

*Real Time Biosurveillance Programme*  
**Evaluation and training programme**  
**Field Report**

Kurunegala District, Sri Lanka – 30<sup>th</sup> Mar 2010 – 2<sup>nd</sup> Apr 2010



***Field visits undertaken by***

*Mr. Nuwan Waidyanatha*

*Dr. W.G.C. Sampath*

*Mrs. N. Abeysinghe*

***Field trip organized by***

*Mrs. N. Abeysinghe*

*Mr. Ariyawanse*

# Table of Contents

<b>1. Introduction</b>	<b>3</b>
<b>2. Objectives</b>	<b>3</b>
<b>3. Participants for evaluation and training programme</b>	<b>3</b>
<b>4. Outline of the programme</b>	<b>3</b>
<b>4.1 Meeting with PDHS</b>	<b>3</b>
<b>4.2 Regarding Evaluation Programme.</b>	<b>4</b>
<b>5. Outcomes</b>	<b>5</b>
<b>6. Meeting with Suwadana Centre Volunteers</b>	<b>8</b>
<b>6.1 Objectives.</b>	<b>8</b>
<b>6.2 Participants of the meeting.</b>	<b>8</b>
<b>6.3 Conclusions</b>	<b>9</b>
<b>7. Follow up</b>	<b>9</b>
<b>8. Agenda of the evaluation programme- RTBP</b>	<b>10</b>
<b>9. Appendix</b>	<b>11</b>
<b>10. Acknowledgement</b>	<b>23</b>

## **1. Introduction**

The purview of this report is to profess the results of the evaluation on Real Time Biosurveillance Programme (RTBP) which has been conducted in Kurunegala District, Sri Lanka on 30<sup>th</sup> March 2010 to the April 2<sup>nd</sup> 2010 in PDHS (Provincial Director of Health services) and RE (Regional Epidemiologist) office and all selected MOH (Medical Officer of Health) areas (except Wariyapola MOH) where the RTBP is implemented. Concurrently awareness regarding the progression of the RTBP and the training programme on updated version of T – Cube Web Interface (TCWI) and Common Alerting Protocol (CAP) alerting module also comprised in to the schedule.

Enthusiastic participation of all the health care officials and workers with the intention of absorbing RTBP into the Government sector and ability to construct a well organized way of alerting with the contribution from all including ground level prove the fruitfulness of this evaluation programme.

## **2. Objectives.**

- 1) Training on TCWI and CAP alerting module
- 2) To assess the usability of the CAP alerting for issuing alerts/ situational awareness
- 3) To assess the standard operating procedures and policy requirement for introducing CAP alerts/ Situational awareness
- 4) To assess the comprehension of the CAP received by the health workers and officials.

## **3. Participants for Evaluation and training programme.**

- Dr.R.M.S.K. Ratnayake - Provincial Director of Health services (PDHS) - North Western Province.
- Dr. E.A.L.C.K. Edirisinghe - Assistant Director planning, North West Province.
- Dr. W.G.A. Fernando – PDHS office
- Dr. Dilini Wijesekara – PDHS office.
- Other non - medical PDHS staff.
- MOH staffs of Kuliypitiya, Pannala, Udubeddawa –  
MOHs  
Public Health Inspectors (PHI)  
Senior Public Health Inspector (SPHI)
- Mr. Nuwan Waidyanatha.
- Dr. W.G.C. Sampath
- Mrs. N. Abeysinghe.

## **4. Outline of the programme.**

### **4.1 Meeting with PDHS.....**

Programme started with the meeting with Dr.R.M.S.K. Ratnayake and the staff in PDHS office on the 30<sup>th</sup> March 2010. Mr. Nuwan Waidyanatha rendered the current status of the project and W.G.C.Sampath, LIRNEasia

10<sup>th</sup> Apr 2010

demonstrates the updated version of TCWI and the CAP system (figure 1.). Thereafter discussion session has begun.



Figure 1.

#### 4.2 Regarding Evaluation programme....

First and foremost researchers demonstrated the TCWI and explained the dictums of the entire steps in outbreak detection. Then participants were asked to demonstrate outbreak detection using time series analysis, Massive screening, temporal scan and the spatio- temporal scan in TCWI under the guidance of the researchers. They were given opportunity for any clarifications. (Figure 2.)

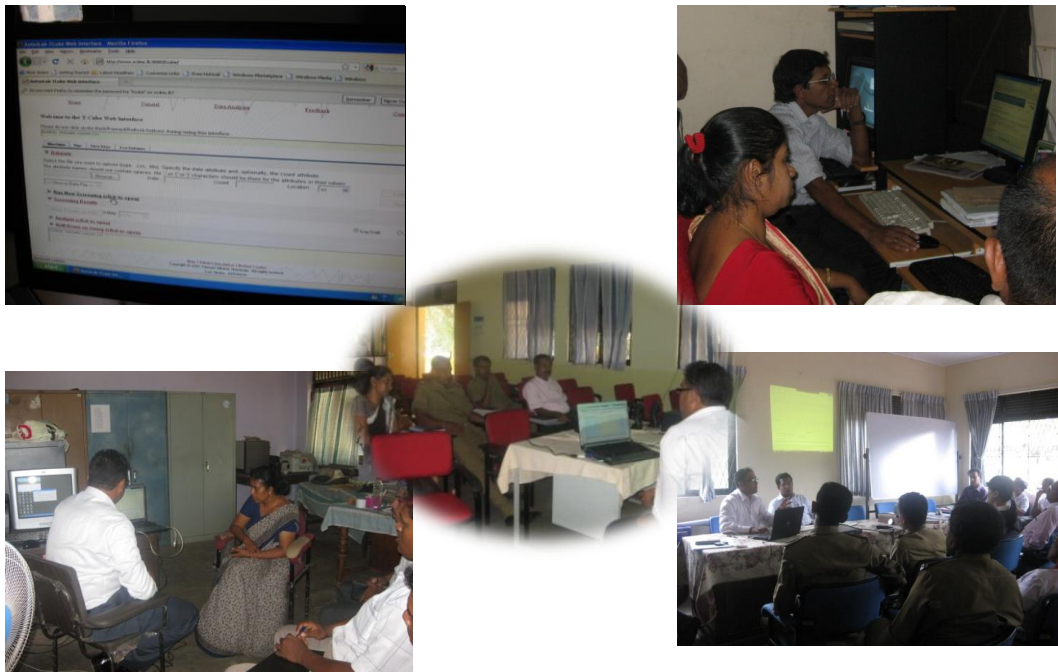


Figure 2.

Informed verbal consent has been taken at the beginning of the each assessment. Before starting CAP, all were provided the “CAP alerting /Situational Awareness – Issuer assessment” form to assess the usability of the CAP Sahana Messaging / Alerting module for issuing alert /situational-awareness to health workers and health officials. This was a self administered exercise. Then participant were guided to issue an alert /situational – awareness using CAP.

With the background of this knowledge, all were given the “CAP Alerting/ Situational – Awareness Procedural/ Policy Interview Guide-RTBP” to assess the standard operating procedures and policy requirement for introducing CAP alerts and or situational- awareness messages to health workers and health officials via interviewer administered method. (Figure 3.)



Figure 3.

Unfortunately Message Comprehension Assessment has not been conducted due to a technical error and rescheduled in end of April 2010.

## **5. Outcomes**

Enthusiastic participation of the all health officials and workers emphasized that they realized the importance of real time Biosurveillance programme. But they were reluctant for a paradigm shift and want a solution for making the present paper based system easier, rather than policy reform and innovation.

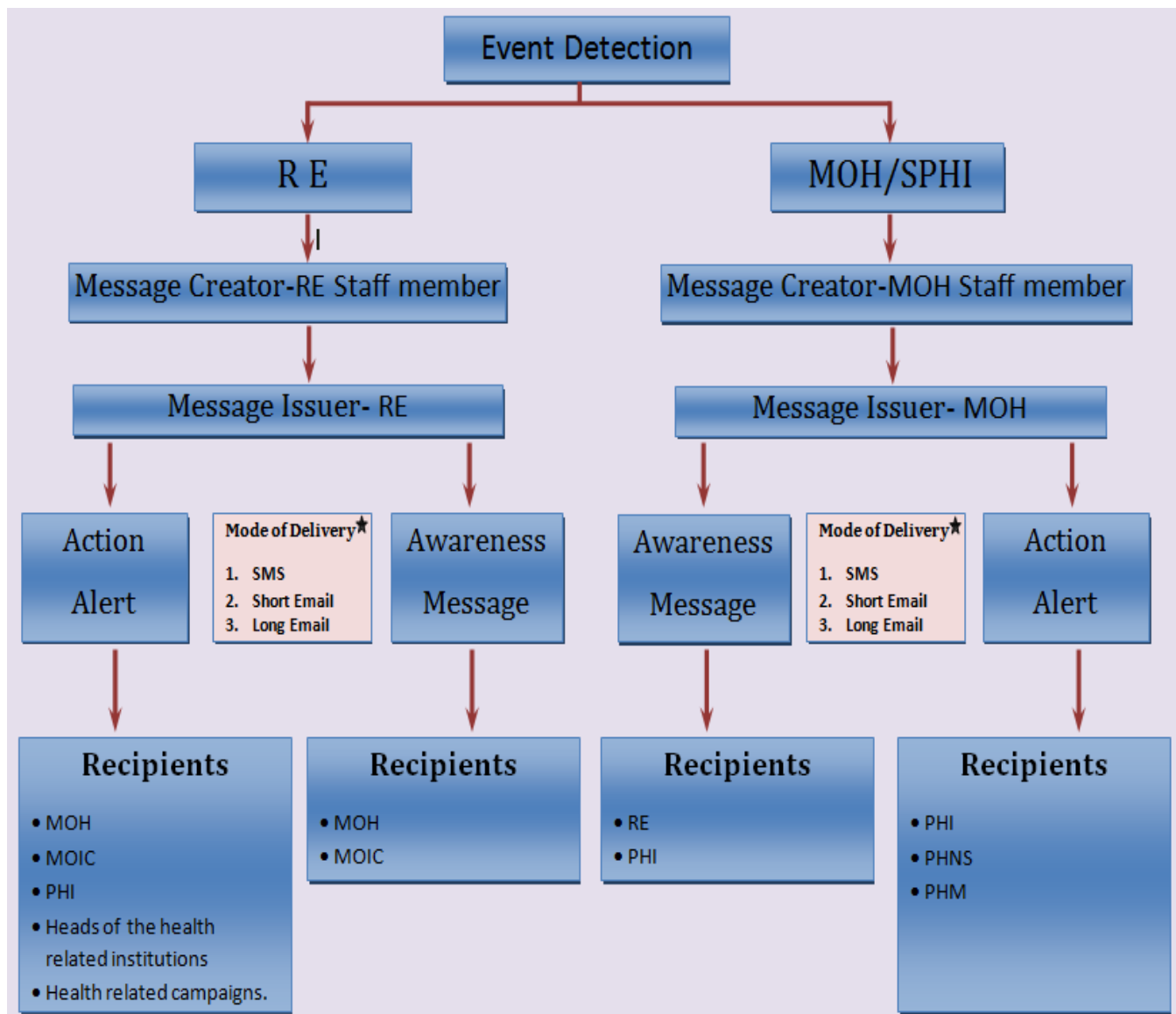
PDHS was willing to absorb the system in to the government sector and wanted to expand it into the whole Kurunegala District and also for the inward patients. He also highlighted that if project can provide free phones to the health care workers for data entry, the government is ready to bear the running cost. The necessity to select a particular health worker for data entry in health institutions was emphasized.

He also suggested that adhering to the ICD codes of diseases will enhance the accuracy of the data base and standardized the diagnosis. Therefore all Medical Officers need to be train on ICD codes and the importance of such a curriculum was emphasized.

All health care workers and officials agreed on the standard operating procedures and policy requirement for introducing CAP alerts and or situational - awareness messages. Basically they came out with four templates.

1. **Notifiable disease awareness (without action)**
2. **Notifiable disease action alert**
3. **Other Communicable diseases awareness (without action)**
4. **Other Communicable diseases action alert.**

Figure 4 demonstrates the finalized data flow.



<b>★Content &amp; Structure of the Alert</b>	
<b><u>SMS and Short Emails</u></b>	<b><u>Long Email</u></b>
1. Diagnosis/Suspected Diagnosis	1. Diagnosis/Suspected Diagnosis
2. Disease Priority	2. Disease Priority
3. No. of Cases	3. No. of Cases
4. Age	4. Age
5. Sex	5. Sex
6. Onset of Disease	6. Onset of Disease
7. Reported Location	7. Reported Location
	8. Actions to be taken
	9. Attachment files E.g.:- Prevention Guidelines for specific diseases
	10. Web References
	11. Effective and Expire dates
	12. Contact Details

Figure 4. (MOIC- Medical Officer In Charge, PHNS– Public health Nursing Sister, PHM – Public health Midwives)

The main purpose of the awareness message is, to aware the relevant health officials regarding detected adverse events. But they don't need to take any actions. But For the action alert message, all informed health officials and workers need to take immediate actions according to the guidelines for the prevention of the each specific disease.

Dr.R.M.S.K. Ratnayake decided to provide necessary guidelines for diseases prevention with the collaboration of Epidemiology Unit – Colombo. Therefore role of each health care worker is well defined and all the details for actions will be sent as an attachment file or published in the web for the further references.

All the participated MOH staffs were willing to use TCWI for event detection and CAP for information dissemination.

Each MOH provided a particular staff member, "Programming Planning Assistant" (PPA) for data analysis and alerting. All PPA were trained on TWCI and CAP alerting.

## **6. Meeting with Suwadana centre Volunteers.**

Parallel to evaluation programme, the meeting with Suwadana Centre Volunteers (abbreviated as Suwacevo for the purpose of this paper) was held in the Sarvodaya centre in Kuliypitiya on 2<sup>nd</sup> Apr 2010.

### **6.1 Objectives**

- 1). Find out the problems with data entry at field level.
- 2). Outline a programme for educating suwasevo on relevant health topics

### **6.2 Participants**

Mr. Ariyawansa – District Co-ordinator of Sarvodaya, Kurunegala District.

Mr. N. Waidyanatha

Dr. W.G.C. Sampath

Mrs. N. Abeysinghe

Suwadan Centre Volunteers.



Figure 5.

### **6.3 Conclusions**

The reason for the most of the misleading data entry was the lack of knowledge in medicine and health sector. All the participants were emphasized the necessity of a Programme that improves medical knowledge of Suwasevo.

Dr. W.G.C. Sampath was assigned to conduct the programme on Practical Medical Knowledge essential for data entry on end of the April 2010.

Role of the Suwadana Health centers was highlighted and all suwasevo were advised to maintain the services as usual.

Introduction of notice board in Suwadana Health Centre for the public awareness regarding emerging outbreaks was suggested. It has to be updated according to the outbreak detection via TCWI and all suwasevo will be notified via CAP in future.

### **7.Follow Up**

1. This evaluation programme has to be conduct in Wariyapola MOH area with in April 2010.
2. Comprehension exercise on CAP alerting messages need to be carried out in all MOH areas.
3. Sustainability of the programme has to be confirmed by frequent field visits and encouraging the health officials and worker to do analysis using TCWI and alerting via CAP.
4. Education programme for suwasevo regarding relevant medical aspects needs to be carried out as soon as possible to make sure the reliability of the data base.
5. Need to arrange strategies for expanding the project into the inward setup as well as in whole Kurunegala district.

## **8. Agenda of the Evaluation programme-RTBP**

<b>Date</b>	<b>Time</b>	
<b>March 30</b>	10am - 12pm	Conduct t-cube and Sahana alerting training to PDHS and RE office staff
	02pm - 04pm	Meet with Dr. P. Hemachandra and Dr. Lakshman Edirisinghe interview them on notification component
<b>March 31</b>	10am - 12pm	Conduct Sahana CAP alerting exercise with PDHS and RE staff
	02pm - 04pm	Pannala MOH - Train MOH staff on t-cube, Interview MOH/PHI on notification, and conduct Sahana alerting exercises with them
<b>April 01</b>	10am - 12pm	Kuliyapitiya MOH - Train MOH staff on t-cube, Interview MOH/PHI on notification, and conduct Sahana alerting exercises with them
	02pm - 04pm	Udubeddewa MOH - Train MOH staff on t-cube, Interview MOH/PHI on notification, and conduct Sahana alerting exercises with them
<b>April 02</b>	10am - 12pm	Meeting with Suwadana Center Volunteers and conduct alerting message comprehension exercise.

Figure 6.

## **9. Appendix**

### **Appendix 1.**

# **CAP Alerting/Situational-Awareness User Assessment *Real-Time Biosurveillance Program***

This form is intended for the Real-Time Biosurveillance Program (RTBP) to assess the usability of the Common Alerting Protocol (CAP) Sahana Messaging/Alerting Module for issuing alerts/situational-awareness to health workers and health officials. The assessment data gathered through this exercise is for the purpose of the RTBP project and is not to be distributed without the consent of the RTBP's Principal Investigators.

Participants of the assessment may seek the help from the Observers/Researcher conducting the exercise for interpreting the questions. Participant should not seek assistance with the answers nor should the Observer/Researcher influence with the answers.

Complete all the information in sections 1.0 – 3.0. If the participating user does not want to provide any personal information and wishes to remain anonymous, then simply write “Anonymous” in the Full Name space and fill in the Designation only, leaving all other attributes in section 2.0 blank (null/empty).

<b>1.0 Filled by Observer/Researcher:</b>		You Name:	
Date:		Location of assessment:	

<b>2.0 Filled by Participating User (optional):</b>		Designation:	
Full Name :		Employee ID:	
Training Time:	<i>Day(s)</i> ( <i>e.g ½ day</i> )	Affiliation:	

### **3.0 Message composition and delivery exercise:**

#### **PART A - Identifying the scope of the alert**

- The Observer/Researcher may assist the user with generating the TCWI outputs for each of the scenarios listed A – C in Table 1 below.
- Indicate a brief description of the event for the relevant attributes listed in column or other relevant details in Table 1 - cells (a), (c), (e) and (g).
- List the designation(s) of the recipients that should be receiving the message issued by you and the channel (within parenthesis ()) SMS/Email); e.g. Medical Officers (SMS, Email), Health

Inspectors (SMS) in Table 1 - cells (b), (d), (f), and (h)

- In Table 1 row D) – the Observer/Researcher will fill in the blanks to complete the scenario (e.g. 12 cases of Bronchial Asthma have been reported in your Area: Katupotha, Munamale Onset: 2010-03-29 8am).

*Table 1: Scenarios for generating TCWI outputs for creating and issuing CAP messages*

<i>Scenario</i>	<i>Give brief details of alerts to be issued (disease name, location/health-facility, age groups, genders effected, and counts)</i>	<i>List the designations/names of all personnel/institutions receiving the CAP message</i>
A) Execute TCWI <i>Time Series</i> analysis to determine one of the most significant “High Priority” (IN - S/P list or LK - Notifiable list) events. Complete cells (a),(b)	(a)	(b)
B) Execute TCWI <i>Time Series</i> analysis to determine one of the most significant Fever like disease /syndrome events. Complete cells (c),(d)	(c)	(d)
C) Execute TCWI <i>Pivot Table</i> to find the top 5 diseases for the current week to issue a weekly reports. Complete cells (e),(f)	(e)	(f)
D) __ cases of  have been reported in Area(s):  Onset:	(g)	(h)

Complete cells (g),(h)

**RTBP use only****Part A Score:****Part B – Use Sahana Message/Alert Module to issue CAP messages**

- This section should be filled by the Researcher/Observer while the user creates and issues the message using the Sahana Messaging/Alerting Module
- For those scenarios indicated in Part A, with the Sahana Message/Alert Module, create a CAP alert using an existing template or a new alert to issue the message through the appropriate channels (delivery type technologies: SMS, email, web) to the intended recipients.
- In an actual event the CAP message status is set to Actual; however, when conducting an exercise it must be set to “Exercise” in order to ensure recipients of the message do not mistake the alert for an actual event, which may cause unnecessary repercussions.

Note: In these exercises the CAP message STATUS must be set to “EXERCISE”

*Table 2: To be filled by Researcher/Observer*

<b>Scenario A):</b>		Recipients and delivery method (SMS, Email, Web):
Alert Name:		
Start-Time:		
End-Time:		
Duration:		
<b>Scenario B):</b>		Recipients and delivery method (SMS, Email, Web):
Alert Name:		
Start-Time:		
End-Time:		
Duration:		
<b>Scenario C):</b>		Recipients and delivery method (SMS, Email, Web):
Alert Name:		
Start-Time:		
End-Time:		
Duration:		
<b>Scenario D):</b>		Recipients and delivery method (SMS, Email, Web):
Alert Name:		

Start-Time:		
End-Time:		
Duration:		

<b>RTBP use only</b>	<b>Part B Score:</b>	
----------------------	----------------------	--

### Part C – Knowledge on message creation and dissemination

This section is intended for assessing the general knowledge on the standard operating procedures.

- Check (☑) Yes or No, indicating whether answer applies to the question.

1) What should you do before issuing a message when you come to know of a disease outbreak?

	Yes	No
(a) Confirm the cases (event) with the Epidemiologist	<input type="radio"/>	<input type="radio"/>
(b) Travel to the location to investigate the case(s)	<input type="radio"/>	<input type="radio"/>
(c) Immediately issue an alert to all health officials and health worker in the District	<input type="radio"/>	<input type="radio"/>
(d) Ignore and wait for your superior or someone else to instruct you	<input type="radio"/>	<input type="radio"/>

2) The important attributes that should be changed when using a template before issuing a message

	Yes	No		Yes	No		Yes	No
Category	<input type="radio"/>	<input type="radio"/>	Event	<input type="radio"/>	<input type="radio"/>	areaDescription	<input type="radio"/>	<input type="radio"/>
Priority	<input type="radio"/>	<input type="radio"/>	Description	<input type="radio"/>	<input type="radio"/>	Effective	<input type="radio"/>	<input type="radio"/>
Message ID	<input type="radio"/>	<input type="radio"/>	Scope	<input type="radio"/>	<input type="radio"/>	Expire	<input type="radio"/>	<input type="radio"/>
Status	<input type="radio"/>	<input type="radio"/>	Headline	<input type="radio"/>	<input type="radio"/>	SenderName	<input type="radio"/>	<input type="radio"/>

<b>RTBP use only</b>	<b>Part C Score</b>	
----------------------	---------------------	--

## Appendix 2.

# CAP Alerting/Situational-Awareness Procedural/Policy Interview Guide *Real-Time Biosurveillance Program*

This form is intended for the Real-Time Biosurveillance Program (RTBP) to assess the standard operating procedures and policy requirement for introducing Common Alerting Protocol (CAP) alerts and/or situational-awareness messages to health workers and health officials. The information gathered through this exercise is for the purpose of the RTBP project and is not to be distributed without the consent of the RTBP's Principal Investigators.

Direct alerting is the normal process in which an alerting system delivers an alert to a human recipient. This is the normal mode of alerting when the recipient works within the organization or its jurisdiction. However, direct alerting can also be used to accomplish cross-jurisdictional alerting: an alerting system in one jurisdiction sending messages to recipients within another jurisdiction.

Complete all the information in sections 1.0 – 3.0. If the Interviewee does not want to provide any personal information and wishes to remain anonymous, then simply write “Anonymous” for the Full Name and fill in the Designation only, leaving all other attributes in section 2.0 blank (NULL)

<b>1.0 Filing information:</b>	Today's Date:	Location	
Your Name :		Affiliation:	

<b>2.0 Interviewee Personal Information:</b>	Designation:	
Full Name :	Employee ID:	
	Affiliation:	

### 3.0 Message composition and delivery:

- The table below can be used to document the interview results for two notifications.
- If more than two (2) notifications are mentioned by the interviewee, then use the back of this page or append another fresh questionnaire but leaving sections 2.0 and 3.0 blank (since it is part of the same Interviewee) and change Notification Number accordingly (i.e. Notification III)

and Notification IV, etc)

- If additional space is required to complete the answer for a particular question and notification, use the back of this page but clearly label the answer.

	<i>Notification I</i>	<i>Notification II</i>
3.1) Name:		
3.2) Purpose:		
3.3) Dept/Inst(s) Issuing:		
3.4) Decision-maker designation(s):		
3.5) Message creator designation(s):		
3.6) Message issuer designation(s):		
3.7) Recipient designations(s) and number (range) for each designation:		
3.8) Delivery and forwarding method(s):		
3.9) Content structure:		
3.10) Action(s) taken:		

## Appendix 3

### **CAP Alerting/Situational-Awareness Message Comprehension Assessment Real-Time Biosurveillance Program**

This form is intended for the Real-Time Biosurveillance Program (RTBP) to assess the comprehension of the Common Alerting Protocol (CAP) messages received by health workers and health officials. The assessment data gathered through this exercise is for the purpose of the RTBP project and is not to be distributed without the consent of the RTBP's Principal Investigators.

Participants of the assessment may seek the help from the Observers/Researcher conducting the exercise for interpreting the questions. Participant should not seek assistance with the answers nor should the Observer/Researcher influence with the answers.

If the participating user does not want to provide any personal information and wishes to remain anonymous, then simply write “Anonymous” in the Full Name space and fill in the Designation only, leaving all other attributes in section 2.0 blank (null/empty).

<b><i>Filled by Participating User (optional):</i></b>		Designation:	
Full Name :		Employee ID:	
Training Time:	<i>Day(s) (e.g ½ day)</i>	Affiliation:	

### **Instructions to the participants**

- Exercise has two parts: A) message comprehension and B) message validity and perception. Part A) is to determine whether you have been able to decipher the received message and Part B) is for Researchers to determine whether the message you received is effective.
- Depending on your role as a health worker, you will be issued between 2 and 4 messages to answer the questions. For example, if you receive 3 SMS alerts, then you are required to complete all questions Message 1 – 3 only using the 3 SMS alerts, respectively.
- You should complete all question below using the alert/situational-awareness CAP messages received on to the ICT terminal device you usually have access to.
- You should not take more than 15 minutes to answer all questions for a single message. Thus if four messages are issued then the entire exercise will take up to 1 hour and another additional 10 – 15 minutes for Observer/Researcher to orient

the participant(s).

- You may seek assistance from the Observer/Researcher in interpreting the question but should not seek assistance in obtaining the answers.

**Message 1**

1.1 How was the message delivered to you?  SMS  Email  Web  Other:

**Part (A) Message comprehension**

1.2 What location(s) is the message for?

1.3 What is the Event?

1.4 Who issued the message?

1.5 What is the message identifier?

1.6 What is the priority of the message? Check  Urgent  High  Low  
() one

1.7 What action(s) are you expected to take in response to the message?

1.8 If something in the message was not clear how would you obtain more details?

**Part (B) Message Credibility and Persuasiveness**

1.9 How do you know this message is authentic?

1.10 If you were suspicious about it, how would you attempt to authenticate it?

1.11 In your own words summarize this message?

1.12 How would you improve the presentation or layout of the message so it is easier to read, authenticate, understand, and/or respond to?

4.13 What other ways would you like messages delivered to you?

***USE THIS SPACE FOR ADDITIONAL COMMENTS:***

**Message 2**

2.1 How was the message delivered to you?  SMS  Email  Web  Other:

## Part (A) Message comprehension

2.2 What location(s) is the message for?

1.3 What is the Event?

2.4 Who issued the message?

2.5 What is the message identifier?

2.6 What is the priority of the message? Check  Urgent  High  Low  
() one

2.7 What action(s) are you expected to take in response to the message?

2.8 If something in the message was not clear how would you obtain more details?

## Part (B) Message Credibility and Persuasiveness

2.9 How do you know this message is authentic?

2.10 If you were suspicious about it, how would you attempt to authenticate it?

2.11 In your own words summarize this message?

2.12 How would you improve the presentation or layout of the message so it is easier to read, authenticate, understand, and/or respond to?

4.13 What other ways would you like messages delivered to you?

*USE THIS SPACE FOR ADDITIONAL COMMENTS:*

**Message 3**

3.1 How was the message delivered to you?  SMS  Email  Web  Other:

## Part (A) Message comprehension

3.2 What location(s) is the message for?

3.3 What is the Event?

3.4 Who issued the message?

3.5 What is the message identifier?

3.6 What is the priority of the message? Check  Urgent  High  Low  
() one

3.7 What action(s) are you expected to take in response to the message?

3.8 If something in the message was not clear how would you obtain more details?

## Part (B) Message Credibility and Persuasiveness

3.9 How do you know this message is authentic?

3.10 If you were suspicious about it, how would you attempt to authenticate it?

3.11 In your own words summarize this message?

3.12 How would you improve the presentation or layout of the message so it is easier to read, authenticate, understand, and/or respond to?

4.13 What other ways would you like messages delivered to you?

*USE THIS SPACE FOR ADDITIONAL COMMENTS:*

**Message 4**

4.1 How was the message delivered to you?  SMS  Email  Web  Other:

## Part (A) Message comprehension

4.2 What location(s) is the message for?

4.3 What is the Event?

4.4 Who issued the message?

4.5 What is the message identifier?

4.6 What is the priority of the message? Check  Urgent  High  Low  
() one

4.7 What action(s) are you expected to take in response to the message?

4.8 If something in the message was not clear how would you obtain more details?

## Part (B) Message Credibility and Persuasiveness

4.9 How do you know this message is authentic?

4.10 If you were suspicious about it, how would you attempt to authenticate it?

4.11 In your own words summarize this message?

4.12 How would you improve the presentation or layout of the message so it is easier to read, authenticate, understand, and/or respond to?

4.13 What other ways would you like messages delivered to you?

*USE THIS SPACE FOR ADDITIONAL COMMENTS:*

## **9. ACKNOWLEDGEMENTS**

Authors wish to acknowledge the funding agencies: International Development Research Center (IDRC) of Canada for the grant (105130) in full support of the project titled – Evaluating a Real-Time Biosurveillance Program The authors are grateful for the enthusiastic participation and support of the Wayamba Provincial Director of Health Services office (North Western Province) and the Lanka Jathika Sarvodaya Society in Sri Lanka.