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**Meeting of the States Parties to the Convention  
on the Prohibition of the Development,  
Production and Stockpiling of Bacteriological  
(Biological) and Toxin Weapons and on Their  
Destruction**

14 December 2015

English only

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**2015 Meeting**

**Geneva, 14-18 December 2015**

Item 7 of the agenda

**Standing agenda item: Cooperation and assistance,  
with a particular focus on strengthening cooperation  
and assistance under Article X**

**International Activities of the Government of Canada related  
to Article X of the Biological and Toxin Weapons  
Convention: Update 2015**

**Submitted by: Canada**

**Background**

1. Canada places great importance on cooperation and assistance under Article X of the Biological and Toxin Weapons Convention (BTWC), and remains committed to international cooperation and collaboration in fields related to health and life sciences. Such cooperation is essential to curbing the threat posed by disease, be it naturally occurring, the result of accidental releases from laboratories performing peaceful research, or a deliberate biological weapons attack.
2. In accordance with the Final Declaration of the Seventh Review Conference, in which States Parties are encouraged to submit detailed information on their implementation of Article X at minimum once every second year, Canada has prepared the following non-paper providing details on various ongoing projects organized and/or funded by the Government of Canada that fall under Article X of the BTWC.
3. As Canada considers that a wide range of topics fall under Article X implementation, so too do the projects listed in this non-paper. The projects listed herein aim to:
  - (a) improve States Parties' capacities to perform surveillance, detection, diagnosis, and containment of infectious disease;
  - (b) improve capacities to prepare for, assess risks of, and respond to outbreaks of infectious disease, be they the result of naturally occurring pathogens, accidental releases, or biological weapons use; and
  - (c) provide training in biosafety, biosecurity, and bioethics.



4. This submission for the 2015 Meeting of States Parties (MSP) contains only projects that were active during calendar year 2015. This non-paper should be viewed in conjunction with five previous papers prepared by Canada on this subject, including a 2009 paper covering international activities in disease surveillance, detection, diagnosis, and containment (BWC/MSP/2009/MX/WP.6), Canada's contribution to the Implementation Support Unit's report on the Implementation of Article X submitted at the Seventh Review Conference (BWC/CONF.VII/INF.8), and Canada's papers on international activities in support of Article X at the 2012, 2013, and 2014 Meetings of States Parties (BWC/MSP/2012/INF.1, BWC/MSP/2013/INF.2, and BWC/MSP/2014/WP.11).

## Projects

<i>Project Title</i>	<i>Bioterrorism preparedness and response training</i>
Themes	Biological security and disease detection, containment, and response
Dept. Responsible	Global Partnership Program of Foreign Affairs, Trade and Development Canada
Other Partners	Secretariat of the Inter-American Committee against Terrorism (CICTE) of the Organization of American States (OAS)
Project Value	\$2,076,000 CAD
Project Duration	2008-2016
Area Affected	Central America, South America, Caribbean
Description	Assist OAS/CICTE Member States better prepare to deal with potential terrorist incidents by engaging senior policy-makers in realistic table-top exercises designed to bring specific issues of contingency planning and threat mitigation to their attention, with the goal of helping them to prepare or improve existing, formal terrorist contingency plans and promote interagency coordination to implement those plans.
<i>Project Title</i>	<i>Canadian Field Epidemiology Program</i>
Themes	Response to complex public health emergencies
Dept. Responsible	Centre for Public Health Infrastructure - Health Security Infrastructure Branch of the Public Health Agency of Canada
Other Partners	N/A
Project Value	In kind contribution of expertise and resources
Project Duration	1975-Ongoing
Area Affected	Member-countries of Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET), European Programme for Intervention Epidemiology Training (EPIET), the World Health Organization (WHO), and Pan American Health Organization (PAHO).
Description	PHAC supports global public health capacity building through the development, delivery, and participation in various field

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*Project Title**Canadian Field Epidemiology Program*

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epidemiology initiatives.

Achieved through:

- (i) involvement with a global network of field epidemiology training programs called “TEPHINET” – which includes over 50 countries and WHO participation;
- (ii) involvement with the European Programme for Intervention Epidemiology Training (EPIET);
- (iii) direct involvement and support of WHO global initiatives; and
- (iv) support to governments directly.

Activities include:

- Development and delivery of applied epidemiology and surveillance training (i.e. outbreak response);
- Provision of technical experts for outbreak response (through WHO and/or other mechanisms);
- Provision of short-term technical expertise to:
  - Assess training and/or other technical needs around surveillance and outbreak response;
  - Develop and deliver training; and
  - Participate in expert working groups (i.e. WHO technical working groups around training and professional development)
- Provision of training opportunities (i.e. invitation to Canadian courses);
- Collaboration in providing training (i.e. course development and delivery); and
- Participation in international epidemiologic conferences that address training and/or field investigation.

For example:

- Canadian Field Epidemiology Program represents the Americas Region on the TEPHINET Accreditation Working Group (2012 to present);
- Canadian Field Epidemiology Program works closely with EPIET to develop and deliver applied epidemiology training; and
- Support to WHO Global Outbreak Alert and Response Network (GOARN) requests for international mobilizations - considered on a case-by-case basis by PHAC Management, and are coordinated by PHAC’s Centre for Emergency Preparedness and Response.

Examples of PHAC mobilisations include:

- Mobilisation of four PHAC Canadian Field Epidemiology Program staff to Guinea and Sierra Leone (March-August 2015) to support a GOARN request in the public health response to Ebola virus disease;
  - Mobilisation of two PHAC Canadian Field Epidemiology Program staff to support TEPHINET with building capacity in
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<i>Project Title</i>	<i>Canadian Field Epidemiology Program</i>
	surveillance and outbreak investigation methods in Senegal to ensure preparedness for a potential imported case of Ebola virus disease; and <ul style="list-style-type: none"> <li>• Development and delivery of training to support specialised public health surveillance for Mass Gathering events e.g. 2015 PanAm/Para PanAm Games in Toronto.</li> </ul>
<i>Project Title</i>	<i>CAPEX</i>
Themes	CBRNE response training and capability exercise
Dept. Responsible	Royal Canadian Mounted Police
Other Partners	<p>Canada:</p> <p>Public Safety Canada, Royal Canadian Mounted Police – National CBRNE Response Team (ED&amp;TS and NFISS CBRNE) Canadian Forces – Canadian Joint Incident Response Unit (CJIRU), Public Health Agency of Canada (PHAC - NML / MERT), Chemical Support - Defence Research &amp; Development Canada (DRDC) Suffield and Environment Canada, Radiological Support - Federal Radiological Response Team (FRAT), DRDCOttawa, Health Canada, Natural Resources Canada</p> <p>United States:</p> <p>US Department of State, US Department of Defence (20th Support Command CBRN) Technical Support Working Group (TSWG), US Department of Justice (FBI HazMat Operations Unit, Hazardous Materials Response Team Unit, Hazardous Materials Science Response Unit and Chemical Radiological Nuclear Sciences Unit)</p> <p>United Kingdom:</p> <p>Home Office (Met Police) Defence Science and Technology Laboratory (dstl), National Police Improvement Agency (NPIA)</p> <p>Australia:</p> <p>Australian Federal Police (AFP), Defence Science and Technology Organization (DSTO)</p>
Project Value	In kind contribution of expertise and resources
Project Duration	Biennial
Area Affected	International event that in 2011 took place in the UK, 2013 in USA, 2015 in Canada, and 2017 in Australia.
Description	Canada participated in demonstrating the National CBRNE response team capabilities in separate Chemical, Biological, Radiological, Nuclear and Explosives scenarios centered on device/threat identification and mitigation and eventual intelligence and fast forensics capabilities.
<i>Project Title</i>	<i>Caribbean Public Health Agency (CARPHA)</i>
Themes	Disease detection and diagnosis

<i>Project Title</i>	<i>Caribbean Public Health Agency (CARPHA)</i>
Dept. Responsible	Office of International Affairs for the Health Portfolio
Other Partners	N/A
Project Value	In kind contribution of expertise and resources
Project Duration	2008-ongoing
Area Affected	Caribbean Community (CARICOM)
Description	<p>Located in Trinidad and Tobago, CARPHA became a legal entity in July 2011 and has been operational since January 2013.</p> <p>The Public Health Agency of Canada (PHAC) works closely with CARPHA, providing technical assistance and strategic policy advice as they continue to expand their range of public health programs and services they offer to their 24 member jurisdictions. This in turn helps to enhance the health security of the Americas region as a whole.</p> <p>PHAC provides strategic policy support to CARPHA on the development of its administrative functions and programming through participation on CARPHA's Technical Advisory Committee (TAC). PHAC is also a member of CARPHA's laboratory advisory group, currently tasked with providing guidance on the development of a Caribbean laboratory network.</p> <p>PHAC and CARPHA are currently exploring the development of a bilateral work plan to guide further engagement over the period 2016-18. Possible areas for cooperation could include further assistance with laboratory capacity building, including operationalizing CARPHA's Biosafety Level 3 laboratory, travel and tourism health, antimicrobial resistance, strategic policy and planning.</p>
<i>Project Title</i>	<i>Contract for an OIE laboratory (or Collaborating Centre) Twinning Project: Technical support to the LNDV for the diagnosis and control of Avian Influenza and Newcastle Disease</i>
Themes	Disease surveillance, detection, and diagnosis
Dept. Responsible	National Centre for Foreign Animal Disease of the Canadian Food Inspection Agency
Other Partners	World Organization for Animal Health (OIE); National Veterinary Diagnostic Laboratory (LNDV-ICA-Colombia)
Project Value	€ 99,092
Project Duration	Ongoing
Area Affected	Colombia
Description	The project aims to implement laboratory diagnostic methods at the National Veterinary Diagnostic Laboratory of the Colombian Agriculture Institute (ICA) in Bogotá, Colombia for the surveillance, identification and characterization of Avian Influenza and Newcastle Disease viruses. This will be based on OIE Standards and will be accomplished with the support of the parent laboratory, the National Centre for Foreign Animal Disease (NCFAD) located in Winnipeg, Canada. The three-year project will involve direct interactions

<i>Project Title</i>	<i>Contract for an OIE laboratory (or Collaborating Centre) Twinning Project: Technical support to the LNDV for the diagnosis and control of Avian Influenza and Newcastle Disease</i>
	between scientists and technicians of candidate and parent laboratories. Workshops and hands-on training in select diagnostic test methods and test result evaluation, as well as trouble-shooting, quality assurance, inter-laboratory comparison testing through the exchange of proficiency panels, and reagent preparation will form the basis of the twinning project.
<i>Project Title</i>	<i>Enhanced biological security and disease surveillance in the Caribbean</i>
Themes	Biological security and disease surveillance, detection, and containment
Dept. Responsible	Global Partnership Program of Foreign Affairs, Trade and Development Canada
Other Partners	Caribbean Public Health Agency (CARPHA)
Project Value	\$2,500,000 CAD
Project Duration	2012-2016
Area Affected	Caribbean
Description	To strengthen biosafety and biosecurity capabilities in the Caribbean, Canada's Global Partnership Program has provided a fully-equipped modular biosafety level three (BSL3) laboratory to the Caribbean Public Health Agency (CARPHA) in Trinidad and Tobago. This new Laboratory was completed in January 2014 and formally handed over to CARPHA by the Government of Canada on 12 May 2014. GPP is providing ongoing maintenance and operational support to CARPHA to ensure the new facility achieves its objective of strengthening biological security and disease diagnostics capacity in the Caribbean region.
<i>Project Title</i>	<i>Enhanced biological security and disease surveillance in Jordan</i>
Themes	Biological security and disease surveillance, detection, and containment
Dept. Responsible	Global Partnership Program of Foreign Affairs, Trade and Development Canada
Other Partners	Jordanian Ministry of Health
Project Value	\$3,000,000 CAD
Project Duration	2014-2017
Area Affected	Jordan
Description	In partnership with the Jordanian Ministry of Health, Canada is implementing a project to strengthen biological security and disease diagnostics capacity in Jordan. Specific project activities include: <ul style="list-style-type: none"> <li>• Provision of a fully-equipped modular BSL3 Laboratory</li> </ul>

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<i>Project Title</i>	<i>Enhanced biological security and disease surveillance in Jordan</i>
	(2015);
	<ul style="list-style-type: none"> <li>• Co-funding with the United Kingdom Ministry of Defence of a biosecurity guide (“Preventing Biological Threats: What You Can Do: A Guide to Biological Security Issues and How to Address Them”) prepared by the University of Bradford, to be launched at the BTWC Meeting of States Parties on 15 December 2015; and</li> <li>• Conduct of an INTERPOL workshop on Safety, Security and Surveillance of Microbiological Materials and Emerging Technologies (S3OMMET) Associated training, travel and equipment. Through this project Canada also facilitated Jordanian participation to the BTWC Meetings of Experts and States Parties in 2015.</li> </ul>

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<i>Project Title</i>	<i>Enhanced biological security and disease surveillance in Jordan</i>
Themes	Disease surveillance, detection, and containment
Dept. Responsible	Global Partnership Program of Foreign Affairs, Trade and Development Canada
Other Partners	Jordanian Armed Forces Royal Medical Services
Project Value	\$950,000 CAD
Project Duration	2014-2017
Area Affected	Jordan
Description	Strengthened biological security and disease diagnostics capacity in Jordan through the provision of a fully-equipped mobile laboratory. The laboratory was delivered to Jordan in 2015, and GPP continues to provide maintenance support, as well as associated training, travel and equipment. Through this project Canada also facilitated Jordanian participation to the BTWC Meetings of Experts and States Parties in 2015.

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<i>Project Title</i>	<i>Global Health Security Agenda (GHSa)</i>
Themes	Biosecurity and Biosafety
Dept. Responsible	Office of the International Affairs (OIA) for the Health Portfolio
Other Partners	Other Government of Canada Departments and Agencies, GHSa countries and international organizations
Project Value	In kind contribution of expertise and resources
Project Duration	2013-2019
Area Affected	Global
Description	The GHSa is a five-year initiative led by the United States and the World Health Organization which aims to strengthen multi-sectoral action in support of health security, and to assist countries in meeting relevant international obligations, including the International Health Regulations (IHRs) (2005) and the Biological and Toxin Weapons

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<i>Project Title</i>	<i>Global Health Security Agenda (GHSa)</i>
	<p>Convention (BTWC).</p> <p>Under the GHSa, partner countries and international organizations are engaged in a process to identify new or expanded work areas for the prevention, detection, and response to infectious disease globally, regardless of their origin (i.e. natural, intentional or accidental). The Office of International Affairs of the Health Portfolio (OIA) coordinates Canada's engagement in select GHSa Action Packages as well as in the GHSa's Steering Group, which oversees the direction and activities of the initiative.</p> <p>As a co-leading country and secretariat of the Biosafety and Biosecurity Action Package, Canada works in close collaboration with its GHSa partners to support the development, implementation, and maintenance of national biosafety and biosecurity oversight frameworks. At a GHSa Action Package meeting in Nairobi, Kenya, in March 2015, Canada reinforced its commitment to help build biosafety and biosecurity capacity in the area of national program development and legislative and regulatory development by committing to develop a road map to assist countries with the development of their national oversight frameworks. Canada also committed to hosting training workshops, sharing online training tools, and sharing lessons learned and best practices with interested countries.</p>
<i>Project Title</i>	<i>Global Health Security Initiative (GHSI) / Global Health Security Action Group (GHSAG)</i>
Themes	Disease surveillance
Dept. Responsible	Office of the International Affairs (OIA) for the Health Portfolio
Other Partners	Other GHSI/GHSAG Members, and the World Health Organization
Project Value	In kind contribution of expertise and resources
Project Duration	2001-Ongoing
Area Affected	Canada, European Commission, France, Germany, Italy, Japan, Mexico, the United Kingdom, the United States
Description	<p>The Global Health Security Initiative (GHSI) is an informal, international partnership between G7 countries, Mexico, and the European Commission to strengthen health preparedness and response globally to threats of chemical, biological, radio-nuclear (CBRN) terrorism and pandemic influenza.</p> <p>Through the GHSI, Health Ministers from Canada, France, Germany, Italy, Japan, Mexico, the United Kingdom and the United States, as well as the European Commission and the World Health Organization (observer), discuss global trends and emerging CBRN threats to identify areas for collaborative work.</p> <p>In support of the Initiative, the Global Health Security Action Group (GHSAG) provides GHSI countries with an opportunity to share trusted information on issues of international concern with respect to CBRN and pandemic threats, and to facilitate the development of collaborative tools with the objective to improve emergency</p>



<i>Project Title</i>	<i>Global Health Security Initiative (GHSI) / Global Health Security Action Group (GHSAG)</i>
	<p>preparedness in the long term as well as immediate response to health crisis. The GHSAG is composed of a series of working groups that carry out work mandated by GHSI Ministers, build the common evidence base, and advance policy and scientific cooperation among members.</p> <p>Canada is an active member of the GHSI/GHSAG.</p> <p>The GHSI Secretariat is hosted by the Office of International Affairs for the Health Portfolio. The Public Health Agency of Canada also acts as the co-chair of the Global Laboratory Network with Mexico, as well as the co-chair of the Risk Management and Communications Working Group (RMCWG), along with the United Kingdom. The RMCWG will hold a workshop in Spring 2016 on the health security risks associated with emerging life science technologies, including synthetic biology. This workshop will be an opportunity to share information on key national governance mechanisms to regulate dual-use research of concern (DURC), and discuss major challenges related to implementation. The RMCWG will further consider if and how best GHSAG can support ongoing international efforts to reduce the negative impacts of this issue, such as the development of guidance documents and risk communications.</p>
<i>Project Title</i>	<i>Global Health Security Action Group (GHSAG) – Lab Network</i>
Themes	Disease surveillance
Dept. Responsible	Infectious Disease Prevention and Control Branch of the Public Health Agency of Canada
Other Partners	Other members of the GHSAG, WHO (Observer)
Project Value	In kind contribution of expertise and resources
Project Duration	2001-Ongoing
Area Affected	Canada, the European Commission, France, Germany, Italy, Japan, Mexico, the United Kingdom, the United States
Description	<p>In the wake of the 9/11 terrorist attacks, laboratory representatives from the G7 countries and Mexico met to share their concerns and capabilities and to discuss ways of working more collaboratively together. These meetings resulted in the establishment of a laboratory network as part of the Global Health Security Action Group (GHSAG). Since 2002, the Lab Network has been involved in the preparation and response to influenza outbreaks. Since 2012, the Lab Network has taken on a broader mandate to collaborate on public health events of international concern, such as Ebola, MERS-CoV, and similar pathogens.</p> <p>The Infectious Disease Prevention and Control Branch's National Microbiology Laboratory (NML) plays a central role in coordinating the activities of the laboratory network of GHSAG and is the home of the lab network secretariat.</p> <p>The Lab network's objective is to ensure GHSAG member laboratories work together to support the GHSI and GHSAG</p>

<i>Project Title</i>	<i>Global Health Security Action Group (GHSAG) – Lab Network</i>
	<p>activities by:</p> <ul style="list-style-type: none"> <li>• Ensuring a coordinated and validated diagnostic capability for bioterrorist threat agents;</li> <li>• Mapping the diagnostic capacity of member laboratories;</li> <li>• Discussing, sharing, and providing training in new diagnostic methods;</li> <li>• Improving the response capability;</li> <li>• Contributing to global surveillance for biothreats and sharing information with GHSAG member laboratories;</li> <li>• Providing a mutual surge capacity;</li> <li>• Liaising with other working groups and their secretariats; and</li> <li>• Ensuring that minimal common standards for biosafety and biosecurity guidelines are in place at all GHSAG laboratories.</li> </ul> <p>Between 2010 and 2012, the NML, in collaboration with other PHAC, Health Canada and Defense participants contributed to the development of a biological Threat Risk Assessment Tool under the leadership of Germany. This work has been revised in 2015 and the Lab Network is contributing.</p> <p>In addition, the NML has participated in and/or hosted several workshops including an Unknown pathogen detection workshop (CAN/UK) in 2012. This work continues as data interpretation and other challenges of Whole Genome Sequencing are sorted out.</p> <p>The Lab Network has been a key contributor to the Sample Sharing Task Group formally established in 2013 to deal with the challenges of timely sharing of samples and information in response to outbreaks of international concern.</p> <p>Finally, the GHSAG Laboratory Network continues to work together to determine the impacts of rapidly evolving technologies, changing global infectious disease profiles, antimicrobial resistance, and climate change on the public health laboratories in our countries.</p>
<i>Project Title</i>	<i>International Expert Group on Biosafety and Biosecurity Regulation – IEGBBR</i>
Themes	Capacity Building
Dept. Responsible	Centre for Biosecurity – Health Security Infrastructure Branch of the Public Health Agency of Canada
Other Partners	International partners
Project Value	In kind contribution of expertise and resources
Project Duration	2007-Ongoing
Area Affected	Global
Description	This group was initiated in 2007, with the first meeting in Ottawa, Canada. The fifth biennial meeting of the IEGBBR took place in Berlin, Germany on August 30 – September 2, 2015 with 35 participants from various countries and the World Health

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<i>Project Title</i>	<i>International Expert Group on Biosafety and Biosecurity Regulation – IEGBBR</i>
	Organization. Meeting participants are mainly regulatory personnel representing competent authorities, as well as personnel involved in promoting biosafety and biosecurity standards and culture in their country. The meetings provide an opportunity for networking, cooperation, and developing expertise to promote a more global or mutual response to emerging biosafety and biosecurity issues and threats.

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<i>Project Title</i>	<i>Joint US-Canada Science and Technology Collaboration for Animal Health Threats</i>
Themes	Disease surveillance, diagnosis, risk assessment, preparedness, and response
Dept. Responsible	Canadian Food Inspection Agency
Other Partners	USDA's Agricultural Research Service, USDA's Animal and Plant Health Inspection Service, US Department of Homeland Security, DRDC's Centre for Security Science, RCMP
Project Value	In kind contribution of expertise and resources
Project Duration	Ongoing
Area Affected	Canada-US
Description	The objective of this initiative is to develop a coordinated and strategic science and technology (S&T) collaboration in risk assessment, surveillance, diagnostics, preparedness, response, research and strategic planning to enhance both countries' capabilities to respond, individually or jointly, to intentional and unintentional animal health threats. The collaboration includes examining the trends, current status and gaps regarding emerging animal health threats and by identifying joint actions to address capacity development needs. Bilateral working groups have been established, including Surveillance and Diagnostics, Risk Assessment, Preparedness, Response and Research Coordination. A web-based share point serves as an effective communication tool for this bilateral collaboration initiative. The program is being expanded to include efforts to leverage our knowledge and capabilities in the area of emerging vector-borne diseases of common interest for both countries. This collaboration should also increase Canada-US effectiveness if called upon to support another country if requested, per Article VII.

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<i>Project Title</i>	<i>Laboratory Response Network (LRN)</i>
Themes	Disease surveillance, detection, and diagnosis
Dept. Responsible	Public Health Agency of Canada (National Microbiology Laboratory), National Defence (Defence Research and Development Canada – Suffield)
Other Partners	US Centres for Disease Control and Prevention
Project Value	In-kind contribution of expertise and resources

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<i>Project Title</i>	<i>Laboratory Response Network (LRN)</i>
Project Duration	2006-Ongoing
Area Affected	Worldwide
Description	The Public Health Agency of Canada directs the Canadian Laboratory Response Network in partnership with the USA CDC Atlanta, to provide oversight of the provincial public health laboratories within Canada to ensure an efficient, expeditious Canadian public health response to threat agents that may arise within the Canadian Public Health Care system. Partnership with the USA LRN networks Canada with the USA and their partners of approximately 160 US and international laboratories in the United Kingdom, Australia, Mexico, Republic of Korea, and Canada. The mission of the LRN and its partners will develop, maintain, and strengthen an integrated national and international network of laboratories that can respond quickly to needs for rapid testing, timely notification and secure reporting of results associated with acts of biological or chemical terrorism and other high priority public health emergencies.
<i>Project Title</i>	<i>Memorandum of Understanding Concerning Research, Development and Acquisition of Chemical, Biological and Radiological Defense Materiel (CBR MOU)</i>
Themes	Capability development of medical countermeasures, detection and diagnostics
Dept. Responsible	Defence Research and Development Canada
Other Partners	Australia, United Kingdom, United States
Project Value	In kind contribution of expertise and resources
Project Duration	1980-Ongoing
Area Affected	Australia, Canada, United Kingdom, United States
Description	<p>The CBR MOU encompasses cooperative research, development, testing, acquisition, destruction and disposal of Chemical, Biological and Radiological defence materiel, whose maturation may leads to enhancements of the national CBR defense posture. This MOU provides the means for AS/CA/UK/US to initiate, conduct and manage information exchange, harmonize and align efforts and conduct cooperative CBR Projects. Furthermore, the MOU provides the means for each nation to acquaint each other with any CBR issues in order to avoid unnecessary duplication of national CBR defense programs and collaborate to develop CBR defence capabilities to close any gaps. Collaborative activities include:</p> <ul style="list-style-type: none"> <li>• Development of medical countermeasures (drugs, vaccines and diagnostic tests) to CBR threats and emerging infectious diseases;</li> <li>• Hazard assessment, risk, threat and operational impact analyses to provide evidence-based support for strategic and operational level decision making;</li> <li>• Development of information systems and S&amp;T required to enhance early warning and reporting and real-time situational awareness of CBR threats; and</li> <li>• Development of improved capability options to provide</li> </ul>

<i>Project Title</i>	<i>Memorandum of Understanding Concerning Research, Development and Acquisition of Chemical, Biological and Radiological Defense Materiel (CBR MOU)</i>
	physical protection and hazard management technologies to protect people, equipment and infrastructure against CBR threats.
<i>Project Title</i>	<i>Memorandum of Understanding Concerning Research, Development and Acquisition of Chemical, Biological and Radiological Defense Materiel (CBR MOU) -Medical Countermeasure Consortium (MCMC)</i>
Themes	Disease preparedness, diagnosis, and treatment
Dept. Responsible	Department of National Defence
Other Partners	Public Health Agency of Canada, Defence and Health from United States, United Kingdom, and Australia
Project Value	In kind contribution of expertise and resources
Project Duration	2012-Ongoing
Area Affected	Australia, Canada, United Kingdom, and United States
Description	<p>The CBR MOU Medical Countermeasures Consortium (MCMC) is a joint collaboration between Defence and Public Health partners from four nations (Australia, Canada, United Kingdom and United States). The purpose of the MCMC is to address defence and public health medical countermeasure requirements across all levels of technology readiness; from early phase research and development through to advanced development; to enable the effective fielding or delivery of medical countermeasures (MCMs) against chemical, biological and radiological threats and emerging infectious diseases. MCMs are defined as drugs, vaccines and diagnostic tests.</p> <p>The MCMC is responsible for identifying and recommending deliverables and collaborative activities in any area which strengthen our collective preparedness posture to CBR threat agents and emerging infectious diseases, by addressing capability gaps and advancing the development and delivery of medical protection capabilities.</p> <p>Currently the MCMC has identified several task groups under the MCMC, including: Point of Care (POC) Diagnostics, Antimicrobial Resistance (AMR), Ricin MCMs, Filoviruses, and Stockpile Sharing.</p>
<i>Project Title</i>	<i>Mitigating Biological Security Risks in the ASEAN region</i>
Themes	Biosecurity, biorisk management, biosafety, and disease detection and surveillance
Dept. Responsible	Global Partnership Program of Foreign Affairs, Trade and Development Canada
Other Partners	World Health Organization (WHO), Association of South-East Asian Nations (ASEAN), and INTERPOL
Project Value	\$6,500,000 CAD
Project Duration	2013-2016

<i>Project Title</i>	<i>Mitigating Biological Security Risks in the ASEAN region</i>
Area Affected	South-East Asia: ASEAN Member countries (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam)
Description	<p>In partnership with ASEAN member countries, Canada is implementing a project to strengthen capacities to detect, rapidly identify and diagnose highly dangerous pathogens and emerging infectious diseases (e.g. Ebola, MERS-CoV) that present global threats. Specific project activities and implementing partners include:</p> <ul style="list-style-type: none"> <li>• Strengthening the Emerging and Dangerous Pathogens Laboratory Network (EDPLN) in Asia, in partnership with the World Health Organization and the ASEAN Plus Three Partnership Laboratories (APL) network;</li> <li>• Establishing an early warning and disease surveillance system in the region (BioDiaspora);</li> <li>• Enhancing ties and collaboration between the Mekong Basin Disease Surveillance Network (MBDS) and the Asia Partnership on Emerging Infectious Disease Research (APEIR);</li> <li>• Field Epidemiology Training (FETN); and</li> <li>• INTERPOL training on Safety, Security and Surveillance of Microbiological Materials and Emerging Technologies (S3OMMET).</li> </ul>

<i>Project Title</i>	<i>NATO Exercise Precise Response (Biological Training Exercises)</i>
Themes	CBRNE response training and capability exercise
Dept. Responsible	National Defence (Defence Research and Development Canada – Suffield)
Other Partners	NATO Partners
Project Value	\$300,000 CAD in 2015
Project Duration	2006-Ongoing
Area Affected	Worldwide
Description	Exercise Precise Response is an annual military CBRNE exercise that occurs at DRDC Suffield. Participating countries are trained in scenarios involving CBRNE agents and materials. Additionally, laboratory testing capabilities are exercised during this programme. Annually 8-10 countries participate in this exercise and knowledge transfer occurs between partner countries. This exercise enhances the readiness and capabilities of NATO countries to respond to CBRNE incidents.

<i>Project Title</i>	<i>NATO NAAG (NATO Army Armament Group) DIMP (Detection, Identification and Monitoring Panel) and Standoff Team</i>
Themes	CBRN detection/monitoring international collaborative group
Dept. Responsible	National Defence (D CBRN D and Defence Research and

<i>Project Title</i>	<i>NATO NAAG (NATO Army Armament Group) DIMP (Detection, Identification and Monitoring Panel) and Standoff Team</i>
	Development Canada – Valcartier)
Other Partners	NATO Partners
Project Value	In kind contribution of expertise and resources
Project Duration	Ongoing
Area Affected	NATO Countries
Description	<p>AREA OF RESPONSIBILITY:</p> <p>The DIMP is responsible for the joint technical, testing and operational aspects of CBRN detection, sampling, identification and monitoring. These functions are needed to detect and characterize CBRN events, identify the agents and hazards, delineate areas of contamination, and monitor the changes to inform CBRN force protection actions as required.</p> <p>MISSION:</p> <p>The DIMP will take forward JCBRND CDG efforts as outlined in the Joint Priority Assessment and Work Schedule (JPAWS) to provide technical and operational advice, foster interoperability, and establish technical and operational standards in the areas of CBRN detection, sampling, identification, and monitoring. This includes providing information – up to unequivocal proof – concerning the first use of Biological, Chemical and Radiological Agents to NATO political and military authorities to support timely decisions concerning NATO response.</p>
<i>Project Title</i>	<i>Procinorte – Animal Health Task Force</i>
Themes	Disease surveillance, diagnosis, risk assessment, and preparedness
Dept. Responsible	Canadian Food Inspection Agency
Other Partners	United States Department of Agriculture (USDA)’s Agricultural Research Service (ARS) and Mexico’s Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias (INIFAP) and Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria (SENASICA)
Project Value	In kind contribution of expertise and resources
Project Duration	Ongoing
Area Affected	Mexico-US-Canada
Description	<p>Procinorte is a mechanism to promote the cooperation in research and technology transfer in the Northern Region for a competitive and sustainable agricultural development.</p> <p>The objectives of Procinorte are:</p> <ul style="list-style-type: none"> <li>• To promote dialogue to identify priority research issues common to the three countries and to influence the regional, hemispheric and global agendas;</li> <li>• To facilitate the exchange of experiences, information and</li> </ul>

<i>Project Title</i>	<i>Procinorte – Animal Health Task Force</i>
	<p>training through building linkages among public and private country institutions of the Northern Region and with the major research and technology transfer actors in the region, the hemisphere and the world; and</p> <ul style="list-style-type: none"> <li>• To facilitate collaboration among the countries to solve problems of mutual interest.</li> </ul> <p>Procinorte task forces include: Animal Health, Agricultural Libraries and Information Services, Genetic Resources, Tropical and Subtropical Fruits, Plant Health.</p> <p>Activities of the Animal Health Task Force (AHTF) have included workshops on animal influenzas (H1N1 pandemic influenza; wet workshop on influenza ‘A’ virus molecular diagnostic techniques; Mexican outbreak of H7N3 highly pathogenic avian influenza) bovine spongiform encephalopathy (two workshops) and bovine tuberculosis (two workshops). The above workshops have enabled scientists from the three countries to share experiences, information and hands-on approaches in the above areas and to promote networking, friendship and trust in the process.</p> <p>The AHTF also aims to identify and discuss ways in which the three countries could harmonize diagnostic methods for animal disease and manage outbreaks.</p> <p>This tri-national collaboration has successfully involved the animal health regulatory agencies of the three member countries and promoted scientific networking.</p> <p>A web based share point serves as a central communication tool for the task force members.</p>

<i>Project Title</i>	<i>Public Health Agency of Canada – Mobile Lab</i>
Themes	Disease diagnosis and containment
Dept. Responsible	Microbiological Emergency Response Team (MERT) - Infectious Disease Prevention and Control Branch of the Public Health Agency of Canada
Other Partners	N/A
Project Value	In kind contribution of expertise and resources
Project Duration	As needed
Area Affected	Worldwide, where needed (mobile)
Description	The National Microbiology Laboratory (NML) of the Infectious Disease Prevention and Control Branch of PHAC maintains and operates scalable state-of-the-art mobile laboratory options that can be deployed to fill a variety of needs; to respond to emergency outbreak situations anywhere in the world, to assist with site security at high profile events when required, and to respond to possible bioterrorism incidents if one were to occur. These deployable units can span the range of a “lab in a box”, able to be checked on commercial aircraft (what is used for remote, rapid response); a “mobicon”, a true containment level 2 in a trailer format that can be



<i>Project Title</i>	<i>Public Health Agency of Canada – Mobile Lab</i>
	<p>shipped by plane on very short notice; and a mobile truck lab with true containment level 3/4 capabilities that is usually used for preplanned deployment or forensic exploitation to triage all exhibits for biological contamination from a bio-crime scene.</p> <p>In the realm of rapid emergency outbreak response, team(s) of PHAC scientists have been deployed with the units at the request of the Royal Canadian Mounted Police (RCMP), who lead the Canadian National CBRNE team and the WHO's Global Outbreak and Response Network (GOARN). Team members work closely with the RCMP for security deployments, as well as with WHO, local officials and other attending partners, and have extensive experience operating in the most remote areas of the world and the highest risk situations. Since 2003, the mobile laboratory units have responded to outbreaks of Nipah virus in Bangladesh, Crimean Congo hemorrhagic fever in Iran, SARS in China and the Hong Kong Special Administrative Region, Avian influenza in Vietnam, Marburg virus in Angola, Rift Valley fever in Kenya, and Ebola virus in the Democratic Republic of the Congo and Sierra Leone and Guinea.</p> <p>In addition to responding to infectious disease outbreaks and security events, PHAC's Microbiological Emergency Response Team (MERT) provides training to national and international partners involving mobile laboratory operations, in-field identification of biological agents, sampling procedures, and coordination/execution of response exercises in their role within Canada's National CBRNE team. MERT also supports national security operations, through mobile laboratory deployment and the development of site security and laboratory response plans. The NML has supported deployments for site security and bio-threat response exercises such as the Summit of Americas in Trinidad and Tobago (2008 and 2009), Beijing Olympics (2008), Francophone Summit (2008), CAPEX (2011, 2013, 2015), Mexico/H1N1 (2009), Vancouver 2010 Olympics, G8/G20 Summits (2010), United Nations Secretary General Mechanism for the Alleged Use of Biological Warfare Agents (2014) and the annual Canadian National CBRNE team exercise, FireDrake, including the international and national emergency deployments as needed.</p> <p>The capacity is constantly evolving to evaluate, validate and incorporate newer, faster testing platforms, equipment and procedures. In addition, the establishment and expansion of the Canadian Laboratory Response Network by the NML serves to increase response capabilities within the country through dissemination of reagents to provincial partners for rapid local identification of Select Agents.</p>

<i>Project Title</i>	<i>PulseNet</i>
Themes	Disease surveillance and outbreak detection and response
Dept. Responsible	Infectious Disease Prevention and Control Branch of the Public Health Agency of Canada
Other Partners	Other countries using PulseNet
Project Value	In kind contribution of expertise and resources

<i>Project Title</i>	<i>PulseNet</i>
Project Duration	2005-Ongoing
Area Affected	Other countries using PulseNet
Description	<p>Foodborne and waterborne diseases due to bacterial pathogens result in substantial human health and economic burdens. Strong national, molecular-level surveillance for these diseases is critically important.</p> <p>PulseNet Canada is a laboratory network that comprises the provincial public health laboratories as well as the Canadian Food Inspection Agency (CFIA). Through this network, the DNA “fingerprints” of cases of foodborne and waterborne bacterial disease across the country are centrally analyzed in real time (i.e., as the cases occur). Because of this electronic surveillance, data sharing and analysis, outbreaks caused by bacteria such as <i>Salmonella</i>, <i>Listeria</i>, <i>E. coli</i>, and <i>Shigella</i> are detected at the earliest possible stage, facilitating timely public health interventions including, for example, food recalls. PulseNet Canada utilizes Virtual Private Network (VPN) connections that directly link the databases of the member laboratories, plus a secure discussion board for communications among partners. PulseNet Canada provides training and Quality Assurance for all member laboratories to ensure the highest quality, reliable data are consistently generated.</p> <p>Data are also shared across international jurisdictions through the PulseNet International network, which is comprised of 82 countries spanning Central and South America, Europe, the Middle East, Sub-Saharan Africa, and the Asia-Pacific region; this facilitates the identification of emerging regional and global trends. Canada is a member of the PulseNet International Steering Committee, which provides guidance on the adoption of new technology such that global comparability is maintained. At the most recent PulseNet International meeting (November 2015, in Mexico), the Steering Committee developed plans for harmonized implementation of genomics technology worldwide and also discussed capacity building for countries without genomics technology. Additionally, Canada and the United States participate in a bilateral Memorandum of Understanding that enables real-time sharing and direct access to national-level foodborne disease data, ensuring that outbreaks and emergencies that span (or potentially span) both sides of the border can be identified and investigated without delay. This MOU was initially signed in 2005, was renewed in 2010, and is currently being renewed for 2015.</p> <p>The National Microbiology Laboratory is leading the implementation of whole genome sequencing, which will ultimately replace traditional molecular DNA fingerprinting techniques in PulseNet Canada and worldwide. This work is being done with provincial and federal partners as well as global counterparts via PulseNet International. Implementation of whole genome sequencing is expected to significantly improve the timeliness and accuracy of enteric disease outbreak response in Canada and across the world. Also, specific technical training assistance is provided to individual countries where needed; training and assistance has recently been provided to Chile (November 2015).</p>

<i>Project Title</i>	<i>Real Property Safety and Security</i>
Themes	Disease containment
Dept. Responsible	Infectious Disease Prevention and Control Branch of the Public Health Agency of Canada
Other Partners	Broad list of international partners
Project Value	In kind contribution of expertise and resources
Project Duration	2007-Ongoing
Area Affected	Worldwide
Description	<p>Real Property Safety and Security (RPSSD) has established a leadership role both nationally and internationally in the Operation and Maintenance of High Containment laboratories by providing among other things:</p> <ul style="list-style-type: none"> <li>• Peer review for new high containment facilities in many countries;</li> <li>• Being a technical resource to other countries and design teams;</li> <li>• Bench Marking of facility O&amp;M costs;</li> <li>• Leadership in decontamination technologies;</li> <li>• Commissioning support to foreign laboratories; and</li> <li>• Provision of technical expertise to the high containment community.</li> </ul> <p>RPSSD, in conjunction with the International Center for Infectious Diseases, hosted the 7th annual International High Containment Operations and Maintenance Workshop. This workshop addresses the increasing needs of facility operators, maintenance and operations staff for training in relevant aspects of bio-containment facilities and fills a critical need within the operations and maintenance community. The 2015 workshop was attended by 12 participants from 7 countries.</p> <p>RPSSD has ongoing collaborations with Public Health England as it plans for the construction of a new positive pressure suit Containment Level 4 laboratory.</p> <p>RPSSD has individuals contributing under the European Committee for Standardization Working Agreement (CEN/CWA) for the development of the Laboratory Bio-Risk Management System.</p>

<i>Project Title</i>	<i>Regional Biosecurity Training Centre in Jordan</i>
Themes	Biorisk management, biosecurity, biosafety, disease surveillance
Dept. Responsible	Global Partnership Program of Foreign Affairs, Trade and Development Canada
Other Partners	United States, United Kingdom
Project Value	\$1,100,000 CAD
Project Duration	2013-2015

<i>Project Title</i>	<i>Regional Biosecurity Training Centre in Jordan</i>
Area Affected	Middle-East (Jordan)
Description	<p>In partnership with the Governments of the United Kingdom and the United States, Canada supported the development of a new BioRisk Management and Genomics Training Center at the Princess Haya Biotechnology Center at the Jordan University of Science and Technology (JUST). This project established a regional center of excellence to enhance the capacity for biological risk management and technological capabilities of laboratories in order to combat infectious diseases and at the same time promote a sustainable culture of laboratory safety and security through the education and training of staff from different sectors of the Middle East and North Africa (MENA) region. More specifically, Canada's contribution supported:</p> <ul style="list-style-type: none"> <li>• Construction of the Genomics Floor at the Regional Biological Risk Management Training Center;</li> <li>• Provision of specified genomics equipment; and</li> <li>• Delivery of biorisk management training.</li> </ul>

<i>Project Title</i>	<i>Strengthening Biological Security in Ghana</i>
Themes	Biosecurity, biocontainment, biorisk management, biosafety, and disease detection and surveillance
Dept. Responsible	Global Partnership Program of Foreign Affairs, Trade and Development Canada
Other Partners	N/A
Project Value	\$4,400,000 CAD
Project Duration	2012-2016
Area Affected	Ghana
Description	<p>Canada implemented biosecurity and biocontainment measures at three facilities of Ghana's Veterinary Services Directorate (VSD) lab network. These projects, which included the provision of fully-equipped modular laboratories at three different sites, aim to better secure dangerous pathogens of terrorism and proliferation concern and to provide the VSD with the capability to rapidly diagnose emerging and re-emerging zoonotic disease in a safe and controlled environment. GPP is providing ongoing maintenance and operational support through 2016 to ensure the new facility achieves its objective of strengthened biological security and disease diagnostics capacity.</p>

<i>Project Title</i>	<i>Strengthening Biological Security in Nigeria</i>
Themes	Biosecurity, biocontainment, biorisk management, disease surveillance
Dept. Responsible	Global Partnership Program of Foreign Affairs, Trade and Development Canada
Other Partners	N/A

<i>Project Title</i>	<i>Strengthening Biological Security in Nigeria</i>
Project Value	\$2,150,000 CAD
Project Duration	2012-2016
Area Affected	Nigeria
Description	Canada implemented urgently-needed biosecurity and biosafety improvements and provided disease diagnostics capacity at a veterinary facility in central Nigeria. The construction phase of the Project was completed in 2015. GPP is providing ongoing maintenance and operational support through 2016 to ensure the new facility achieves its objective of strengthened biological security and disease diagnostics capacity.
<i>Project Title</i>	<i>Strengthening Export Controls and Border Security in the Americas and the Caribbean</i>
Themes	Border security, legislative assistance
Dept. Responsible	Global Partnership Program of Foreign Affairs, Trade and Development Canada
Other Partners	Various
Project Value	\$5,900,000 CAD
Project Duration	2015-TBC
Area Affected	Latin America and Caribbean
Description	<p>Canada is supporting the enhancement of export controls and border security measures to prevent the proliferation and trafficking of weapons of mass destruction (WMDs), their means of delivery and related materials, including enhanced implementation of strategic trade domestic controls of chemical, biological, radiological and nuclear (CBRN) materials. In the global fight against WMD proliferation, full and effective national implementation of all obligations under multilateral arms control agreements (including the adoption and application of effective export controls and border security measures) plays a critical role.</p> <p>To address these vulnerabilities, this Project is assisting partner states to establish or enhance domestic controls, adopt effective laws and implement comprehensive measures to prevent the proliferation of CBRN weapons and their means of delivery. Tailored activities will include national needs assessments, development of legislative application plans and the provision of requisite equipment, training and related technical assistance to strengthen national and regional capacity to prevent, detect and respond to CBRN incidents. The Project will also support the development and/or enhancement of cargo targeting systems at select, high-volume Latin American and/or Caribbean ports of entry to strengthen capabilities to identify and track shipments of CBRN and other illicit goods and trade flows in and through the region. It will also directly support States Parties to the BTWC to fulfill their national obligations, including by facilitating participation at BTWC Meetings (e.g. Meetings of Experts and States Parties) and convening BTWC workshops and events (e.g. Global Parliamentary Forum on universality and implementation of</p>

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<i>Project Title</i>	<i>Strengthening Export Controls and Border Security in the Americas and the Caribbean</i>
	the BTWC in San Salvador, El Salvador on December 1, 2015).

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<i>Project Title</i>	<i>Support for Ebola Response</i>
Themes	Biosecurity, biocontainment, biorisk management, disease surveillance
Dept. Responsible	Global Partnership Program of Foreign Affairs, Trade and Development Canada
Other Partners	World Health Organization (WHO), Public Health Agency of Canada
Project Value	\$6,300,000 CAD
Project Duration	2014-2015
Area Affected	West Africa (Guinea, Liberia, and Sierra Leone)
Description	Canada supported international security-relevant aspects of the Ebola response effort through a contribution to the WHO (e.g. delivery of 18 million items of personal protective equipment donated by the Government and Provinces of Canada) and to the Public Health Agency of Canada (PHAC) to support deployment of two mobile laboratories and expert diagnostic teams to Sierra Leone.

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<i>Project Title</i>	<i>Trichinella diagnostics, Proficiency Testing and Lab Certification for Trichinella Testing</i>
Themes	Disease surveillance
Dept. Responsible	Canadian Food Inspection Agency
Other Partners	OIE, International Commission on Trichinellosis, and National reference labs in EU, US, etc.
Project Value	In kind contribution of expertise and resources
Project Duration	Ongoing
Area Affected	Worldwide
Description	Advice and participation to draft international standards and quality assurance mechanisms for the detection of Trichinella in pork and wildlife, and Certification of Trichinella Testing Labs. Confirmatory testing of positive international samples.

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## Conclusion

5. This paper is intended to show only a brief overview of Canada's international activities related to this year's BTWC program of work. For additional information on Canada's projects, please contact C. Andrew Halliday at the Non-Proliferation and Disarmament Division, Foreign Affairs, Trade and Development Canada by phone at +1-343-203-3167 or by e-mail at [christopherandrew.halliday@international.gc.ca](mailto:christopherandrew.halliday@international.gc.ca). Additionally, to get in contact with the organizations that fund these projects, please consult Canada's entry on the Article X database.

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