

**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**

3 December 2013

English only

2013 Meeting

Geneva, 9–13 December 2013

Item 7 of the provisional 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 2013**

Submitted by Canada

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 paper (see Annex) 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 paper. The projects listed 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 2013 Meeting of States Parties contains only projects that were active during calendar year 2013. This paper should be viewed in conjunction with three 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 the Canada's paper on international activities in support of Article X at the 2012 Meeting of States Parties (BWC/MSP/2012/INF.1).

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 by phone at +1-613-944-5103 or by e-mail at 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.

Annex

Projects

Project Title African Centre for Laboratory Equipment Maintenance

Themes Biocontainment, biorisk management, biosafety

Dept. Responsible Global Partnership Program of Foreign Affairs and International Trade Canada

Other Partners US Centres for Disease Control and Prevention

Project Value \$700,000 CAD

Project Duration 2012-2014

Area Affected Western Africa

Description Canada is helping create local and regional capacity for maintenance and certification of equipment used for surveillance, detection and diagnosis of dangerous biological agents, thereby increasing the longevity and utility of critical biological laboratory equipment provided by Canada and other international donors in Africa.

Project Title Bioterrorism preparedness and response training

Themes Disease detection, containment, and response

Dept. Responsible Global Partnership Program and Counter-Terrorism Capacity Building Program of Foreign Affairs and International Trade 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 2008-2014

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.

Project Title Canadian Biosafety Symposium

Themes Biosafety and Biosecurity

Dept. Responsible Office of Biohazard Containment & Safety of the Canadian Food Inspection Agency; Centre for Biosecurity of the Public Health Agency of Canada

Other Partners International Centre for Infectious Diseases (ICID), Canadian Biological Safety Association (CABS),

Project Value N.A.

Project Duration Annual/two day symposium, with a one day pre-course.

Area Affected International event, Ottawa Canada in 2013

Description The Canadian Biosafety Symposium provides opportunities for training, networking and knowledge sharing across the Canadian and international biosafety community who share a common interest in promoting greater biosafety knowledge and effective biosafety programs and practices. The Symposium is an annual collaborative event organized by the CFIA, PHAC, CABS and ICID and annually welcomes between 100-150 participants from across Canada and internationally. PHAC and CFIA have been heavily involved in the planning of this symposium since its inception. The 2013 Canadian Biosafety Symposium was held from June 4-7, in Ottawa, Ontario, and included international representatives from Cuba, Morocco, the United Kingdom and the United States. In addition to sessions on biosafety and biocontainment, the 2013 program included a Keynote Address on the responsible conduct of research, followed by an executive panel discussion on dual-use research of concern.

Project Title Capacity building for biosecurity and disease surveillance in the Caribbean and Central America

Themes Disease surveillance, detection, and containment

Dept. Responsible Global Partnership Program of Foreign Affairs and International Trade Canada

Other Partners World Health Organization (WHO)

Project Value \$950,000 CAD

Project Duration 2012-2013

Area Affected Caribbean, Central America

Description Provision of specialized IATA-certified pathogen collection and transport kits, advanced molecular diagnostics field kits and related training to the Pan-American Health Organization (PAHO) for prepositioning in strategic locations across the Caribbean and Central America.

Project Title CAPEX

Themes CBRNE response training and capability exercise

Dept. Responsible Royal Canadian Mounted Police

Other Partners Canada: Public Safety Canada, Royal Canadian Mounted Police – National CBRNE Response Team (ED&TS and NFISS CBRNE) Canadian Forces – Canadian Joint Incident Response Unit (CJIRU), Public Health Agency of Canada (PHAC - NML / MERT), Chemical Support - Defence Research & Development Canada (DRDC) Suffield and Environment Canada, Radiological Support -

	Federal Radiological Response Team (FRAT), DRDC-Ottawa, Health Canada, Natural Resources Canada
	United States: 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)
	United Kingdom: Home Office (Met Police) Defence Science and Technology Laboratory (dstl), National Police Improvement Agency (NPIA)
	Australia: Australian Federal Police (AFP), Defence Science and Technology Organization (DSTO)
Project Value	N.A.
Project Duration	Biennial
Area Affected	International event that in 2011 took place in the UK, 2013 in USA and anticipated pending approval in 2015 for Canada
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.
Project Title	Caribbean Public Health Agency (CARPHA)
Themes	Disease detection and diagnosis
Dept. Responsible	Office of International Affairs for the Health Portfolio
Other Partners	Pan-American Health Organization (PAHO)
Project Value	\$800,000 CAD
Project Duration	2008-2014
Area Affected	Caribbean Community (CARICOM)
Description	<p>To ensure the safety and health security of Canadians at home and in the Americas region, the Public Health Agency of Canada (PHAC) supports the Caribbean Community (CARICOM) in the ongoing development of the Caribbean Public Health Agency (CARPHA). Located in Trinidad and Tobago, CARPHA became a legal entity in July 2011 and has been operational since January 2013. The development of CARPHA will enhance the overall capacity of the Caribbean to effectively address regional public health challenges.</p> <p>The establishment of CARPHA involved the integration of five existing regional health institutions into a single self-administered integrated health agency, under the CARICOM governance structure. To date, PHAC's total contributions to CARPHA are \$800,000 CAD. PHAC has also provided in-kind policy and technical support to CARPHA, including participation as a member of the CARPHA Technical Advisory Committee (TAC) since 2012, (and its predecessor, the CARPHA Advisory Board from 2008 to</p>

2011). As part of the TAC, PHAC (National Microbiology Laboratory and the Centre for Biosecurity) is also a member of the CARPHA Laboratory Sub-Committee. This committee provides technical support and advice with respect to CARPHA laboratory facilities, including the provision of a modular laboratory to CARPHA under the Global Partnership Program, operated by the Department of Foreign Affairs, Trade and Development.

Support to CARPHA builds upon PHAC's ongoing collaboration with individual countries of the Caribbean and multilaterally with institutions like PAHO and CARICOM. The Government of Canada's Americas Strategy (2012-2017) identifies the Caribbean as a key region of focus, and the CARPHA initiative is included under the second goal "to address insecurity and to advance freedom, democracy, human rights and the rule of law through capacity building."

CARPHA is currently developing a strategic plan to guide its program priorities for the coming years. PHAC continues to monitor these developments and will work with CARPHA to identify shared priorities, and opportunities for future collaboration.

Project Title	China CDC-PHAC Cooperation Plan
Themes	Disease surveillance, detection, diagnosis, and containment
Dept. Responsible	Public Health Agency of Canada
Other Partners	N/A
Project Value	In Kind
Project Duration	2011-2012
Area Affected	China
Description	<p>The PHAC-China CDC Collaboration was initiated in 2011 to enhance public health related collaboration between the two institutions. The collaboration covers a number of key fields including infectious disease, laboratory management and biosafety, information and surveillance systems, food safety and epidemiology.</p> <p>The collaboration officially ended in 2012, however, informal collaboration continues. Collaboration took the form of work-study tours, scientific collaborations and dialogue, exchange of templates, standards and guidelines, standard operating procedures.</p>
Project Title	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
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 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.
Project Title	Enhanced biological security and disease surveillance in the Caribbean
Themes	Disease surveillance, detection, and containment
Dept. Responsible	Global Partnership Program of Foreign Affairs and International Trade Canada
Other Partners	Pan-American Health Organization (PAHO); Caribbean Public Health Agency (CARPHA)
Project Value	\$2,500,000 CAD
Project Duration	2012-2014
Area Affected	Caribbean
Description	Strengthened biological security and disease diagnostics capacity in the Caribbean region through the fabrication, equipping, installation and commissioning of a modular BSL3 laboratory at the Caribbean Epidemiology Centre (CAREC) based in Trinidad and Tobago.
Project Title	European Enforcement Project
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	N/A
Project Duration	Ongoing
Area Affected	Global
Description	The European Enforcement Project (EEP) annual meeting of federal inspectors responsible for human pathogens in the European Union (EU) and forms a Europe-wide network for inspectors and inspectorates of the EU Member States to exchange experiences

(breaches and failures of biocontainment, threats, etc.) and establish methodologies for the harmonisation of approaches to inspection and enforcement of work with contained use of microorganisms. Since 1997 network members have produced practical documents such as procedures and checklists for inspection, guidance on sampling methodologies, hosted shared inspection visits of facilities and deliberate release sites, and held annual conferences. As the sole non-EU member permitted entry into these closed-door meetings, PHAC's participation in these frank discussions by federal authorities allows PHAC a unique opportunity to share international best practices and lessons.

Project Title	Field Epidemiology and Technical Support
Themes	Disease surveillance and detection
Dept. Responsible	Public Health Agency of Canada
Other Partners	N/A
Project Value	N.A.
Project Duration	Ongoing
Area Affected	Member-countries of Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET), the World Health Organization (WHO), and Pan American Health Organization (PAHO).
Description	<p>PHAC supports global public health capacity building through the development, delivery, and participation in various field epidemiology initiatives.</p> <p>Achieved through:</p> <ol style="list-style-type: none">i) involvement with a global network of field epidemiology training programs called "TEPHINET" – which includes over 50 countries and WHO participationii) direct involvement and support of WHO global initiativesiii) support to governments directly <p>Activities include:</p> <ul style="list-style-type: none">- 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:<ul style="list-style-type: none">o assess training and/or other technical needs around surveillance and outbreak responseo develop and deliver training;o 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)
- 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)
- 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 PHAC Field Epidemiologist to GOARN for MERS-CoV epidemiologic assistance in Tunisia (June 2013)
 - Mobilisation of PHAC Epidemiologists to WHO/PAHO in support of cholera outbreak response in Haiti (Jan-Mar 2011)
 - Development and delivery of training to support specialised public health surveillance for Mass Gathering events e.g. Vancouver Olympic Games (2010), International Arctic Winter Games (2012), Canada Games (2013);
 - Support of WHO-CDC Stop Transmission of Polio initiatives (ongoing), deploy field epidemiologists regularly, includes strengthening surveillances (two field epidemiologists deployed to Africa in June 2011; one to Africa in July 2012, and two in February 2013 to the Philippines and Liberia; one to Pakistan in June 2013).
 - Mobilisation of two PHAC epidemiologists consecutively to WHO/PAHO Belize to support capacity building and compliance with their global responsibility under the International Health Regulations (IHR). (October 2011 - April 2012)
 - Mobilisation of resources to support the Caribbean Epidemiology Centre (CAREC) Trinidad and Tobago with the qualitative analysis of the readability, comprehension and interpretation of the Global School Health Survey Questionnaire by adolescents in three CAREC member countries (March - May 2012 and September - November 2012)
 - Consecutive mobilisations of three PHAC field

epidemiologists to WHO/PAHO Bahamas and the Turks and Caicos, to build capacity at the Ministry of Health for communicable disease control through early detection of key epidemic-prone diseases and appropriate response in line with their global responsibility under the IHR. (January – December 2012)

Mobilized two French speaking field epidemiologists to support a request from US CDC to support their efforts of the Global Polio Eradication Initiative in Central African Republic (May 2012 and September 2012).

Project Title	Global Health Security Initiative (GHSI) / Global Health Security Action Group (GHSAG)
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	N/A
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 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 GHSAG Secretariat is supported by the Office of International Affairs for the Health Portfolio. The Public Health Agency of Canada also acts as the chair of the Global Laboratory Network, as well as the co-chair of the Risk Management and Communications Working Group, along with the United Kingdom.</p>

Project Title	Global Health Security Action Group (GHSAG) – Lab Network
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	N.A.
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).</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 activities by:</p> <ul style="list-style-type: none"> • Ensuring a coordinated and validated diagnostic capability for bioterrorist threat agents; • Mapping the diagnostic capacity of member laboratories • Discussing, sharing, and providing training in new diagnostic methods; • Improving the response capability; • Contributing to global surveillance for biothreats and sharing information with GHSAG member laboratories; • Providing a mutual surge capacity; • Liaising with other working groups and their secretariats; and, • Ensuring that minimal common standards for bio-safety and bio-security guidelines are in place at all GHSAG laboratories. <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.</p> <p>In addition, the NML has participated and/or hosted several workshops including an Unknown pathogen detection workshop (CAN/UK) in 2012.</p> <p>Finally, the GHSAG Laboratory Network continues to work</p>

together to establish closer technical linkages with and support of other networks such as the Emerging Dangerous Pathogen Laboratory Network (EDLPN), The International Federation of Biosafety Associations (IFBA), and with Coordinating Organizations for Regional Disease Surveillance (CORDS). The Laboratory Network has identified Dual Use Research of Concern (DURC) as a critical initiative to be undertaken.

Project Title	International Expert Group on Biosafety and Biosecurity Regulation – IEGBBR (formerly the Global Human Pathogens Biosafety and Biosecurity Group)
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	N/A
Project Duration	Ongoing
Area Affected	Global
Description	This group was initiated in 2007, with the first meeting in Ottawa, Canada. The fourth biennial meeting of this group took place in Atlanta, Georgia, USA, March 19-21, 2013 with 20 participants from 13 countries, including Canada, and the World Health Organization and saw the participation of 2 new countries. 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 United Nations members to network, cooperate, and develop expertise to promote a more global or mutual response to emerging biosafety and biosecurity issues and threats.
Project Title	Joint US-Canada Science and Technology Collaboration for Animal Health Threats
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	N/A
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.

Project Title	Laboratory Response Network (LRN)
Themes	Disease surveillance, detection, and diagnosis
Dept. Responsible	National Defence (Defence Research and Development Canada – Suffield), Public Health Agency of Canada (National Microbiology Laboratory)
Other Partners	US Centres for Disease Control and Prevention, Provincial Public Health Laboratories (British Columbia, Alberta, Ontario, Quebec)
Project Value	N/A
Project Duration	Ongoing
Area Affected	Worldwide
Description	The LRN is a network 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.
Project Title	Memorandum of Understanding Concerning Research, Development and Acquisition of Chemical, Biological and Radiological Defense Materiel (CBR MOU)
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	N/A
Project Duration	N/A
Area Affected	Australia, Canada, United Kingdom, United States
Description	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:

- Development of medical countermeasures (drugs, vaccines and diagnostic tests) to CBR threats and emerging infectious diseases
- Hazard assessment, risk, threat and operational impact analyses to provide evidence-based support for strategic and operational level decision making.
- Development of information systems and S&T required to enhance early warning and reporting and real-time situational awareness of CBR threats
- Development of improved capability options to provide physical protection and hazard management technologies to protect people, equipment and infrastructure against CBR threats

Project Title	Memorandum of Understanding Concerning Research, Development and Acquisition of Chemical, Biological and Radiological Defense Materiel (CBR MOU) -Medical Countermeasure Consortium (MCMC)
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	N/A
Project Duration	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</p>

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.

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.

Project Title	Mitigating Biological Security Risks in South-East Asia
Themes	Biocontainment, biorisk management, biosafety, disease surveillance
Dept. Responsible	Global Partnership Program of Foreign Affairs and International Trade Canada
Other Partners	TBD
Project Value	\$6,000,000 CAD
Project Duration	2013-2015
Area Affected	South-East Asia
Description	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. H7N9) that present global threats. Project activities will also enhance existing regional disease surveillance networks and promote regional coordination and cooperation.
Project Title	National Microbiology Laboratory (NML) Prion Diseases Program (PDP)
Themes	Disease surveillance and diagnosis
Dept. Responsible	Infectious Disease Prevention and Control Branch of the Public Health Agency of Canada
Other Partners	Health Canada, Canadian Food Inspection Agency
Project Value	N.A.
Project Duration	Ongoing
Area Affected	All 11 members of EUROCCJD – Australia, Austria, Canada, France, Germany, Italy, Netherlands, Slovakia, Spain, Switzerland, and UK
Description	The NML Prion Diseases Program (PDP) is the only public health program for human prion diseases in Canada. PDP provides national leadership by conducting surveillance, performing research and delivering diagnostic technical services to minimize infectious risks posed to Canadians by these rare, transmissible, lethal degenerative brain diseases. Activities include comprehensive detection and detailed characterization of all cases of human prion diseases that occur in Canada; tracking of rates and investigation of causes; development and validation of improved technologies for earlier and more accurate diagnosis; and studies of biological

mechanisms of disease.

Internationally, PDP is a member of an 11-country surveillance consortium (the European Creutzfeldt-Jakob Disease Surveillance Network) with the goals of sharing data, establishing best practices and optimizing global approaches to public health for human prion diseases. These activities are also considered essential to help Canada deal with trade issues arising from animal prion diseases with zoonotic potential, such as bovine spongiform encephalopathy (BSE) and Chronic Wasting Disease (CWD). PDP works on this level with the Canadian Food Inspection Agency and Health Canada, as part of an interdepartmental federal program to respond to BSE. Other federal partners include Canadian Blood Services and Héma-Québec, and other international linkages include the US FDA and the World Health Organization.

Project Title	NATO Exercise Precise Response (Biological Training Exercises)
Themes	CBRNE response training and capability exercise
Dept. Responsible	National Defence (Defence Research and Development Canada – Suffield)
Other Partners	NATO Partners
Project Value	N/A
Project Duration	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.
Project Title	Procinorte – Animal Health Task Force
Themes	Disease surveillance, diagnosis, risk assessment, and preparedness
Dept. Responsible	Canadian Food Inspection Agency
Other Partners	USDA’s Agricultural Research Service and Mexico’s INIFAP and SENASICA
Project Value	N.A.
Project Duration	Ongoing
Area Affected	Mexico-US-Canada
Description	Procinorte is a mechanism to promote the cooperation in research and technology transfer in the Northern Region for a competitive and sustainable agricultural development. The objectives of Procinorte are:

- To promote dialogue to identify priority research issues common to the three countries and to influence the regional, hemispheric and global agendas.
- To facilitate the exchange of experiences, information and 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.
- To facilitate collaboration among the countries to solve problems of mutual interest.

Procinorte task forces include: Animal Health, Agricultural Libraries and Information Services, Genetic Resources, Tropical and Subtropical Fruits, Plant Health.

Current activities of the Animal Health Task Force are focussed on animal influenzas, with a wet workshop being planned for November 2011 to be held at the NCFAD in Winnipeg. A web-based share point serves as a central communication tool for the task force members.

Activities of the Animal Health Task Force have included collaboration and workshops on H1N1 pandemic influenza, influenza 'A' virus molecular diagnostic techniques, Mexican outbreak of H7N3 highly pathogenic avian influenza, bovine spongiform encephalopathy (BSE), and bovine tuberculosis. A web-based share point serves as a central communication tool for the task force members.

Project Title	Public Health Agency of Canada – Mobile Lab
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	N.A.
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 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.

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, 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 Hong Kong and China (2003 and 2004), Avian influenza in Vietnam, Marburg virus in Angola and Rift Valley fever in Kenya and Ebola virus in the Democratic Republic of the Congo (2003, 2007, 2012).

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 (2008), Francophone Summit (2008), CAPEX (2008 and 2010), Mexico/H1N1 (2009), Vancouver 2010 Olympics, G8/G20 Summits (2010), and the annual Canadian National CBRNE team exercise, FireDrake, including the international and national emergency deployments as needed.

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.

Project Title	PulseNet
Themes	Disease surveillance and detection
Dept. Responsible	Infectious Disease Prevention and Control Branch of the Public Health Agency of Canada
Other Partners	Other countries using PulseNet
Project Value	N.A.
Project Duration	Ongoing
Area Affected	Other countries using PulseNet
Description	Foodborne and waterborne diseases due to bacterial pathogens

result in substantial human health and economic burdens. Strong national, molecular-level surveillance for these diseases are critically important.

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 Salmonella, Listeria, E. coli, and Shigella 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, internet-based discussion board hosted by CNPHI for communications among the partners.

Data are also shared across international jurisdictions through the PulseNet International network, which is comprised of 80 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. 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 and was renewed in 2010.

The joint development of next-generation subtyping methods in collaboration with CPHLN, CFIA and other partners, and the distribution of validated methodologies to PulseNet Canada member laboratories has greatly facilitated capacity building. Additionally, PulseNet Canada provides the training and the Quality Assurance program for all member laboratories to ensure the highest quality, reliable data are consistently generated. These activities greatly impact our abilities to identify and investigate outbreaks.

Project Title	Real Property Safety and Security
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	N.A.
Project Duration	Ongoing
Area Affected	Worldwide
Description	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;

- Peer review for new high containment facilities in many countries;
- Being a technical resource to other countries and design teams;
- Bench Marking of facility O&M costs;
- Leadership in decontamination technologies;
- Commissioning support to foreign laboratories, and;
- Provision of technical expertise to the high containment community

In May of 2009 a team of three individuals from RPSSD went to Nairobi Kenya to assist the new Emerging Pathogens Laboratory affiliated with the University of Manitoba with commissioning and testing requirements. An earlier trip was made in 2007 by two RPSSD personnel to test and certify HEPA filtration as well as Biosafety Cabinets. RPSSD continued to participate in a number of workshops to both acquire knowledge or to provide training and share expertise worldwide between 2009 and 2011. The department also plays a major role in the logistics of deployments of PHAC's mobile lab.

Project Title	Regional Biosecurity Training Centre in Jordan
Themes	Biorisk management, biosecurity, biosafety, disease surveillance
Dept. Responsible	Global Partnership Program of Foreign Affairs and International Trade Canada
Other Partners	United States, United Kingdom
Project Value	\$1,100,000 CAD
Project Duration	2013-2015
Area Affected	Middle East
Description	Canada is helping create regional capacity that will assist countries across the Middle East and beyond in addressing pressing challenges related to bioterrorism and the spread of infectious diseases. The training centre, once complete, will help strengthen laboratory biosecurity and biosafety practices, and provide instruction on infectious disease detection and characterization techniques.
Project Title	Strengthening Biological Security in Ghana
Themes	Biocontainment, biorisk management, biosafety, disease surveillance
Dept. Responsible	Global Partnership Program of Foreign Affairs and International Trade Canada
Other Partners	

Project Value	\$4,400,000 CAD
Project Duration	2012-2014
Area Affected	Ghana
Description	Canada is implementing security and biocontainment measures at three facilities of Ghana's Veterinary Services Directorate (VSD) lab network.
Project Title	Strengthening Biological Security in Kenya
Themes	Biosecurity, biocontainment, biorisk management, disease surveillance
Dept. Responsible	Global Partnership Program of Foreign Affairs and International Trade Canada
Other Partners	Biosecurity Engagement Program of the United States Department of State
Project Value	\$1,307,000 CAD
Project Duration	2011-2013
Area Affected	Kenya, East Africa
Description	Canada is implementing several projects focused on strengthening capacities in Kenya for disease surveillance, biorisk management, biocontainment and biosecurity
Project Title	Strengthening Biological Security in Nigeria
Themes	Biosecurity, biocontainment, biorisk management, disease surveillance
Dept. Responsible	Global Partnership Program of Foreign Affairs and International Trade Canada
Other Partners	N/A
Project Value	\$2,150,000 CAD
Project Duration	2012-2014
Area Affected	Nigeria
Description	Canada is implementing urgently-needed biosecurity and biosafety improvements and providing disease diagnostics capacity at a veterinary facility in central Nigeria.
Project Title	Training on Bovine Spongiform Encephalopathy Diagnostics
Themes	Disease surveillance, detection, and diagnosis
Dept. Responsible	Canadian Food Inspection Agency
Other Partners	N/A
Project Value	N.A.
Project Duration	5-23 March 2012

Area Affected	Saudi Arabia
Description	Four government officials from the Ministry of Agriculture in Saudi Arabia trained for three weeks on Bovine Spongiform Encephalopathy diagnostics at Canadian Food Inspection Agency Lethbridge Laboratory.
Project Title	Training on Chronic Wasting Disease and Bovine Spongiform Encephalopathy Diagnostics
Themes	Disease surveillance, detection, and diagnosis
Dept. Responsible	Canadian Food Inspection Agency
Other Partners	N/A
Project Value	N.A.
Project Duration	26 November-15 December 2012
Area Affected	Taiwan
Description	Two scientists from the Animal Health Research Institute in Taiwan did one week of training on Chronic Wasting Disease (CWD) diagnostics at the Canadian Food Inspection Agency Ottawa Laboratory Fallowfield (an OIE Reference Laboratory on Transmissible Spongiform Encephalopathy), and did two weeks of training on Bovine Spongiform Encephalopathy (BSE) diagnostics at the Canadian Food Inspection Agency Lethbridge Laboratory.
Project Title	Training on <i>Trichinella</i> Diagnostics
Themes	Disease surveillance, detection, and diagnosis
Dept. Responsible	Canadian Food Inspection Agency
Other Partners	N/A
Project Value	N.A.
Project Duration	3 May-2 November 2012
Area Affected	India
Description	Six month training attachment on <i>Trichinella</i> diagnostics for an Assistant Professor from the School of Public Health and Zoonoses, Guru Angad Dev Veterinary and Animal Health Sciences University, Ludhiana, India at the Centre for Food-borne and Animal Parasitology, Canadian Food Inspection Agency, Saskatoon Laboratory.
Project Title	<i>Trichinella</i> diagnostics, Proficiency Testing and Lab Certification for <i>Trichinella</i> Testing
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	N.A.
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.
Project Title	World Health Organization (WHO)
Themes	Disease surveillance
Dept. Responsible	Global Partnership Program of Foreign Affairs and International Trade Canada
Other Partners	N/A
Project Value	\$3,130,100 CAD
Project Duration	2010-2013
Area Affected	Global
Description	<p>Canada's Global Partnership Program has provided funding to the WHO to support capacity-building for International Health Regulations implementation and Global Alert and Response activities:</p> <p>International Health Regulations (IHR):</p> <ul style="list-style-type: none"> • Promote and strengthen global biosafety and laboratory biosecurity; • Assist resource-limited countries to strengthen core capacities in deliberate disease detection, surveillance, control and response; • Strengthen health security at ports, airports and ground crossings; • Strengthen specialized networks for identifying and responding to deliberate biological attacks. <p>Global Alert and Response:</p> <ul style="list-style-type: none"> • Enhance regional and sub-regional alert and response strategies and teams to assess risk at regional and international levels and provide technical support to public health emergencies caused by deliberate outbreaks; • Strengthen Global Alert and Response Operations for deliberately caused disease through rollout of the global Event Management System (EMS); • Strengthen mass gathering (MG) health security measures in organizing countries; • Strengthen deliberate event (DE) alert, risk assessment and response mechanisms in collaboration with international law enforcement and security agencies;

- Improve collaboration, coordination and innovation for the containment of priority dangerous high consequence pathogens of bioterrorism concern;
- Strengthen disease surveillance for deliberate epidemics and control in conflict and disaster areas;
- Strengthen the international network composition and operations of the Global Outbreak Alert and Response Network (GOARN);
- Implement WHO guidance on "Responsible life science research for global health security".

Project Title	World Organisation for Animal Health (OIE)
Themes	Disease surveillance, detection, diagnosis, and response
Dept. Responsible	Global Partnership Program of Foreign Affairs and International Trade Canada
Other Partners	N/A
Project Value	\$2,000,000 CAD
Project Duration	2010-2013
Area Affected	Global
Description	<p>Canada's Global Partnership Program has provided funding to the OIE to support capacity-building activities for animal disease surveillance, detection, diagnosis and response activities:</p> <ul style="list-style-type: none"> • Support regional and sub-regional emergency preparedness and response strategies that are complementary to global systems, for a coordinated response to deliberately caused outbreaks; • Strengthen the surveillance and monitoring of infectious animal diseases and zoonoses; • Support to the implementation of International Health Regulations (IHR) and OIE global standards on disease notification; • Strengthen laboratory capacity to detect and respond to deliberate outbreaks through the OIE Laboratory Twinning Programme; • Support the evaluation and strengthening of veterinary services, tools and legislation; • Support an international oversight mechanism to ensure post-eradication freedom of rinderpest.

