at collecting and disseminating information," but will also have a particular focus on facilitating information analysis, which is key in identifying trends and potential pre-attack indicators.

Modernization of the RCMP's Suspicious Incident Reporting (SIR) system helps to protect critical infrastructure.

"There are a number of significant improvements with the new platform," he adds, "including an easy-to-navigate, interactive user interface, a simplified login process, accessibility from mobile devices, enhanced security, and an enhanced library of information and intelligence products with advanced search functions."

Initial Conceptualization and Development

The modernization effort builds on work which began in 2007 when the RCMP's NCIT developed the initial concept for an incident reporting system. The following year, in consultation with stakeholders, NCIT launched a prototype SIR system to further develop the concept. In 2010, the team replaced this system with a web-based version. In April 2010, the Ontario Integrated National Security Enforcement Team, in conjunction with the Toronto Police Service, made the first arrest directly associated with a SIR report. ❯

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A Shared Responsibility

According to Harvey, "the protection of CI assets in Canada is a shared responsibility. CI owners and operators are best placed to detect suspicious activities at their facilities and help law enforcement and intelligence agencies in preventing what may be attack planning by reporting those incidents. This collaboration is essential and we hope the new platform will reinforce the trusted partnerships that were developed over the last 10 years across the country."

The RCMP, Canadian CI stakeholders, and an industry leader in analytics, business intelligence and data management will test the new system to ensure that it captures all relevant information while maintaining integrity and usability. Once testing is completed, the RCMP will initiate a roll-out strategy to stakeholders across the country. The SIR modernization project is scheduled to extend into 2017.
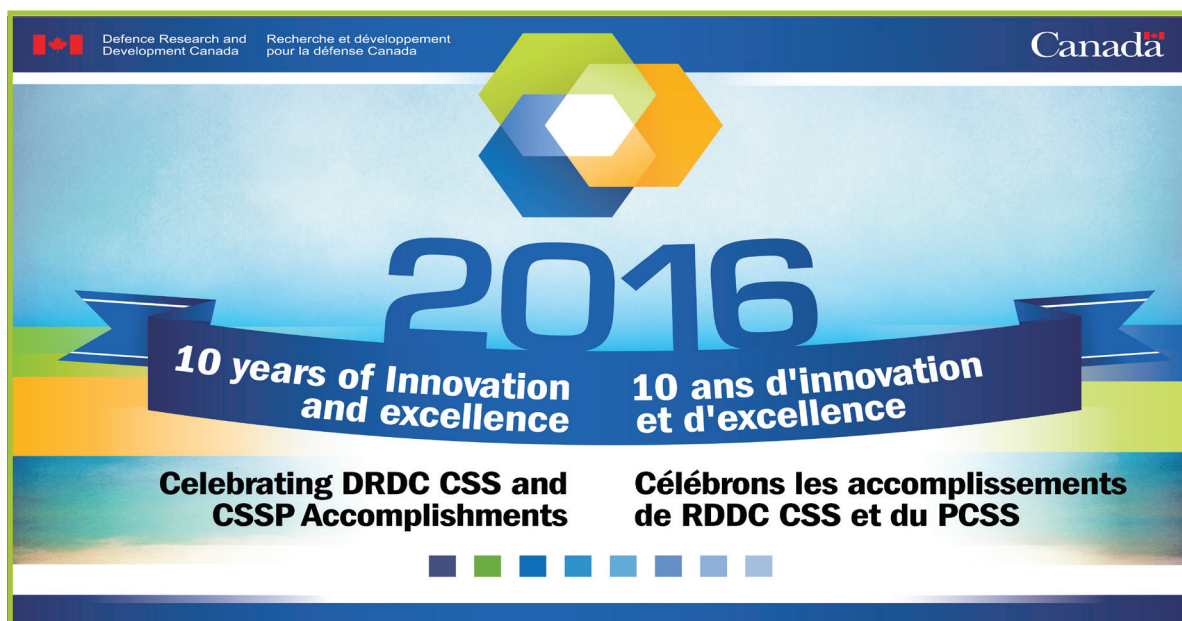
SPOTLIGHT ON DRDC'S NEWS PAGE

The following are additional stories on the CSSP, which have been recently featured on the DRDC News page. This page features stories about the work being done through various DRDC programs, including but not limited to the CSSP.

You can follow us on Twitter @DRDC_RDDC to be notified when new stories are posted.

» **The Canadian Safety and Security Program (CSSP) Supports Efforts to Engage Youth in Disaster Resilience**

» **Reducing the Risk of Tsunamis on Canada's West Coast**

» **Train Derailments Involving Dangerous Goods: Enhancing Canada's Ability to Respond**

» **Wildfire Disaster Scenario: New Report Highlights How New Communication Technologies Improve Emergency Response**

DRDC CSS is Celebrating its 10-Year Anniversary!

Issue 10 of *CSSP Connect* will be a special anniversary edition, so stay tuned as we look back at some highlights of the past decade.

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Out and About

In the past few months, DRDC CSS subject matter experts have been busy speaking about the work they do under the CSSP at various events.

» 8 March, Canadian Association of Chiefs of Police Research Foundation Conference in Montréal, Québec: DRDC CSS experts discussed evidence-based decision-making for Police Services in Canada.

» 29 March, International Wireless Communications Exposition, Las Vegas, Nevada: Joe Fournier presented on the fourth installment of the Canada-United States (U.S.) Enhanced Resiliency Experiment (CAUSE IV).

» 19 April, Government of Canada Security Council in Gatineau, Québec: DRDC CSS experts participated in discussions surrounding security challenges facing departments, security-related policy instruments and integrated risk for community engagement and networking.

» 5 May, Conference Board of Canada Forum on Crisis and Issues Communication in Toronto, Ontario: Tony Masys spoke about applying "Systems Thinking" to manage unexpected disasters.

» 11-13 May, METSEC 2016 in Ottawa, Ontario: Dr. Williamson and six DRDC CSS experts spoke about the CSSP and the latest trends, projects, and initiatives to counter the threat of terrorism and improvised explosive devices at home and in conflict areas.

» 24 May, CAUSE IV Live Twitter Chat in Ottawa, Ontario: DRDC CSS and the U.S. Department of Homeland Security Science and Technology Directorate held a LIVE Twitter Chat (#STTechTalk) to answer questions and share information about CAUSE IV. DRDC CSS experts Joe Fournier, Philip Dawe, and Doug Socha participated.

» 31 May – 2 June, Paramedic Chiefs of Canada Annual Conference in Saskatoon, Saskatchewan: Doug Socha hosted a panel about CAUSE IV and Michel Ruest spoke about CSSP projects and priorities.

» 7 June, Google + Hangout Session in Ottawa, Ontario: Colin Murray, Director of Knowledge and Technology: Community Safety, DRDC CSS, and Kevin Wennekes from the Canadian Advanced Technology Alliance (CATA*Alliance*) discussed the International Forum to Advance First Responder Innovation.

» 8 June, Public Safety Communications Stakeholder Meeting in San Diego, California: Joe Fournier presented about the Canadian Public Safety Broadband Network (PSBN) to representatives from public safety and security organizations, federal agencies, industry, and academia.

You can follow us on Twitter @DRDC_RDDC or visit our Calendar of Events page to find out about conferences and events where DRDC CSS experts will be featured.

DRDC Published Reports

The following is a sample of selected DRDC CSS project reports published over the last several months. For a complete list, please contact us at css-info@drdc-rddc.gc.ca.

DRDC-RDDC-2016-L190
Social Media in Emergency Management Capability Maturity Measurement

DRDC-RDDC-2016-N009
Establishing Canada's National Nuclear Forensics Laboratory Network

DRDC-RDDC-2016-B010
National Critical Infrastructure Interdependency Model: Way Ahead

DRDC-RDDC-2016-C198
Digital Evidence Management and Analysis in the Cloud: Special Report

DRDC-RDDC-2016-C099
Aviation Management Interoperability for Emergency Response and Recovery: Concept of Operations

DRDC-RDDC-2016-C192
Paramedic Services Environmental Scan and Baseline Knowledge of Cross Border Agreements and Processes: Sub report from the Canada-United States Enhanced Resiliency Experiment (CAUSE) IV

DRDC-RDDC-2016-C179
Smoke forecasts from wildland fires for Canada: The BlueSky – Canada project

DRDC-RDDC-2016-C126
Technology-Enabled Hubs in Remote Communities: A Review of Research and Practice

DRDC-RDDC-2016-R047
Canada-US Enhanced Resiliency Experiment Series "CAUSE III": Western Scenario - Wireless Communications Interoperability

DRDC-RDDC-2016-C167
Exercise "Vulcan" Final Report

DRDC-RDDC-2016-C174
Improving End-To-End Tsunami Warning for Risk Reduction on Canada's West Coast

DRDC-RDDC-2016-C151
British Columbia Tsunami Notification Methods: A Toolkit for Community Planning

Please note that reports are published in the language of the author. If you wish to receive a copy of any of these reports, please send an email to css-info@drdc-rddc.gc.ca.

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