

## Revised forms for the submission of the Confidence-Building Measures

At the Third Review Conference it was agreed that all States Parties present the following declaration, later amended by the Seventh Review Conference:

### Declaration form on Nothing to Declare or Nothing New to Declare for use in the information exchange

<i>Measure</i>	<i>Nothing to declare</i>	<i>Nothing new to declare</i>	<i>Year of last declaration if nothing new to declare</i>
<b>A, part 1</b>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>A, part 2 (i)</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2011
<b>A, part 2 (ii)</b>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>A, part 2 (iii)</b>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>B</b>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>C</b>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>E</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2016
<b>F</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2011
<b>G</b>	<input type="checkbox"/>	<input type="checkbox"/>	

(Please mark the appropriate box(es) for each measure with a tick, and fill in the year of last declaration in the last column where applicable.)

Date: Wednesday, April 3, 2019

State Party to the Convention: Canada

Date of ratification/accession to the Convention: Monday, September 18, 1972

#### National point of contact:

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Directeur Adjoint

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Ottawa (Ontario) K1A 0G2 Canada

Telephone: +1 343 203 3183

## **Active promotion of contacts**

The Third Review Conference agreed that States parties continue to implement the following:

"Active promotion of contacts between scientists, other experts and facilities engaged in biological research directly related to the Convention, including exchanges and visits for joint research on a mutually agreed basis."

In order to actively promote professional contacts between scientists, joint research projects and other activities aimed at preventing or reducing the occurrence of ambiguities, doubts and suspicions and at improving international cooperation in the field of peaceful bacteriological (biological) activities, the Seventh Review Conference encouraged States parties to share forward looking information, to the extent possible,

- on planned international conferences, seminars, symposia and similar events dealing with biological research directly related to the Convention, and

- on other opportunities for exchange of scientists, joint research or other measures to promote contacts between scientists engaged in biological research directly related to the Convention,

including through the Implementation Support Unit (ISU) within the United Nations Office for Disarmament Affairs.

# Confidence-Building Measure "A"

## Part 1 Exchange of data on research centres and laboratories

At the Third Review Conference it was agreed that States Parties continue to implement the following:

"Exchange of data, including name, location, scope and general description of activities, on research centres and laboratories that meet very high national or international safety standards established for handling, for permitted purposes, biological materials that pose a high individual and community risk or specialize in permitted biological activities directly related to the Convention."

### Modalities

The Third Review Conference agreed on the following, later amended by the Seventh Review Conference:

Data should be provided by States Parties on each facility, within their territory or under their jurisdiction or control anywhere, which has any maximum containment laboratories meeting those criteria for such maximum containment laboratories as specified in the latest edition of the WHO<sup>1</sup> Laboratory Biosafety Manual and/or OIE<sup>2</sup> Terrestrial Manual or other equivalent guidelines adopted by relevant international organisations, such as those designated as biosafety level 4 (BL4, BSL4 or P4) or equivalent standards.

States Parties that do not possess a facility meeting criteria for such maximum containment should continue to Form A, part 1 (ii).

### Form A, part 1 (i)

*Exchange of data on research centres and laboratories*<sup>3</sup>

1. Name(s) of facility<sup>4</sup>:

**National Microbiology Laboratory, Public Health Agency of Canada, Canadian Science Centre for Human and Animal Health**

*[Declared in accordance with Form A Part 2(iii)]*

2. Responsible public or private organization or company:

Public Health Agency of Canada

3. Location and postal address:

Public Health Agency of Canada 1015 Arlington Avenue Winnipeg, Manitoba R3E 3R2

4. Source(s) of financing of the reported activity, including indication if the activity is wholly or partly financed by the Ministry of Defence:

Canadian Government - Public Health Agency of Canada

5. Number of maximum containment units<sup>5</sup> within the research centre and/or laboratory, with an indication of their respective size (SqM):

BL 4: 185 SqM

6. Scope and general description of activities, including type(s) of micro-organisms and/or toxins as appropriate:

This laboratory is a national centre of expertise that provides diagnostic, reference and research services on human diseases derived from biosafety level 2, 3 and 4 micro-organisms.

Micro-organisms used and/or stored in this facility:

- 1) Filoviridae
- 2) Bunyaviridae
- 3) Flaviviridae
- 4) Arenaviridae
- 5) Paramyxoviridae
- 6) Orthomyxoviridae
- 7) Coronaviridae
- 8) Bacillus anthracis
- 9) Yersinia pestis
- 10) Francisella tularensis
- 11) Burkholderia Pseudomallei
- 12) Burkholderia Mallei

1. Name(s) of facility <sup>4</sup>:

**National Centre for Foreign Animal Disease**

*[Declared in accordance with Form A Part 2(iii)]*

2. Responsible public or private organization or company:

Canadian Food Inspection Agency, Science Branch

3. Location and postal address:

1015 Arlington Street Winnipeg, Manitoba R3E 3M4

4. Source(s) of financing of the reported activity, including indication if the activity is wholly or partly financed by the Ministry of Defence:

Canadian Government - Canadian Food Inspection Agency

5. Number of maximum containment units <sup>5</sup> within the research centre and/or laboratory, with an indication of their respective size (SqM):

BL 4: 65 SqM

BL 4: 35 SqM

6. Scope and general description of activities, including type(s) of micro-organisms and/or toxins as appropriate:

The National Centre for Foreign Animal Disease within the Canadian Science Centre for Human and Animal Health conducts diagnostic testing and research on livestock and poultry diseases that are non-indigenous to Canada. The centre became operational in April 1998.

**Form A, part 1 (ii)**

If no BSL4 facility is declared in Form A, part 1 (i), indicate the highest biosafety level implemented in facilities handling biological agents<sup>6</sup> on a State Party's territory:

Biosafety level 3 <sup>7</sup>	N/A
Biosafety level 2 <sup>8</sup> (if applicable)	N/A

Any additional relevant information as appropriate:

N/A

## **Part 2 Exchange of information on national biological defence research and development programmes**

At the Third Review Conference it was agreed that States Parties are to implement the following:

In the interest of increasing the transparency of national research and development programmes on biological defence, the States Parties will declare whether or not they conduct such programmes. States Parties agreed to provide, annually, detailed information on their biological defence research and development programmes including summaries of the objectives and costs of effort performed by contractors and in other facilities. If no biological defence research and development programme is being conducted, a null report will be provided.

States Parties will make declarations in accordance with the attached forms, which require the following information:

- (1) The objective and summary of the research and development activities under way indicating whether work is conducted in the following areas: prophylaxis, studies on pathogenicity and virulence, diagnostic techniques, aerobiology, detection, treatment, toxinology, physical protection, decontamination and other related research;
- (2) Whether contractor or other non-defence facilities are utilized and the total funding provided to that portion of the programme;
- (3) The organizational structure of the programme and its reporting relationships; and
- (4) The following information concerning the defence and other governmental facilities in which the biological defence research and development programme is concentrated:
  - (a) location;
  - (b) the floor areas (sqM) of the facilities including that dedicated to each of BL2, BL3 and BL4 level laboratories;
  - (c) the total number of staff employed, including those contracted full time for more than six months;
  - (d) numbers of staff reported in (c) by the following categories: civilian, military, scientists, technicians, engineers, support and administrative staff;
  - (e) a list of the scientific disciplines of the scientific/engineering staff;
  - (f) the source and funding levels in the following three areas: research, development, and test and evaluation; and
  - (g) the policy regarding publication and a list of publicly-available papers and reports.

### **Form A, part 2 (i)**

#### **National biological defence research and development programmes Declaration**

Are there any national programmes to conduct biological defence research and development within the territory of the State Party, under its jurisdiction or control anywhere? Activities of such programmes would include prophylaxis, studies on pathogenicity and virulence, diagnostic techniques, aerobiology, detection, treatment, toxinology, physical protection, decontamination and other related research.

yes

If the answer is Yes, complete Form A, part 2 (ii) which will provide a description of each programme.

### **Form A, part 2 (ii)**

## National biological defence research and development programmes

### Description

#### Defence Research & Development Canada (DRDC)

1. State the objectives and funding of each programme and summarize the principal research and development activities conducted in the programme. Areas to be addressed shall include: prophylaxis, studies on pathogenicity and virulence, diagnostic techniques, aerobiology, detection, treatment, toxinology, physical protection, decontamination and other related research.

The objective of the Canadian Biological Defence Program at Defence R&D Canada is to ensure that the Canadian Armed Forces are provided with an adequate defence against biological warfare agents. No offensive studies of any kind are permitted by the Government of Canada. The Program is primarily funded by the Canadian Department of National Defence on behalf of the Government. The principal research and development areas are the following:

- assessment of the hazards that may be faced by the Canadian Armed Forces from biological agents and toxins;
- detection of biological agents and toxins using immunological, biochemical and physical detection methods;
- medical countermeasures against the infections or intoxications from biological agents and toxins;
- decontamination of biological agents and toxins;
- personal protection from biological agents and toxins;
- studies on the mode of action and toxicity of toxins and the mode of action and infectivity of biological agents; and
- provision of biological agent training for the Department of National Defence, its allies, and the First Responder community.

2. State the total funding for each programme and its source.

In Canada, the biological, chemical, and radiological defence programs are integrated; exact separation of the costs of the three programs would be very difficult without a detailed analysis of every purchase. However, it is estimated that in 2018, the amount spent on the Canadian biological defence program was approximately \$4,658,921 including salaries, but excluding contracts to external entities. The source of this funding was the Government of Canada.

Total Funding: \$4658921

Funding Currency: CAD

3. Are aspects of these programmes conducted under contract with industry, academic institutions, or in other non-defence facilities?

yes

4. If yes, what proportion of the total funds for each programme is expended in these contracted or other facilities?

About \$ 1,102,000 was spent on contracts with industry and universities

5. Summarize the objectives and research areas of each programme performed by contractors and in other facilities with the funds identified under paragraph 4.

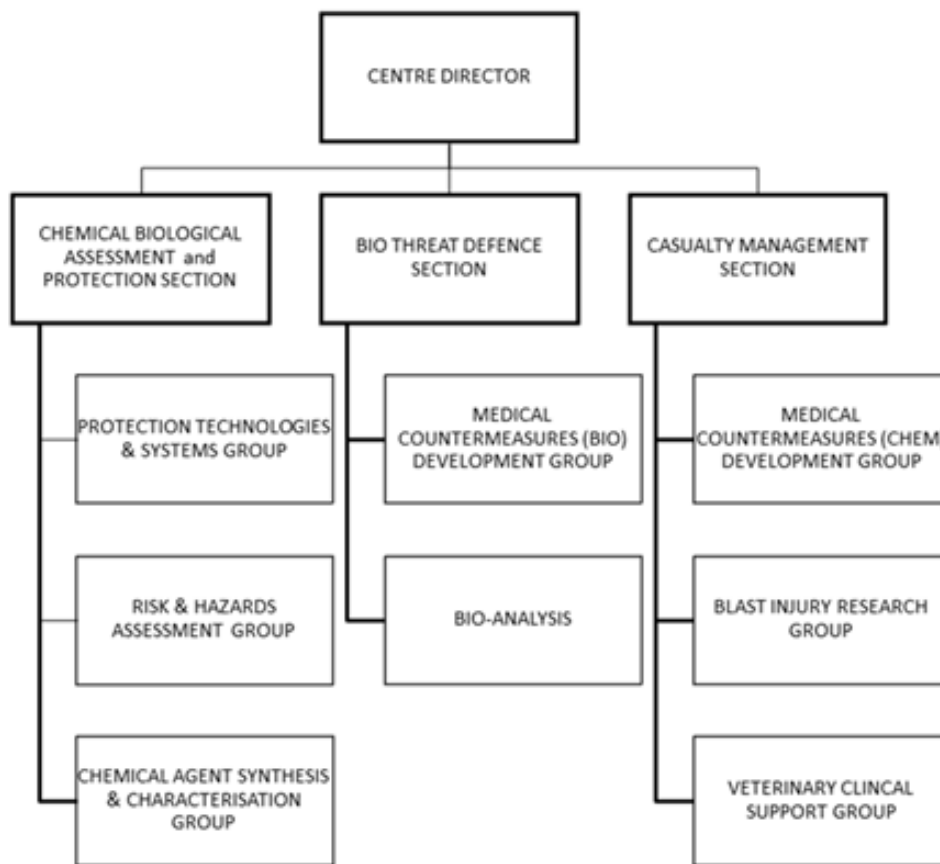
Contractors are used to support all of the various aspects of the program listed in paragraph 1 above.

6. Provide a diagram of the organizational structure of each programme and the reporting relationships (include individual facilities participating in the programme).



In Canada, the research and development program in biological defence is the responsibility of Defence R&D Canada (DRDC). Research and some development is carried out primarily at Defence R&D Canada – Suffield Research Centre (DRDC SRC) and through contractors. The bulk of the program development is carried out from DRDC Corporate headquarters in Ottawa. A minor effort in the stand-off detection of biological agents is carried out at DRDC Valcartier Research Centre (VRC). Organizational charts of those parts of DRDC SRC and DRDC VRC responsible for biological defence are included in Form A, part 2 (iii). Only those organisational elements working on Biological Defence are included.

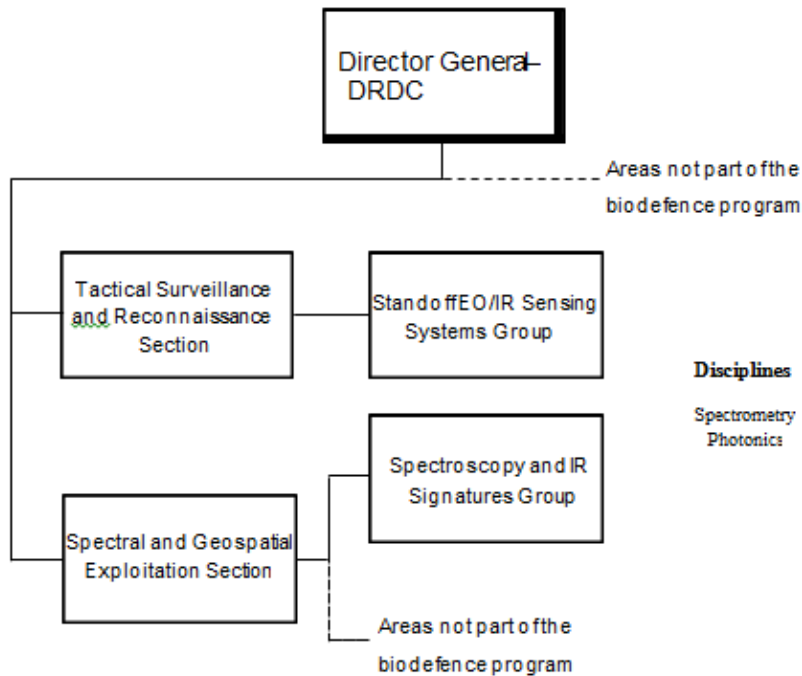
**Organization Chart and disciplines represented in the DRDC Suffield research and development program in biological defence**



**Disciplines represented:**

- |               |                     |
|---------------|---------------------|
| Bacteriology  | Immunology          |
| Microbiology  | Virology            |
| Chemistry     | Biochemistry        |
| Biotechnology | Veterinary Medicine |
| Medicine      | Pharmacology        |

Organization Chart and disciplines represented in the DRDC Valcartier program in biological defence:



7. Provide a declaration in accordance with Form A, part 2 (iii) for each facility, both governmental and non-governmental, which has a substantial proportion of its resources devoted to each national biological defence research and development programme, within the territory of the reporting State, or under its jurisdiction or control anywhere.

Not applicable, please refer to Form A, Part 2 (iii) for further details.

Attachments:

N/A

### Canadian Safety and Security Program (CSSP)

1. State the objectives and funding of each programme and summarize the principal research and development activities conducted in the programme. Areas to be addressed shall include: prophylaxis, studies on pathogenicity and virulence, diagnostic techniques, aerobiology, detection, treatment, toxinology, physical protection, decontamination and other related research.

The CSSP is led by the Defence Research and Development Canada, Centre for Security Science (CSS) on behalf of the Government of Canada and its partners across all levels of government, response and emergency management organizations, non-governmental agencies, industry and academia. The CSSP strengthens Canada's ability to anticipate, prevent/mitigate, prepare for, respond to, and recover from natural disasters, serious accidents, crime and terrorism through the convergence of science and technology (S&T) with policy, operations and intelligence. The majority of the testing and evaluation component of the CSSP will be delivered through the Emergency Responder Test and Evaluation Establishment in Regina, Saskatchewan.

CSSP funds are distributed amongst a number of Communities of Practice, including Chemical, Biological, Radiological-Nuclear and Explosives (CBRNE) projects that are engaged in research and development on Biological, Chemical and Radiological subjects. It is not possible to know exactly the percentage specifically allocated to biological research alone as many of the projects respond to more than one of the CBRNE hazards. A portion of the funds are for overhead and overall management of the program.

2. State the total funding for each programme and its source.

Government of Canada

Total Funding: \$43.5 million annually

Funding Currency: CAD

3. Are aspects of these programmes conducted under contract with industry, academic institutions, or in other non-defence facilities?

yes

4. If yes, what proportion of the total funds for each programme is expended in these contracted or other facilities?

Funds are distributed to industry, government and academia through a Call for Proposals. Since 2002, the CBRNE Research and Technology Initiative (CRTI) and follow-on CSSP programs have conducted twelve Calls for Proposals through which it has implemented 337 research projects representing an investment of \$415,000,000. The project partners have leveraged this investment by a similar amount of in-kind-contribution with a total, on a 10 years average, of a one-to-one the contribution ratio. However a number of projects have more than 1 to 1 leveraging, with the CSSP providing a greater proportion of the funds.

5. Summarize the objectives and research areas of each programme performed by contractors and in other facilities with the funds identified under paragraph 4.

The CSSP amalgamates the mandates of three former CSS-led programs, building on their successes, lessons learned and best practices:

- The CRTI, which focused primarily on CBRNE counter-terrorism;
- The Public Security Technical Program, which expanded S&T efforts into other areas like critical infrastructure protection, cyber-security, surveillance, intelligence, interdiction, border security, emergency management systems (people, tools and processes) and interoperability; and
- The Canadian Police Research Centre, which focused on harnessing S&T for the benefit of police, fire and emergency medical services across Canada.

6. Provide a diagram of the organizational structure of each programme and the reporting relationships (include individual facilities participating in the programme).

**The participating departments, agencies and organizations are:**

Canadian Food Inspection Agency

Defence Research and Development Canada

Defence Science and Technology Laboratory Porton Down

Department of National Defence

Health Canada

Public Health Agency of Canada

Public Safety Canada

Royal Canadian Mounted Police

Sunnybrook Hospital

United States Department of Agriculture

United States Department of Homeland Security

United States Environmental Protection Agency

7. Provide a declaration in accordance with Form A, part 2 (iii) for each facility, both governmental and non-governmental, which has a substantial proportion of its resources devoted to each national biological defence research and development programme, within the territory of the reporting State, or under its jurisdiction or control anywhere.

Not applicable, please refer to attached file for CSSP projects.

Attachments:

cbm-2019-form\_a\_part\_2\_ii\_-\_cssp\_projects.pdf

## **Form A, part 2 (iii)**

### **National biological defence research and development programmes**

#### **Facilities**

Complete a form for each facility declared in accordance with paragraph 7 in Form A, part 2 (ii).

In shared facilities, provide the following information for the biological defence research and development portion only.

1. What is the name of the facility?

**Defence Research and Development Canada – Suffield Research Centre**

2. Where is it located (include both address and geographical location)?

Centre Director DRDC Suffield Research Centre PO Box 4000 Station Main Medicine Hat, Alberta T1A 8K6  
CANADA

The facility is located in Buildings 1, 10, 60, 600, 601 and the Colin Watson Aerosol Layout (CWAL) and associated minor structures, all co-located with Canadian Forces Base Suffield near the village of Ralston, Alberta, Canada.

3. Floor area of laboratory areas by containment level:

BL 2: 542 SqM

BL 3: 159 SqM

BL 4: 0 SqM

Total laboratory floor area (SqM):

868

4. The organizational structure of each facility.

(i) Total number of personnel: 33

(ii) Division of personnel:

Military: 0

Civilian: 33

(iii) Division of personnel by category:

Scientists: 19

Engineers: 0

Technicians: 13

Administrative and support staff: 1

(iv) List the scientific disciplines represented in the scientific/engineering staff.

Bacteriology	Immunology
Microbiology	Virology
Chemistry	Biochemistry
Biotechnology	Veterinary Medicine
Medicine	Pharmacology

(v) Are contractor staff working in the facility? If so, provide an approximate number.

N/A

(vi) What is (are) the source(s) of funding for the work conducted in the facility, including indication if activity is wholly or partly financed by the Ministry of Defence?

The research in this facility is primarily funded by the Departments of National Defence and Public Safety Canada and under contract to, or through collaborative agreements, with other government departments and industry.

Funding level estimates (including salaries): \$5,760,9215

(vii) What are the funding levels for the following programme areas:

Research: 3,064,506

Development: N/A

Test and evaluation: N/A

(viii) Briefly describe the publication policy of the facility:

All staff members are encouraged to publish the results of their research in the open literature whenever not precluded by security or intellectual property considerations. There is also an internal publication system which is used for publications regardless of content.

(ix) Provide a list of publicly-available papers and reports resulting from the work published during the previous 12 months. (To include authors, titles and full references)

Bader D, Garrecht B, Rowsell S. Identification of biothreat agents in powders and other interferent matrices using the FilmArray® biosurveillance system. DRDC-RDDC-2018-R177.

Bader D, Fisher G, and Rowsell S. Genetic confirmation of DRDC – Suffield Research Centre biological field simulants for the New Substances Notification Program, DRDC-RDDC-2018-R144.

Bader D, Garrecht B. Detection of *B. anthracis* genetic markers in naturally occurring spore-positive soils using the FilmArray® biosurveillance system. Tracking# R18-1210-01239\_PA-EC

Buteau, S and Nadeau, D., Laboratory Benchtop Bioaerosol Chamber version 2 – Design, optimization, results (U), DRDC-RDDC-2018-R137, May 2018, PROTECTED A (EXPORT CONTROLLED)

Buteau, S. and Nadeau, D., Biological Threat Detection Identification and Monitoring (Bio DIM) suite deployment at Dugway Proving Ground (DPG) 2017 (U), DRDC-RDDC-2018- L161 to Defence Joint CBRN Directorate, July 2018, PROTECTED A (EXPORT CONTROLLED).

Buteau, S. and , Bouffard, F, Enhancing situational awareness by combining multiple point and standoff sensor technologies (U), Proceeding for the NBC 2018 – 10th symposium on CBRNE threats, Rovaniemi, Finland, DRDC-RDDC-E18-0320-1001, 5 June 2018, 5 pages, UNCLASSIFIED.

Chan N, Lee W, Rowsell S. Scientific review of work progress on pathogen detection DNA biosensor for water monitoring. DRDC-RDDC-2018-L172.

Evans DH and Noyce R. University of Alberta. Vaccinia vaccine review. Contract Report, May 2018, DRDC-RDDC-2018-C069.

Forbes K. Validation of CBRN Surveillance Information Requirements. DRDC-RDDC-2018-C162.

Hayward S. A novel diagnostic platform for project consideration. DRDC-RDDC-2018-L171.

Hayward S. Evaluation of solid phase media for sampling of biological material for downstream immune-based detection and identification. R18-0919-00795.

Hu W, Steigerwald R, Kalla M, Volkmann A, Noll D. Protective efficacy of monovalent and trivalent recombinant MVA-based vaccines against three encephalitic alphaviruses. Vaccine June 2018.

Nagata L, Irwin CR, Hu W, Evans DH. Vaccinia vaccines to biothreat and emerging viruses. Biotech. Gen. Eng. Rev. Apr-18.

Sheibani S, Chan N. Protein-nucleic acid (receptor-ligand) binding detection techniques. DRDC-RDDC-2018-R027.

Stratilo C. Proposed research in antibacterials for the Medical Countermeasures Project fiscal year (FY) 2019-2024. DRDC-RDDC-2018-L182.

Stratilo C, Jager S, Swayze R. Identification of a novel virulence factor of *Burkholderia pseudomallei* and *B. mallei*, a protective vaccine antigen against melioidosis. DRDC-RDDC-2018-R189.

Stratilo C, Gubala A, O'Connor K, Taylor J, Despeyroux D, Mitchell I, Yousef J, Ford B, Piggot T, Messer A. Incremental approach to achieving an Operating Capability for an in-theatre High Confidence Biological Identification Capability Tracking# E18-0918-00793.

Stratilo, C.W., Gubala, A., O'Connor, K., Taylor, J., Despeyroux, D., Evaluation of EDGE Platform by CBR Mou Inform Task 3. CBR MOU-IWG-3-2018-02. E18-0404-00022, 2018, 18 pages.

Wang M. Cytokine storm mitigation. DRDC-RDDC-2018-C131.

Wishart DS. Evaluation of bioinformatics platforms. DRDC-RDDC-2018-C110.

Wu J, Hu W, Nagata L, Rowsell S. Proposed way ahead for novel medical countermeasure technology platforms against viral threats. DRDC-RDDC-2018-L122.

Notes:

Funding estimate stated in (vii) is the total estimate of funding levels for research, development and test and evaluation collectively.

Attachments:

N/A

5. Briefly describe the biological defence work carried out at the facility, including type(s) of micro-organisms [9](#) and/or toxins studied, as well as outdoor studies of biological aerosols.

Assessment of the hazards from biological agents and toxins involves research to understand the dispersion of such agents and is carried out by mathematical modelling techniques. Part of the work in detection involves R&D leading to the production of field portable biological agent detection systems. In medical countermeasures, research is carried out on new drugs and vaccines, for example humanized antibodies, antivirals, antibiotics and vaccines. Microorganisms other than Newcastle disease virus (NDV) and *Bacillus atrophaeus* (formerly *Bacillus globigii* (BG)) which have been used in the biological defence program are *Bacillus anthracis*, *Brucella* species (abortus, melitensis, neotomae, ovis and suis), *Burkholderia* species (mallei, pseudomallei) *Francisella tularensis*, *Mycobacterium tuberculosis*, *Yersinia enterocolitica*, *Yersinia pestis*, various influenza virus strains, western equine encephalitis, eastern equine encephalitis, Venezuelan equine encephalitis, Highlands J virus, Sindbis virus and dengue virus (serotypes 1-4). Toxins used include botulinum toxin, staphylococcal enterotoxin B and ricin. In the early to mid-1980s, outdoor studies have involved only NDV middle through 1980's and BG. Currently, outdoor studies use BG as well as Male-specific Coliphage 2 and *Pantoea agglomerans* (formerly *Erwinia herbicola*).

1. What is the name of the facility?

**Defence Research and Development Canada (DRCD) - Valcartier Research Centre**

2. Where is it located (include both address and geographical location)?

Centre Director DRDC Valcartier Research Centre 2459 Bravery Road Québec, QC, G3J 1X5 CANADA

The facility is located in building 14 and a new aerosol chamber for Lidar measurements is located on the south side of research center.

3. Floor area of laboratory areas by containment level:

BL 1: 91 SqM

Total laboratory floor area (SqM):

91

4. The organizational structure of each facility.

(i) Total number of personnel: 4

(ii) Division of personnel:

Military: 0

Civilian: 4

(iii) Division of personnel by category:

Scientists: 2

Engineers: 1

Technicians: 1

Administrative and support staff: N/A

(iv) List the scientific disciplines represented in the scientific/engineering staff.

Spectrometry

Photonics

(v) Are contractor staff working in the facility? If so, provide an approximate number.

v. There are contractor staff working in biological defence at this facility. Contractors are working in technical support to the standoff biodetection program. A list of contractors carrying out R&D in biological defence is attached.

(vi) What is (are) the source(s) of funding for the work conducted in the facility, including indication if activity is wholly or partly financed by the Ministry of Defence?

The research in this facility is 100% funded by the Departments of National Defence.

(vii) What are the funding levels for the following programme areas:

Research: 875000

Development: N/A

Test and evaluation: N/A

(viii) Briefly describe the publication policy of the facility:

All staff are encouraged to publish the results of their research in open literature whenever not precluded by security, export control, or intellectual property considerations. There is also an internal publication system which is used for publications regardless of content.

(ix) Provide a list of publicly-available papers and reports resulting from the work published during the previous



12 months. (To include authors, titles and full references)

Bader D, Garrecht B, Rowsell S. Identification of biothreat agents in powders and other interferent matrices using the FilmArray® biosurveillance system. DRDC-RDDC-2018-R177.

Bader D, Fisher G, and Rowsell S. Genetic confirmation of DRDC – Suffield Research Centre biological field simulants for the New Substances Notification Program, DRDC-RDDC-2018-R144.

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Evans DH and Noyce R. University of Alberta. Vaccinia vaccine review. Contract Report, May 2018, DRDC-RDDC-2018-C069.

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Hayward S. A novel diagnostic platform for project consideration. DRDC-RDDC-2018-L171.

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Nagata L, Irwin CR, Hu W, Evans DH. Vaccinia vaccines to biothreat and emerging viruses. Biotech. Gen. Eng. Rev. Apr-18.

Sheibani S, Chan N. Protein-nucleic acid (receptor-ligand) binding detection techniques. DRDC-RDDC-2018-R027.

Stratilo C. Proposed research in antibacterials for the Medical Countermeasures Project fiscal year (FY) 2019-2024. DRDC-RDDC-2018-L182.

Stratilo C, Jager S, Swayze R. Identification of a novel virulence factor of Burkholderia pseudomallei and B. mallei, a protective vaccine antigen against melioidosis. DRDC-RDDC-2018-R189.

Stratilo C, Gubala A, O'Connor K, Taylor J, Despeyroux D, Mitchell I, Yousef J, Ford B, Piggot T, Messer A. Incremental approach to achieving an Operating Capability for an in-theatre High Confidence Biological Identification Capability Tracking# E18-0918-00793.

Stratilo, C.W., Gubala, A., O'Connor, K., Taylor, J., Despeyroux, D., Evaluation of EDGE Platform by CBR Mou Inform Task 3. CBR MOU-IWG-3-2018-02. E18-0404-00022, 2018, 18 pages.

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Wishart DS. Evaluation of bioinformatics platforms. DRDC-RDDC-2018-C110.

Wu J, Hu W, Nagata L, Rowsell S. Proposed way ahead for novel medical countermeasure technology platforms against viral threats. DRDC-RDDC-2018-L122.

Notes:

Please note that the value listed under 4(iii) for Engineers refers to the number of Managers at the facility, not Engineers.

Additionally, the funding level estimate provided under 4(vii) for Research is the **total funding level estimate** (including salaries) for research, development and test and evaluation collectively.

Attachments:

cbm-2019-form\_a\_part\_2\_iii\_-\_list\_of\_contractors\_drdc\_vrc.pdf

5. Briefly describe the biological defence work carried out at the facility, including type(s) of micro-organisms [2](#) and/or toxins studied, as well as outdoor studies of biological aerosols.

The biological defence program at DRDC Valcartier is focused on the detection of biological agents and toxins using photonic detection methods. This involves R&D leading to the production of field portable biological agent detection systems.

## **Confidence-Building Measure "B"**

### **Exchange of information on outbreaks of infectious diseases and similar occurrences caused by toxins**

At the Third Review Conference it was agreed that States Parties continue to implement the following:

Exchange of information on outbreaks of infectious diseases and similar occurrences caused by toxins, and on all such events that seem to deviate from the normal pattern as regards type, development, place, or time of occurrence. The information provided on events that deviate from the norm will include, as soon as it is available, data on the type of disease, approximate area affected, and number of cases.

The Seventh Review Conference agreed the following:

No universal standards exist for what might constitute a deviation from the normal pattern.

#### **Modalities**

The Third Review Conference agreed on the following, later amended by the Seventh Review Conference:

1. Exchange of data on outbreaks that seem to deviate from the normal pattern is considered particularly important in the following cases:

- When the cause of the outbreak cannot be readily determined or the causative agent [10](#) is difficult to diagnose,
- When the disease may be caused by organisms which meet the criteria for risk groups III or IV, according to the classification in the latest edition of the WHO Laboratory Biosafety Manual,
- When the causative agent is exotic to a given geographical region,
- When the disease follows an unusual pattern of development,
- When the disease occurs in the vicinity of research centres and laboratories subject to exchange of data under item A,
- When suspicions arise of the possible occurrence of a new disease.

2. In order to enhance confidence, an initial report of an outbreak of an infectious disease or a similar occurrence that seems to deviate from the normal pattern should be given promptly after cognizance of the outbreak and should be followed up by annual reports. To enable States Parties to follow a standardized procedure, the Conference has agreed that Form B should be used, to the extent information is known and/or applicable, for the exchange of annual information.

3. The declaration of electronic links to national websites or to websites of international, regional or other organizations which provide information on disease outbreaks (notably outbreaks of infectious diseases and similar occurrences caused by toxins that seem to deviate from the normal pattern) may also satisfy the declaration requirement under Form B.

4. In order to improve international cooperation in the field of peaceful bacteriological (biological) activities and in order to prevent or reduce the occurrence of ambiguities, doubts and suspicions, States Parties are encouraged to invite experts from other States Parties to assist in the handling of an outbreak, and to respond favourably to such invitations, respecting applicable national legislation and relevant international instruments.

## Form B

### Information on outbreaks of infectious diseases and similar occurrences, that seem to deviate from the normal pattern<sup>11</sup>

#### Measles

1. Time of cognizance of the outbreak:

March-June 2017

2. Location and approximate area affected:

Multi-provincial

Air travel/airport settings, healthcare settings

3. Type of disease/intoxication:

Viral infection

4. Suspected source of disease/intoxication:

Imported from India

5. Possible causative agent(s):

N/A

6. Main characteristics of systems:

N/A

7. Detailed symptoms, when applicable

N/A

- Respiratory:

N/A

- Circulatory:

N/A

- Neurological/behavioural:

N/A

- Intestinal:

N/A

- Dermatological:

N/A

- Nephrological:

N/A

- Other:

N/A

8. Deviation(s) from the normal pattern as regards

- Type:

N/A

- Development:

N/A

- Place of occurrence:

N/A

- Time of occurrence:

- Symptoms:

N/A

- Virulence pattern:

N/A

- Drug resistance pattern:

N/A

- Agent(s) difficult to diagnose:

N/A

- Presence of unusual vectors:

N/A

- Other:

N/A

9. Approximate number of primary cases:

1

10. Approximate number of total cases:

29

11. Number of deaths:

0

12. Development of the outbreak:

13. Measures taken:

N/A

Notes:

Please refer to attached file for details.

Attachments:

cbm-2019-form\_b-measles.pdf

### **Avian Influenza A(H7N9)**

1. Time of cognizance of the outbreak:

January 2015

2. Location and approximate area affected:

N/A

N/A

3. Type of disease/intoxication:

Influenza viral infection

4. Suspected source of disease/intoxication:

Exposure to poultry or contaminated environments in Hong Kon/China/Taiwan

5. Possible causative agent(s):

N/A

6. Main characteristics of systems:

N/A

7. Detailed symptoms, when applicable

N/A

- Respiratory:

N/A

- Circulatory:

N/A

- Neurological/behavioural:

N/A

- Intestinal:

N/A

- Dermatological:

N/A

- Nephrological:

N/A

- Other:

N/A

8. Deviation(s) from the normal pattern as regards

- Type:

N/A

- Development:

N/A

- Place of occurrence:

N/A

- Time of occurrence:

- Symptoms:

N/A

- Virulence pattern:

N/A

- Drug resistance pattern:

N/A

- Agent(s) difficult to diagnose:

N/A

- Presence of unusual vectors:

N/A

- Other:

N/A

9. Approximate number of primary cases:

2

10. Approximate number of total cases:

2

11. Number of deaths:

0

12. Development of the outbreak:

13. Measures taken:

N/A

Notes:

Please refer to attached file for details.

Attachments:

cbm-2019-formb-avian\_influenza\_a.pdf

### **Swine Influenza A(H3N2)v**

1. Time of cognizance of the outbreak:

December 2016

2. Location and approximate area affected:

N/A

N/A

3. Type of disease/intoxication:

Influenza viral infection

4. Suspected source of disease/intoxication:

Exposure to swine

5. Possible causative agent(s):

N/A

6. Main characteristics of systems:



N/A

7. Detailed symptoms, when applicable

N/A

- Respiratory:

Pneumonia

- Circulatory:

N/A

- Neurological/behavioural:

N/A

- Intestinal:

N/A

- Dermatological:

N/A

- Nephrological:

N/A

- Other:

N/A

8. Deviation(s) from the normal pattern as regards

- Type:

N/A

- Development:

N/A

- Place of occurrence:

N/A

- Time of occurrence:

- Symptoms:

N/A

- Virulence pattern:

N/A

- Drug resistance pattern:

N/A

- Agent(s) difficult to diagnose:

N/A

- Presence of unusual vectors:

N/A

- Other:

N/A

9. Approximate number of primary cases:

1

10. Approximate number of total cases:

1

11. Number of deaths:

0

12. Development of the outbreak:

13. Measures taken:

N/A

Notes:

Please refer to attached file for details.

Attachments:

cbm-2019-form\_b-swine\_flu.pdf

### **Diphtheria**

1. Time of cognizance of the outbreak:

November 2017

2. Location and approximate area affected:

Alberta

N/A

3. Type of disease/intoxication:

Infectious disease (bacterial)

4. Suspected source of disease/intoxication:

N/A

5. Possible causative agent(s):

N/A

6. Main characteristics of systems:

N/A

7. Detailed symptoms, when applicable

N/A

- Respiratory:

N/A

- Circulatory:

N/A

- Neurological/behavioural:

N/A

- Intestinal:

N/A

- Dermatological:

N/A

- Nephrological:

N/A

- Other:

N/A

8. Deviation(s) from the normal pattern as regards

- Type:

N/A

- Development:

N/A

- Place of occurrence:

N/A

- Time of occurrence:

- Symptoms:

N/A

- Virulence pattern:

N/A

- Drug resistance pattern:

N/A

- Agent(s) difficult to diagnose:

N/A

- Presence of unusual vectors:

N/A

- Other:

N/A

9. Approximate number of primary cases:

1

10. Approximate number of total cases:

1

11. Number of deaths:

0

12. Development of the outbreak:

13. Measures taken:

N/A

Notes:

Please refer to attached file for details.

Attachments:

cbm-2019-form\_b-diphtheria.pdf

### **Pertussis**

1. Time of cognizance of the outbreak:

May 2016

2. Location and approximate area affected:

Nunavut

Multi-community

3. Type of disease/intoxication:

Respiratory illness

4. Suspected source of disease/intoxication:

N/A

5. Possible causative agent(s):

N/A

6. Main characteristics of systems:

N/A

7. Detailed symptoms, when applicable

N/A

- Respiratory:

N/A

- Circulatory:

N/A

- Neurological/behavioural:

N/A

- Intestinal:

N/A

- Dermatological:

N/A

- Nephrological:

N/A

- Other:

N/A

8. Deviation(s) from the normal pattern as regards

- Type:

N/A

- Development:

N/A

- Place of occurrence:

N/A

- Time of occurrence:

- Symptoms:

N/A

- Virulence pattern:

N/A

- Drug resistance pattern:

N/A

- Agent(s) difficult to diagnose:

N/A

- Presence of unusual vectors:

N/A

- Other:

N/A

9. Approximate number of primary cases:

N/A

10. Approximate number of total cases:

140

11. Number of deaths:

0

12. Development of the outbreak:

13. Measures taken:

N/A

Notes:

Please refer to attached file for details.

Attachments:

cbm-2019-form\_b-pertussis.pdf

## **Mumps**

1. Time of cognizance of the outbreak:

2017

2. Location and approximate area affected:

Six provinces & territories

N/A

3. Type of disease/intoxication:

Viral infection

4. Suspected source of disease/intoxication:

N/A

5. Possible causative agent(s):

N/A

6. Main characteristics of systems:

N/A

7. Detailed symptoms, when applicable

N/A

- Respiratory:

N/A

- Circulatory:

N/A

- Neurological/behavioural:

N/A

- Intestinal:

N/A

- Dermatological:

N/A

- Nephrological:

N/A

- Other:

N/A

8. Deviation(s) from the normal pattern as regards

- Type:

N/A

- Development:

N/A

- Place of occurrence:

N/A

- Time of occurrence:

- Symptoms:

N/A

- Virulence pattern:

N/A

- Drug resistance pattern:

N/A

- Agent(s) difficult to diagnose:

N/A

- Presence of unusual vectors:

N/A

- Other:

N/A

9. Approximate number of primary cases:

N/A

10. Approximate number of total cases:

1500

11. Number of deaths:

0

12. Development of the outbreak:

13. Measures taken:

N/A

Notes:

Please refer to attached file for details.

Attachments:

cbm-2019-form\_b-mumps.pdf

### **Invasive Group A Streptococcal Disease (iGAS)**

1. Time of cognizance of the outbreak:

N/A

2. Location and approximate area affected:

N/A

N/A

3. Type of disease/intoxication:

N/A

4. Suspected source of disease/intoxication:

N/A

5. Possible causative agent(s):

N/A

6. Main characteristics of systems:

N/A

7. Detailed symptoms, when applicable

N/A

- Respiratory:

N/A

- Circulatory:

N/A

- Neurological/behavioural:

N/A

- Intestinal:

N/A

- Dermatological:

N/A

- Nephrological:

N/A

- Other:

N/A

8. Deviation(s) from the normal pattern as regards

- Type:

N/A

- Development:

N/A

- Place of occurrence:

N/A

- Time of occurrence:

- Symptoms:

N/A

- Virulence pattern:

N/A

- Drug resistance pattern:

N/A

- Agent(s) difficult to diagnose:

N/A

- Presence of unusual vectors:

N/A

- Other:

N/A

9. Approximate number of primary cases:

N/A

10. Approximate number of total cases:

N/A



11. Number of deaths:

12. Development of the outbreak:

13. Measures taken:

N/A

Notes:

Please refer to attached file for details.

Attachments:

cbm-2019-form\_b-igas.pdf

### **Invasive Meningococcal Disease**

1. Time of cognizance of the outbreak:

June to December 2017

2. Location and approximate area affected:

N/A

N/A

3. Type of disease/intoxication:

Bacterial infection

4. Suspected source of disease/intoxication:

N/A

5. Possible causative agent(s):

N/A

6. Main characteristics of systems:

N/A

7. Detailed symptoms, when applicable

N/A

- Respiratory:

N/A

- Circulatory:

N/A

- Neurological/behavioural:

N/A

- Intestinal:

N/A

- Dermatological:

N/A

- Nephrological:

N/A

- Other:

N/A

8. Deviation(s) from the normal pattern as regards

- Type:

N/A

- Development:

N/A

- Place of occurrence:

N/A

- Time of occurrence:

- Symptoms:

N/A

- Virulence pattern:

N/A

- Drug resistance pattern:

N/A

- Agent(s) difficult to diagnose:

N/A

- Presence of unusual vectors:

N/A

- Other:

N/A

9. Approximate number of primary cases:

N/A

10. Approximate number of total cases:

5

11. Number of deaths:

0

12. Development of the outbreak:

13. Measures taken:

N/A

Notes:

Please refer to attached file for details.

Attachments:

cbm-2019-form\_b-imd.pdf

## **Cyclosporiasis**

1. Time of cognizance of the outbreak:

Summer 2017

2. Location and approximate area affected:

British Columbia, Ontario, Quebec, Nova Scotia

N/A

3. Type of disease/intoxication:

Parasitic disease

4. Suspected source of disease/intoxication:

Imported fresh cilantro and blackberries

5. Possible causative agent(s):

N/A

6. Main characteristics of systems:

N/A

7. Detailed symptoms, when applicable

N/A

- Respiratory:

N/A

- Circulatory:

N/A

- Neurological/behavioural:

N/A

- Intestinal:

N/A

- Dermatological:

N/A

- Nephrological:

N/A

- Other:

N/A

8. Deviation(s) from the normal pattern as regards

- Type:

N/A

- Development:

N/A

- Place of occurrence:

N/A

- Time of occurrence:

- Symptoms:

N/A

- Virulence pattern:

N/A

- Drug resistance pattern:

N/A

- Agent(s) difficult to diagnose:

N/A

- Presence of unusual vectors:

N/A

- Other:

N/A

9. Approximate number of primary cases:

N/A

10. Approximate number of total cases:

158

11. Number of deaths:

0

12. Development of the outbreak:

13. Measures taken:

N/A

Notes:

Please refer to the attached file for details.

Attachments:

cbm-2019-form\_b-cyclosporiasis.pdf

### **Avian Influenza A(H5N1)**

1. Time of cognizance of the outbreak:

January 2014

2. Location and approximate area affected:

N/A

N/A

3. Type of disease/intoxication:

Influenza viral infection

4. Suspected source of disease/intoxication:

Exposure to infected birds

5. Possible causative agent(s):

N/A

6. Main characteristics of systems:

N/A

7. Detailed symptoms, when applicable

N/A

- Respiratory:

N/A

- Circulatory:

N/A

- Neurological/behavioural:

N/A

- Intestinal:

N/A

- Dermatological:

N/A

- Nephrological:

N/A

- Other:

N/A

8. Deviation(s) from the normal pattern as regards

- Type:

N/A

- Development:

N/A

- Place of occurrence:

N/A

- Time of occurrence:

- Symptoms:

N/A

- Virulence pattern:

N/A

- Drug resistance pattern:

N/A

- Agent(s) difficult to diagnose:

N/A

- Presence of unusual vectors:

N/A

- Other:

N/A

9. Approximate number of primary cases:

N/A

10. Approximate number of total cases:

1

11. Number of deaths:

1

12. Development of the outbreak:

13. Measures taken:

N/A

Notes:

Please refer to the attached file for details.

Attachments:

cbm-2019-form\_b-avian\_influenza\_a.pdf

## **Chlamydia**

1. Time of cognizance of the outbreak:

N/A

2. Location and approximate area affected:

N/A

N/A

3. Type of disease/intoxication:

N/A

4. Suspected source of disease/intoxication:

N/A

5. Possible causative agent(s):

N/A

6. Main characteristics of systems:

N/A

7. Detailed symptoms, when applicable

N/A

- Respiratory:

N/A

- Circulatory:

N/A

- Neurological/behavioural:

N/A

- Intestinal:

N/A

- Dermatological:

N/A

- Nephrological:

N/A

- Other:

N/A

8. Deviation(s) from the normal pattern as regards

- Type:

N/A

- Development:

N/A

- Place of occurrence:

N/A

- Time of occurrence:

- Symptoms:

N/A

- Virulence pattern:

N/A

- Drug resistance pattern:

N/A

- Agent(s) difficult to diagnose:

N/A

- Presence of unusual vectors:

N/A

- Other:

N/A

9. Approximate number of primary cases:

N/A

10. Approximate number of total cases:

N/A

11. Number of deaths:

12. Development of the outbreak:

13. Measures taken:

N/A

Notes:

Please refer to attached file for details.

Attachments:

cbm-2019-form\_b-chlamydia.pdf

### **Gonorrhoea**

1. Time of cognizance of the outbreak:

N/A

2. Location and approximate area affected:

N/A

N/A

3. Type of disease/intoxication:

N/A

4. Suspected source of disease/intoxication:

N/A

5. Possible causative agent(s):

N/A

6. Main characteristics of systems:

N/A

7. Detailed symptoms, when applicable

N/A

- Respiratory:

N/A

- Circulatory:

N/A

- Neurological/behavioural:

N/A

- Intestinal:

N/A

- Dermatological:

N/A

- Nephrological:

N/A

- Other:

N/A

8. Deviation(s) from the normal pattern as regards



- Type:

N/A

- Development:

N/A

- Place of occurrence:

N/A

- Time of occurrence:

- Symptoms:

N/A

- Virulence pattern:

N/A

- Drug resistance pattern:

N/A

- Agent(s) difficult to diagnose:

N/A

- Presence of unusual vectors:

N/A

- Other:

N/A

9. Approximate number of primary cases:

N/A

10. Approximate number of total cases:

N/A

11. Number of deaths:

12. Development of the outbreak:

13. Measures taken:

N/A

Notes:

Please refer to attached file for details.

Attachments:

cbm-2019-form\_b-gonorrhoea.pdf

## **Hepatitis B**

1. Time of cognizance of the outbreak:

N/A

2. Location and approximate area affected:

N/A

N/A

3. Type of disease/intoxication:

N/A

4. Suspected source of disease/intoxication:

N/A

5. Possible causative agent(s):

N/A

6. Main characteristics of systems:

N/A

7. Detailed symptoms, when applicable

N/A

- Respiratory:

N/A

- Circulatory:

N/A

- Neurological/behavioural:

N/A

- Intestinal:

N/A

- Dermatological:

N/A

- Nephrological:

N/A

- Other:

N/A

8. Deviation(s) from the normal pattern as regards

- Type:

N/A

- Development:

N/A

- Place of occurrence:

N/A

- Time of occurrence:

- Symptoms:

N/A

- Virulence pattern:

N/A

- Drug resistance pattern:

N/A

- Agent(s) difficult to diagnose:

N/A

- Presence of unusual vectors:

N/A

- Other:

N/A

9. Approximate number of primary cases:

N/A

10. Approximate number of total cases:

N/A

11. Number of deaths:

12. Development of the outbreak:

13. Measures taken:

N/A

Notes:

Please refer to attached file for details.

Attachments:

cbm-2019-form\_b-hepatitis\_b.pdf

### **Hepatitis C**

1. Time of cognizance of the outbreak:

N/A

2. Location and approximate area affected:

N/A

N/A

3. Type of disease/intoxication:

N/A

4. Suspected source of disease/intoxication:

N/A

5. Possible causative agent(s):

N/A

6. Main characteristics of systems:

N/A

7. Detailed symptoms, when applicable

N/A

- Respiratory:

N/A

- Circulatory:

N/A

- Neurological/behavioural:

N/A

- Intestinal:

N/A

- Dermatological:

N/A

- Nephrological:

N/A

- Other:

N/A

8. Deviation(s) from the normal pattern as regards

- Type:

N/A

- Development:

N/A

- Place of occurrence:

N/A

- Time of occurrence:

- Symptoms:

N/A

- Virulence pattern:

N/A

- Drug resistance pattern:

N/A

- Agent(s) difficult to diagnose:

N/A

- Presence of unusual vectors:

N/A

- Other:

N/A

9. Approximate number of primary cases:

N/A

10. Approximate number of total cases:

N/A

11. Number of deaths:

12. Development of the outbreak:

13. Measures taken:

N/A

Notes:

Please refer to attached file for details.

Attachments:

cbm-2019-form\_b-hepatitis\_c.pdf

### **Infectious Syphilis**

1. Time of cognizance of the outbreak:

N/A

2. Location and approximate area affected:

N/A

N/A

3. Type of disease/intoxication:

N/A

4. Suspected source of disease/intoxication:

N/A

5. Possible causative agent(s):

N/A

6. Main characteristics of systems:

N/A

7. Detailed symptoms, when applicable

N/A

- Respiratory:

N/A

- Circulatory:

N/A

- Neurological/behavioural:

N/A

- Intestinal:

N/A

- Dermatological:

N/A

- Nephrological:

N/A

- Other:

N/A

8. Deviation(s) from the normal pattern as regards

- Type:

N/A

- Development:

N/A

- Place of occurrence:

N/A

- Time of occurrence:

- Symptoms:

N/A

- Virulence pattern:

N/A

- Drug resistance pattern:

N/A

- Agent(s) difficult to diagnose:

N/A

- Presence of unusual vectors:

N/A

- Other:

N/A

9. Approximate number of primary cases:

N/A

10. Approximate number of total cases:

N/A

11. Number of deaths:

12. Development of the outbreak:

13. Measures taken:

N/A

Notes:

Please refer to the attached file for details.

Attachments:

cbm-2019-form\_b-infectious\_syphilis.pdf

# Confidence-Building Measure "C"

## Encouragement of publication of results and promotion of use of knowledge

At the Third Review Conference it was agreed that States parties continue to implement the following:

Encouragement of publication of results of biological research directly related to the Convention, in scientific journals generally available to States parties, as well as promotion of use for permitted purposes of knowledge gained in this research.

### Modalities

The Third Review Conference agreed on the following:

1. It is recommended that basic research in biosciences, and particularly that directly related to the Convention should generally be unclassified and that applied research to the extent possible, without infringing on national and commercial interests, should also be unclassified.
2. States parties are encouraged to provide information on their policy as regards publication of results of biological research, indicating, inter alia, their policies as regards publication of results of research carried out in research centres and laboratories subject to exchange of information under item A and publication of research on outbreaks of diseases covered by item B, and to provide information on relevant scientific journals and other relevant scientific publications generally available to States parties.
3. The Third Review Conference discussed the question of cooperation and assistance as regards the safe handling of biological material covered by the Convention. It concluded that other international forums were engaged in this field and expressed its support for efforts aimed at enhancing such cooperation.

Comments:

### Encouragement of Publication of Results and Promotion of Use of Knowledge

Publications :

Note: Publication and knowledge sharing is strongly encouraged and a cornerstone of the CSSP.

Public Health Agency of Canada

Al-Fifi, Y.S.Y., Kadkhoda, K., Drebot, M., Wudel, B., & Bow, E.J. (2018). The First Case Report of West Nile Virus-Induced Acute Flaccid Quadriplegia in Canada. *Case Reports in Infectious Diseases*, 2018, 4361706.

Banadyga, L., Stein, D.R., Qiu, X., & Safronetz, D. (2018). Pre-clinical development of a vaccine against Lassa fever. *Canada Communicable Disease Report (CCDR)*, 44(6).

Basile, A.J., Goodman, C., Horiuchi, K., Sloan, A., Johnson, B.W., Kosoy, O.,... Schiffer, J. (2018). Multi-laboratory comparison of three commercially available Zika IgM enzyme-linked immunosorbent assays. *Journal of Virological Methods*, 260, 26-33.

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## **Confidence-Building Measure "D"**

(Deleted)



# Confidence-Building Measure "E"

## Declaration of legislation, regulations and other measures

At the Third Review Conference the States parties agreed to implement the following, later amended by the Seventh Review Conference:

As an indication of the measures which they have taken to implement the Convention, States parties shall declare whether they have legislation, regulations or other measures:

- (a) To prohibit and prevent the development, production, stockpiling, acquisition or retention of the agents, toxins, weapons, equipment and means of delivery specified in Article I of the Convention, within their territory or anywhere under their jurisdiction or under their control anywhere;
- (b) In relation to the export or import of micro-organisms pathogenic to man, animals and plants or of toxins in accordance with the Convention;
- (c) In relation to biosafety and biosecurity.

States parties shall complete the attached form (Form E) and shall be prepared to submit copies of the legislation or regulations, or written details of other measures on request to the Implementation Support Unit (ISU) within the United Nations Office for Disarmament Affairs or to an individual State party. On an annual basis States parties shall indicate, also on the attached form, whether or not there has been any amendment to their legislation, regulations or other measures.

## Form E

### Declaration of legislation, regulations and other measures

<i>Relating to</i>	<i>Legislation</i>	<i>Regulations</i>	<i>Other measures<sup>12</sup></i>	<i>Amended since last year</i>
(a) Development, production stockpiling, acquisition or retention of microbial or other biological agents, or toxins, weapons, equipment and means of delivery specified in Article I	yes	yes	yes	no
(b) Exports of micro-organisms <sup>13</sup> and toxins	yes	yes	yes	no
(c) Imports of micro-organisms <sup>13</sup> and toxins	yes	yes	yes	no
(d) Biosafety <sup>14</sup> and biosecurity <sup>15</sup>	yes	yes	yes	no

Additional information to Form E:

Please refer to attached file for details.

## **Confidence-Building Measure "F"**

### **Declaration of past activities in offensive and/or defensive biological research and development programmes**

In the interest of increasing transparency and openness, States parties shall declare whether or not they conducted any offensive and/or defensive biological research and development programmes since 1 January 1946.

If so, States parties shall provide information on such programmes, in accordance with Form F.

#### **Form F**

### **Declaration of past activities in offensive and/or defensive biological research and development programmes**

1. Date of entry into force of the Convention for the State Party.

Monday, September 18, 1972

2. Past offensive biological research and development programmes:

- yes

- Period(s) of activities

1 Jan 46 to 30 Jun 58

- Summary of the research and development activities indicating whether work was performed concerning production, test and evaluation, weaponization, stockpiling of biological agents, the destruction programme of such agents and weapons, and other related research.

In the above period offensive work undertaken by Canada included: studies of improved procedures for production of certain toxins (eg. botulinum and diphtheria); studies on the use of insects as vectors for pathogenic bacteria and viruses; test and evaluation of munitions, including performance in cold weather; studies of weapon-produced aerosols of potential BW agents; fundamental work related to field trials, dealing with the dispersion and properties of solid particulates, preparation of finely divided solids for munitions charging and sampling of toxic particulates; development of tissue culture processes for large scale cultivation of viruses; and development of *Burkholderia mallei* and *Burkholderia pseudomallei* as new potential BW agents and continued work on *Brucella suis* and *Pasteurella tularensis* as BW agents. There was no large scale production, stockpiling or weaponization of BW agents. When necessary, BW agents were destroyed by autoclaving.

3. Past defensive biological research and development programmes:

- yes

- Period(s) of activities

1 Jan 46 to present

- Summary of the research and development activities indicating whether or not work was conducted in the following areas: prophylaxis, studies on pathogenicity and virulence, diagnostic techniques, aerobiology, detection, treatment, toxinology, physical protection, decontamination, and other related research, with location if possible.

A key factor in biological defence work is that it is only through a thorough understanding of the properties and behaviour of potential BW agents that the potential threat can be appreciated, and work on suitable defensive measures can be undertaken. Accordingly, in the past there was much basic research on such agents, as well as studies of their characteristics and behaviour as aerosols. The aerosol work included studies to delineate the factors responsible for the losses of viability in airborne bacteria and viruses during long-distance aerosol transport. The aim was to better understand the feasibility of large scale use of BW agents. Medical work in biological defence has covered research and development, and in some cases production of toxoids, antitoxins and vaccines for various potential BW agents including Botulinum toxin, Rinderpest virus, Newcastle Disease virus, *B. mallei*, *F. tularensis* and Diphtheria toxin. More recent work in biological defence is summarized in Form A, part 2.

# Confidence-Building Measure "G"

## Declaration of vaccine production facilities

To further increase the transparency of biological research and development related to the Convention and to broaden scientific and technical knowledge as agreed in Article X, each State party will declare all facilities, both governmental and non-governmental, within its territory or under its jurisdiction or control anywhere, producing vaccines licensed by the State party for the protection of humans. Information shall be provided on Form G attached.

### Form G

#### Declaration of vaccine production facilities

1. Name of facility:

**ID Biomedical Corporation of Quebec (GlaxoSmithKline Inc.)**

2. Location (mailing address):

Quebec City, Quebec

3. General description of the types of diseases covered:

Manufacturer of vaccines for use in humans

1. Name of facility:

**Sanofi Pasteur Limited**

2. Location (mailing address):

Toronto, Ontario

3. General description of the types of diseases covered:

Manufacturer of vaccines for use in humans

1. Name of facility:

**Immunovaccine**

2. Location (mailing address):

Halifax, Nova Scotia

3. General description of the types of diseases covered:

Manufacturer of vaccines (pending license to manufacture vaccine for use in humans)

1. Name of facility:

**Medicago**

2. Location (mailing address):

Quebec City, Quebec

3. General description of the types of diseases covered:

Manufacturer of vaccines (pending licenses to manufacture vaccine for use in humans)

1. Name of facility:

**InventVac**

2. Location (mailing address):

Vancouver, British Columbia

3. General description of the types of diseases covered:

Manufacturer of vaccines for use in clinical trials in humans

1. Name of facility:

**National Research Council of Canada**

2. Location (mailing address):

Ottawa, Ontario

3. General description of the types of diseases covered:

Manufacturer of vaccines for use in clinical trials in humans

1. Name of facility:

**Artemis Technologies Inc. (Can. Vet. Biol. Estab. Lic. No. 50)**

2. Location (mailing address):

Guelph, Ontario

3. General description of the types of diseases covered:

Manufacturer of veterinary vaccines for use in animals

1. Name of facility:

**Biovet Inc. (Can. Vet. Biol. Estab. Lic. No. 49)**

2. Location (mailing address):

Saint-Hyacinthe, Quebec

3. General description of the types of diseases covered:

Manufacturer of in vitro diagnostic test kits for diagnosis of animal diseases

1. Name of facility:

**Centre for Aquaculture Technologies Canada (Can. Vet. Biol. Estab. Lic. No. 61)**

2. Location (mailing address):

Souris, PEI

3. General description of the types of diseases covered:

Quality control testing of aquaculture vaccine under contract from authorized manufacturers

1. Name of facility:

**Ceva Animal Health Inc. (Can. Vet. Biol. Estab. Lic. No. 23)**

2. Location (mailing address):

Guelph, Ontario

3. General description of the types of diseases covered:

Manufacturer of veterinary vaccines for use in aquaculture

1. Name of facility:

**Elanco Canada Limited - Aqua Health (Can. Vet. Biol. Estab. Lic. No. 40)**

2. Location (mailing address):

Charlottetown PEI and Victoria PEI

3. General description of the types of diseases covered:

Manufacturer of autogenous veterinary vaccines for use in animals

1. Name of facility:

**Gallant Custom Laboratories Inc. (Can. Vet. Biol. Estab. Lic. No. 45)**

2. Location (mailing address):

Cambridge, Ontario

3. General description of the types of diseases covered:

Manufacturer of autogenous veterinary vaccines for use in animals

1. Name of facility:

**Nutratch Inc. (Can. Vet. Biol. Estab. Lic. No. 58)**

2. Location (mailing address):

Winnipeg, Manitoba

3. General description of the types of diseases covered:

Manufacturer of egg antibody products for use in animals

1. Name of facility:

**Prevtec Microbia Inc. (Can. Vet. Biol. Estab. Lic. No. 60)**

2. Location (mailing address):

Saint-Hyacinthe, Quebec

3. General description of the types of diseases covered:

Labelling and storage of veterinary vaccines for use in pigs

1. Name of facility:

**Saskatoon Colostrum Co. Ltd. (Can. Vet. Biol. Estab. Lic. No. 44)**

2. Location (mailing address):

Saskatoon, Saskatchewan

3. General description of the types of diseases covered:

Manufacturer of bovine colostrum products for administration to animals

1. Name of facility:

**Vacci-Vet Inc. (Can. Vet. Biol. Estab. Lic. No. 59)**

2. Location (mailing address):

Saint-Hyacinthe, Quebec

3. General description of the types of diseases covered:

Manufacturer of autogenous veterinary vaccines for use in animals

## Notes

1. World Health Organization
2. World Organization for Animal Health.
3. The containment units which are fixed patient treatment modules, integrated with laboratories, should be identified separately.
4. For facilities with maximum containment units participating in the national biological defence research and development programme, please fill in name of facility and mark "Declared in accordance with Form A, part 2 (iii)".
5. In accordance with the latest edition of the WHO Laboratory Biosafety Manual, or equivalent.
6. Microorganisms pathogenic to humans and/or animals
7. In accordance with the latest edition of the WHO Laboratory Biosafety Manual and/or the OIE Terrestrial Manual or other equivalent internationally accepted guidelines.
8. In accordance with the latest edition of the WHO Laboratory Biosafety Manual and/or the OIE Terrestrial Manual or other equivalent internationally accepted guidelines.
9. Including viruses and prions.
10. It is understood that this may include organisms made pathogenic by molecular biology techniques, such as genetic engineering.
11. See paragraph 2 of the chapeau to Confidence-Building Measure B.
12. Including guidelines.
13. Micro-organisms pathogenic to man, animals and plants in accordance with the Convention.
14. In accordance with the latest version of the WHO Laboratory Biosafety Manual or equivalent national or international guidance.
15. In accordance with the latest version of the WHO Laboratory Biosecurity Guidance or equivalent national or international guidance.

## Attachments

### **Form A2 part iii (biological defence research and development programmes):**

- [cbm-2019-form\\_a\\_part\\_2\\_iii\\_-\\_list\\_of\\_contractors\\_drdc\\_vrc.pdf](#)

### **Form A2 part ii (biological defence research and development programmes):**

- [cbm-2019-form\\_a\\_part\\_2\\_ii\\_-\\_cssp\\_projects.pdf](#)

### **Form E:**

- [cbm-2019-form\\_e.pdf](#)



**List of Contractors**  
**Carrying Out Research and Development in Biological Defence**  
**for the Department of National Defence of Canada – 2018**

Contractor	Title of contracted activity
AEREX Avionique Inc.	Software modification and development to support Biosense in Curbes Project – Phase III
AEREX Avionique Inc.	Biosense Situational Awareness Functionality – Phase II
AEREX Avionique Inc.	Functionality improvements to Spectral Lif database, including signature transfer
AEREX Avionique Inc.	Development of data viewer with integration of situational awareness from Biosense and Icatsi
AEREX Avionique Inc.	Improvement of situational awareness functions of Biosense
CNA Diagnostics Inc.	Advanced Development of Biomarkers of Sepsis
INO	BioSpectra upgrades phase II and classification improvements
Lady Davis Institute, Jewish General	R&D Contract “Computational Drug Repurposing for Antitoxin and Antibacterial Targets and Characterization of Preliminary Drug Candidates”; amend contract W7702-165745 to develop computational analyses to screen for approved pharmaceuticals against multiple BoNT toxins
National Research Council Nanotechnology Research Centre	Nanotechnology and EC sensor fabrication
U of Alberta	R&D Contract – Support for Animal Research at University of Alberta
U of Alberta	U of A support, test lead candidate in dose response (RAFI, favipiravir or arbidol)
U of Alberta	Research Support FY18-19 and outward
U of Alberta	Synthesis and testing of lead compounds – CL2 viruses
U of Alberta	Chikungunya Virus and Antiviral Screening
U of Calgary	EC sensor chip characterization
U of Toronto	Nanoparticle-packaged anti-VEEV Abs
U of Toronto	Nanowire-based sensors suitability as Biochemical identification devices

Project Number	Project Title	Project Status	Lead Government Department	CSS Funds	In-Kind
CSSP-2014-TA-2047	Application of Next Generation Sequencing (NGS) methods for Plant Pathogen Diagnostics and Research at the Sidney Laboratory, Centre for Plant Health (CPH).	Completed in FY 15/16	Canadian Food Inspection Agency	\$177,000.00	\$0.00
CSSP-2014-TA-2048	FilmArray Biodefense Systems for Multiplexed Biological Detection and Identification	Completed in FY 15/16	Defence R&D Canada - Suffield	\$124,520.00	\$0.00
CSSP-2014-TA-2049	"Center for Excellence in Emergency Preparedness User-Management Tool (Membership Management System)"	Completed in FY 15/16	Public Health Agency of Canada	\$50,000.00	\$0.00
CSSP-2014-TA-2050	Acquisition of a MALDI TOF mass spectrometer (MS) to detect and type botulinum neurotoxins	Completed in FY 15/16	Health Canada	\$143,000.00	\$0.00
CSSP-2014-TA-2051	Atmospheric Pressure Plasma Decontamination System	Completed in FY 15/16	Public Health Agency of Canada	\$80,000.00	\$0.00
CSSP-2014-TA-2052	Acquisition of a Droplet Digital PCR (ddPCR) system for detection of foodborne pathogens	Completed in FY 15/16	Health Canada	\$102,000.00	\$0.00
CSSP-2015-TA-2124	Illumina NeoPrep system for the Advancement of Next Generation Sequencing (NGS) methods for Plant Pathogen Diagnostics and Research	Active	Canadian Food Inspection Agency	\$62,500	\$20,000
CSSP-2015-TA-2125	Unified Rapid Genomic Sequencer-based Surveillance for Foodborne Disease Outbreak Detection and Response	Active	Public Health Agency of Canada	\$1,000,000	\$1,814,520
CSSP-2015-TA-2126	Rapid Whole-Genome Sequencing Capacity for Microbial Pathogens to Frontline Food Testing Laboratories	Active	Canadian Food Inspection Agency	\$200,000	\$320,000
CSSP-2015-TA-2129	ChemiDoc MP Imager for Rapid Detection of Living Pathogens for the Safety and Security of Canadian Food and Water.	Active	National Research Council Canada	\$36,000	\$220,506

CSSP-2016-TA-2210	Automation of Next Generation Sequencing (NGS) Library Preparation to Enhance Infectious Disease Diagnosis and Outbreak Response in Canada	Active	Canadian Food Inspection Agency	\$180,000	\$45,000
09-0462RD	Next generation sequencing, direct detection and genotyping of fungi, bacteria and nematodes in the agri-food system	Active	Agriculture and Agri-Foods Canada	\$1,999,000.00	\$1,655,000.00
09-0481TD	An Optical Imaging Device for a Rapid Assessment of Tissue Viability and Wound Healing	Active	National Research Council of Canada	\$1,810,328.00	\$1,215,035.00
CSSP-2015-CP-2098	Understanding Antimicrobial Resistance Using a Complex Adaptive Systems Approach	Active	Public Health Agency of Canada	\$249,600.00	\$150,000.00
CSSP-2015-CP-2099	Canadian Network for Public Health Intelligence (CNPHI) "on the go"	Active	Public Health Agency of Canada	\$600,000.00	\$650,000.00
CSSP-2015-TI-2153	The Development of International Best Practices for Microbial Forensics	Active	Public Health Agency of Canada	\$254,600.00	\$169,000.00
CSSP-2015-TI-2157	Integrated Microbiology Testing Laboratory Network	Active	Canadian Food Inspection Agency	\$140,000.00	\$440,000.00
CSSP-2015-TI-2194	Confirmation study on Ebola Surface Persistence and Decontamination and the Evaluation of Cold Weather Decontamination	Active	Defence R&D Canada - CSS	\$180,000.00	\$231,400.00
CSSP-2015-TI-2195	Workshop on Four-Eyes BSL4 Laboratory network	Active	Canadian Food Inspection Agency	\$100,000.00	\$40,000.00
CSSP-2016-TI-2222	Whole Genome Sequencing of High Consequence Agents at National Centre for Foreign Animal Disease (NCFAD)	Active	Canadian Food Inspection Agency	\$400,000	\$520,000
CSSP-2016-TI-2221	Biosafety Level 4 Zoonotic Network (BSL4ZNet): Implementing Strategic framework for international coordination	Active	Canadian Food Inspection Agency	\$1,000,000	\$1,500,000
CSSP-2018-TI-	Multi-agency high consequence	In development	Public Health Agency of Canada	\$200,000	\$150,000

2405	pathogen exercise				
CSSP-2018-TI-2404	Foresight exercise on Synthetic biology for security	In development	DRDC CSS	\$250,000	\$250,000
CSSP-2018-TI-2395	Hot Zone Biological Sample Collection for National Security Response	Active	Public Health Agency of Canada	\$223,327	\$84,500
CSSP-2018-TI-2389	Exercise CNPHI on-the-go mobile app	Active	Public Health Agency of Canada	\$100,000	\$60,000
CSSP-2018-TI-2387	Biosafety Level 4 Zoonotic Laboratory Network (BSL4ZNet): Canadian-led exercise	Active	Canadian Food Inspection Agency	\$270,000	\$50,000
CSSP-2018-TI-2386	Integrated bio-forensic response to human and animal high consequence pathogens	Active	Canadian Food Inspection Agency	\$341,250	\$84,000
CSSP-2018-TI-2372	CAPEX 2018	Active	Royal Canadian Mounted Police	\$150,000	\$127,000
CSSP-2018-TI-2330	Support to the Scientific and Technical Intelligence Group Meeting and Table Top Exercise	Active	Public Safety Canada	\$30,000	\$191,728
CSSP-2018-CP-2342	Portable Automated Biosensing of Potential Dual-Use Bio-threats to Water Systems	Active	Health Canada	\$995,000	\$153,000
CSSP-2018-CP-2341	Enhancing Canada's Biothreat Operator Preparedness and Response Capability	Active	Canadian Food Inspection Agency	\$860,000	\$725,000
CSSP-2018-CP-2340	Synthetic Biology Threats: Fighting fire with fire	Active	Canadian Food Inspection Agency	\$995,000	\$1,180,000
CSSP-2018-CP-2339	Enhancing Canada's Response Capability to High Priority and Unknown/Unexpected Viruses	Active	Canadian Food Inspection Agency	\$600,000	\$327,000
CSSP-2017-CP-2312	Mobile device for field detection of microbial threats in food	Active	Canadian Food Inspection Agency	\$910,000	\$1,077,000
				<b>\$16,358,125</b>	<b>\$11,956,910</b>

## CONFIDENCE BUILDING MEASURE E

### **Declaration of Legislation, Regulations and Other Measures**

At the Third Review Conference the States parties agreed to implement the following, later amended by the Seventh Review Conference:

As an indication of the measures which they have taken to implement the Convention, States parties shall declare whether they have legislation, regulations or other measures:

- (a) To prohibit and prevent the development, production, stockpiling, acquisition or retention of the agents, toxins, weapons, equipment and means of delivery specified in Article I of the Convention, within their territory or anywhere under their jurisdiction or under their control anywhere;
- (b) In relation to the export or import of micro-organisms pathogenic to man, animals and plants or of toxins in accordance with the Convention;
- (c) In relation to biosafety and biosecurity.

States parties shall complete the attached form (Form E) and shall be prepared to submit copies of the legislation or regulations, or written details of other measures on request to the Implementation Support Unit (ISU) within the United Nations Office for Disarmament Affairs or to an individual State party. On an annual basis States parties shall indicate, also on the attached form, whether or not there has been any amendment to their legislation, regulations or other measures.

<u>Relation to</u>	<u>Legislation</u>	<u>Regulations</u>	<u>Other Measures</u>	<u>Amended since Last Year</u>
a) Development, production stockpiling, acquisition or retention of microbial or other biological agents, or toxins, weapons, equipment and means of delivery specified in Article I.	YES	YES	YES	NO
b) Exports of microorganisms* and toxins.	YES	YES	YES	NO
c) Imports of microorganisms* and toxins.	YES	YES	YES	NO

\* Microorganisms pathogenic to man, animals and plants in accordance with the Convention.

For more information, please consult the Canadian report produced for the Implementation Review initiative, found in Eighth Review Conference Document BWC/CONF.VIII/WP.27 - "BWC Implementation Review Initiative – Canada's report of the visit to Ottawa"