

Appendix 3-2 Drawings for Countermeasures in Galaboda Site

JICA FUNDED LANDSLIDE MITIGATION PROJECT AT GALABODA, RATNAPURA DISTRICT



**JICA FUNDED LANDSLIDE MITIGATION
PROJECT AT GALABODA IN
RATNAPURA DISTRICT**

B.K.Kamal Deshapriya
Drawing by.

Drawing No.
JICA/GA/00

Scale: As Shown

Approved by:

Checked by:

Date:

Certified by:

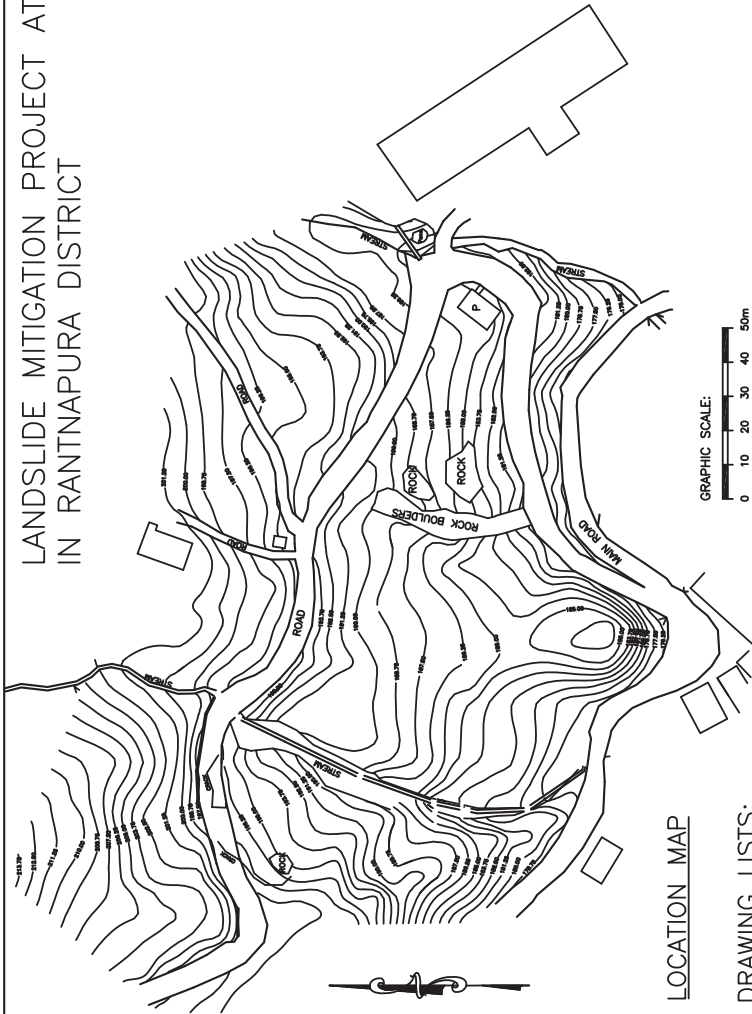
Landslide Studies and Services Division
National Building Research Organization
No:99/1 Jawatta Road
Colombo-05



Tel: 011-2588946.

TITLE

LANDSLIDE MITIGATION PROJECT AT GALABDA
IN RANTNAPURA DISTRICT



LOCATION MAP

DRAWING LISTS:

- Drawing No. JICA/GA/01: TITLE & LOCATION
- JICA/GA/02: PLAN
- JICA/GA/03: VERTICAL PROFILE
- JICA/GA/04: ROAD RETAINING WALLS (RW/O1B)
- JICA/GA/05: ROAD RETAINING WALLS (RW/O1A)
- JICA/GA/06: RETAINING WALLS (RW/O2)
- JICA/GA/07: CONCRETE U-SHAPE & L-SHAPE DRAINAGES (SD/O1 & SD/O2)
- JICA/GA/08: DROP STRUCTURE & MAIN DRAINAGES (E1 & SUD/O1)
- JICA/GA/09: CATCH PIT (A1 & A2)
- JICA/GA/10: CATCH PIT (A1 & A2)
- JICA/GA/11: CATCH PIT (B1 & B2)
- JICA/GA/12: CATCH PIT (E2 & F)

ABBREVIATION LIST:

B&T	BOTTOM & TOP CENTER TO CENTER	RW	RETAINING WALLS
c/c	CENTER TO CENTER	SD	SURFACE DRAINAGE
DIA	DIAMETER	SUD	SURFACE AND UNDERGROUND DRAINAGE
GL	GROUND LEVEL	t	THICKNESS
HP	HUME PIPE	w/	WITH
L	LENGTH		
NBRO	NATIONAL BUILDING RESEARCH ORGANIZATION		
PVC	POLYVINYLE CHLORINE		
R	RADIUS		
RR	RANDOM RUBBLES		

GENERAL NOTES:

1. THE CONTRACTOR SHALL VERIFY THE EXISTING CONDITIONS PRIOR TO STARTING ANY WORK.
2. UNLESS OTHERWISE INDICATED, ALL SIZES AND DIMENSIONS ARE IN MILLIMETERS.
3. UNLESS OTHERWISE INDICATED, ALL EXISTING STRUCTURES AND UTILITIES WHICH INTERFERE WITH THE NEW WORK SHALL BE REMOVE OR REROUTED TEMPORARILY AND REINSTALLED AFTER COMPLETION OF THE WORK TO ITS ORIGINAL CONDITION WITHOUT ADDITIONAL COST TO THE PROJECT.
4. DAMAGES CAUSED BY THE WORK SHALL BE REPAIRED AND RESTORED TO ITS ORIGINAL CONDITION OR TO CONDITION SATISFACTORY TO THE NBRO WITHOUT ADDITIONAL COST TO THE PROJECT.
5. THE CONTRACTOR SHALL KEEP FIRE PROTECTION AND SAFETY IN MIND DURING THE ENTIRE WORK PERIOD.
6. EXISTING DRAINS SHALL BE CLEANED BEFORE PERFORMING PIPE CONDITION.
7. THE CONTRACTOR SHALL COMPLY WITH ENVIRONMENTAL PROTECTION REQUIREMENTS APPLICABLE TO THIS PROJECT. WATER POLLUTION AND DUST CONTROL MEASURES SHALL BE PROVIDED AT ALL TIMES.
8. CEMENT SAND RATIO FOR THE RR MASONRY WALLS SHALL BE 1:5.
9. CONCRETE MIX RATIO FOR THE CATCH PITS SHALL BE GRADE 20, 1:2:4 (20mm) AND THE BASE COURSE SHALL BE GRADE 15, 1:3:6 (25mm). DOWELLS SHALL BE INSTALLED IF ROCKS ARE ENCOUNTERED AS PER THE ENGINEER'S INSTRUCTIONS.
11. JOINT WITH 20mm THICK JOINT FILLER SHALL BE SET AT 3m INTERVAL.
12. CONCRETE COVERING DEPTH TI THE REINFORCING BARS SHALL BE 50mm.
13. REINFORCING BARS FOR THE CATCH PITS SHALL BE D10@250 UNLESS OTHERWISE STATED.
14. ALL CONSTRUCTION WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE ICTAD SPECIFICATIONS.
15. INVERT LEVELS OF DRAINS, HUME PIPES & CATCH PITS SHALL BE DETERMINED AT THE SITE.

**JICA FUNDED LANDSLIDE MITIGATION
PROJECT AT GALABODA IN
RANTNAPURA DISTRICT**



TITLE & LOCATION

B.K.Kamal Deshpriya
Drawing by:

Drawing No. JICA/GA/01

Scale: As Shown

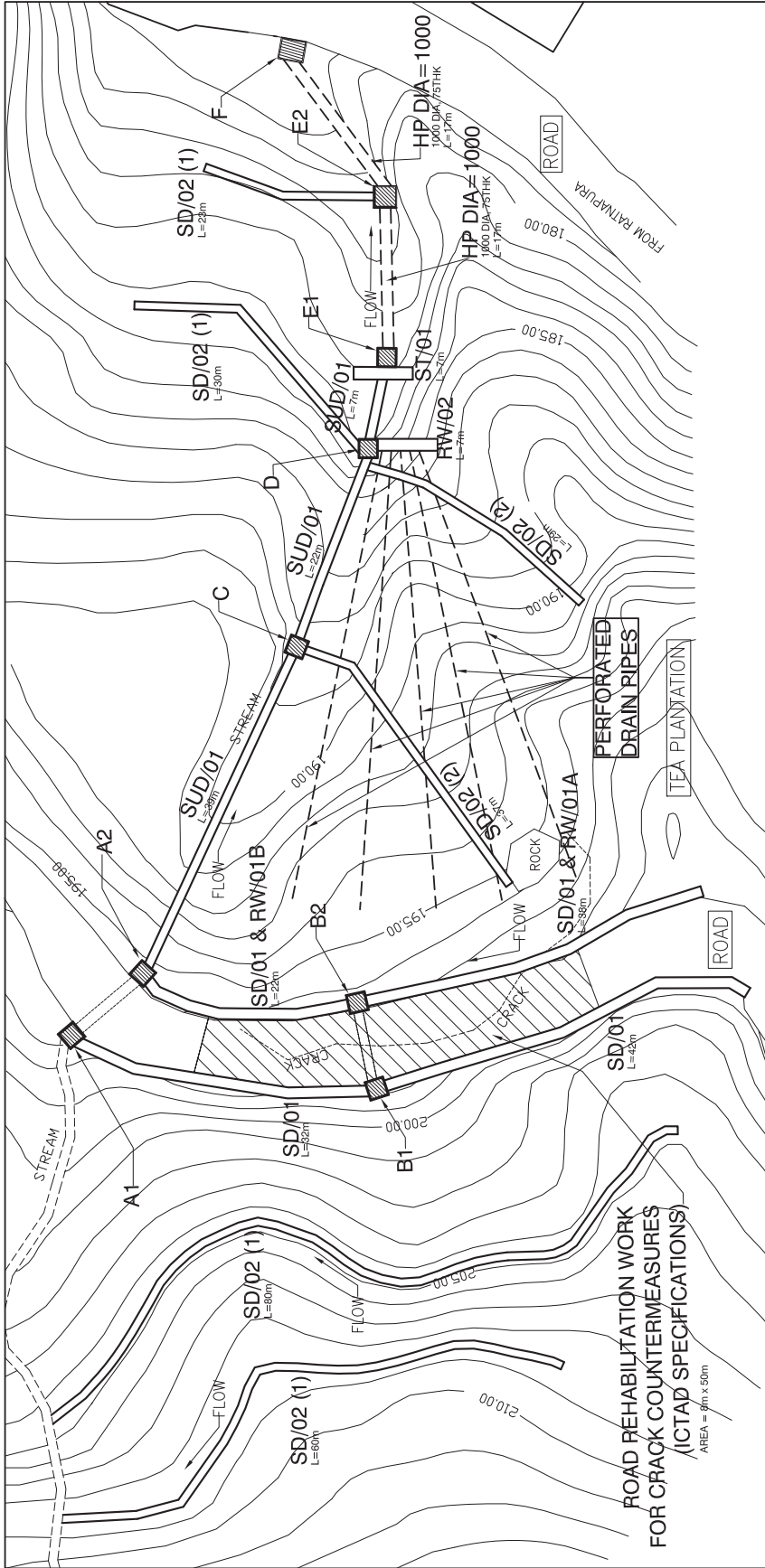
Checked by:

Approved by:

Date: 2012-07-12

**Landslide Studies and Services Division
National Building Reserch Organization**
No:99/1 Jawatta Road
Colombo-05
Tel: 011-2588946.





- DIA: DIAMETER
- GW: GABION WALLS
- HP: HUME PIPES
- L: LENGTH
- M: METERS
- P: PIT
- RW: RETAINING WALLS
- SD: SURFACE DRAINAGE
- SD: SURFACE & UNDERGROUND DRAINAGE
- THK: THICKNESS

NOTE:
 1) THE MAP CONTAINS A ROUGH ESTIMATION OF COUNTERLINES.
 2) FACILITY SIZES ARE NOT IN SCALE.
 3) STRUCTURES ARE ONLY FOR SYMBOLS. SEE DETAIL DRAWINGS FOR EACH STRUCTURES.



PLAN

JICA FUNDED LANDSLIDE MITIGATION PROJECT AT GALABODA IN RATNAPURA DISTRICT



B.K.Kamal Deshapriya
Drawing by.

Drawing No.
JICA/GA/02

Scale: As Shown

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 National Building Research Organization
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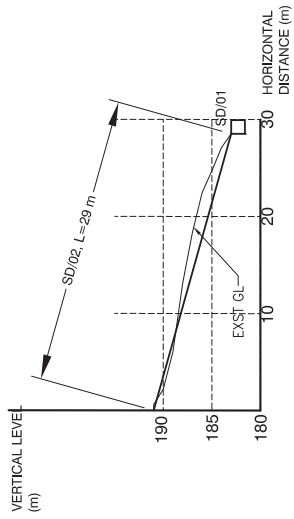
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Checked by:

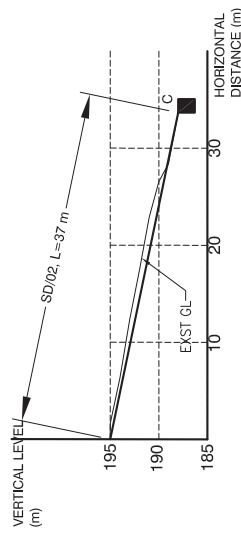
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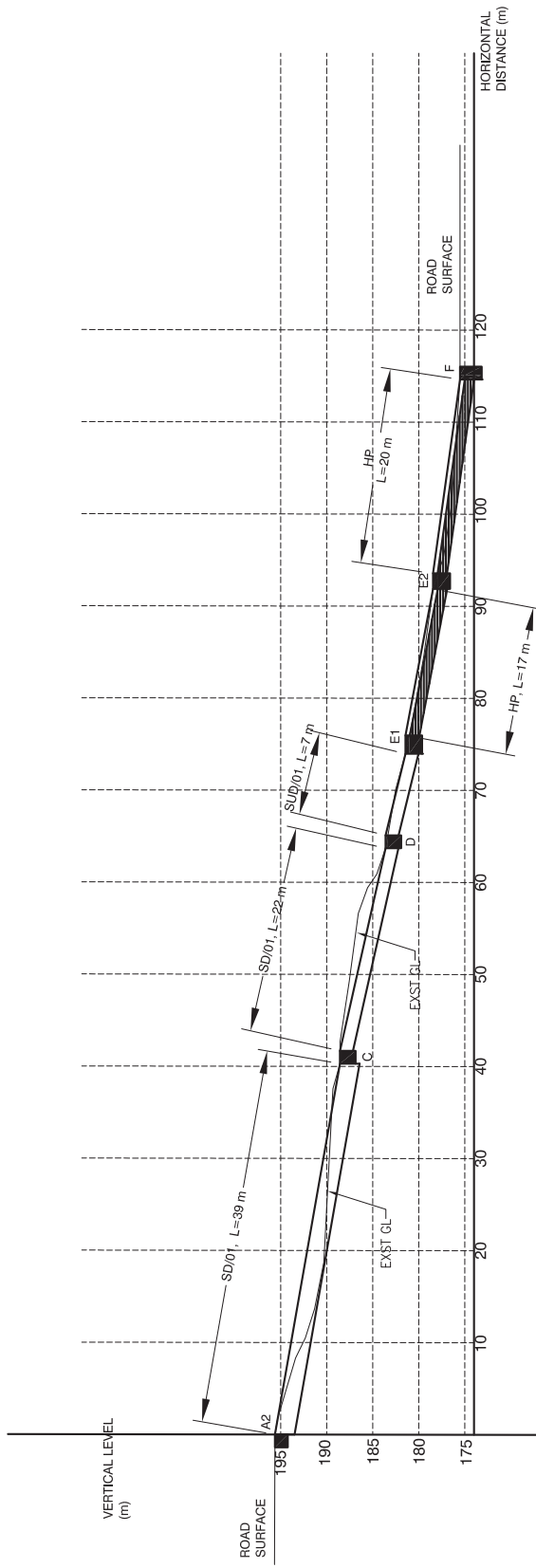
PLAN



VERTICAL PROFILE of SD/02



VERTICAL PROFILE SD/02



VERTICAL PROFILE FROM A2 TO F

**JICA FUNDED LANDSLIDE MITIGATION
PROJECT AT GALABODA IN
RATNAPURA DISTRICT**

B.K.Kamal Deshapriya
Drawing by:

Drawing No.
JICA/GA/03

Scale: As Shown

Checked by:

Certified by:

Approved by:

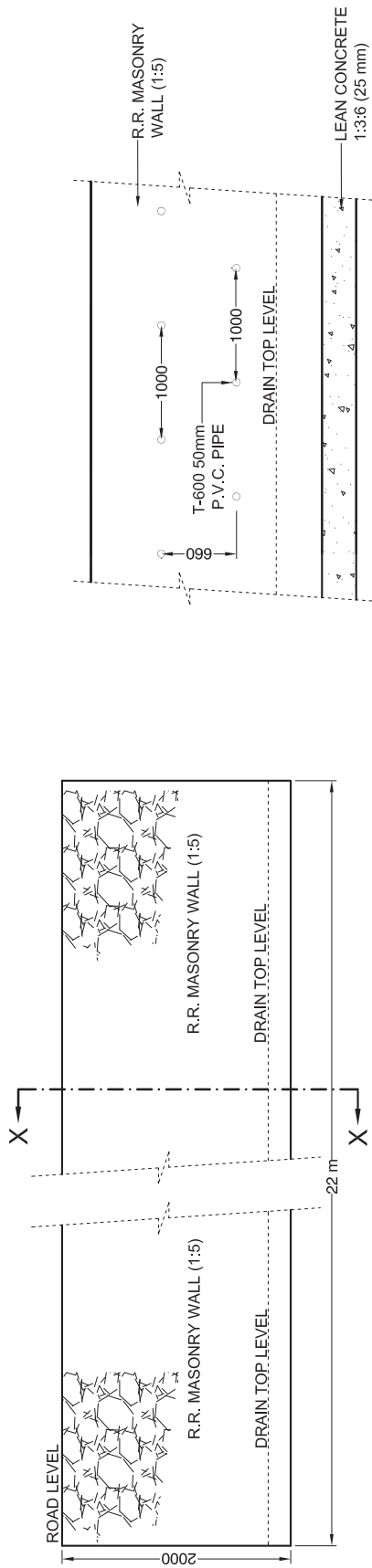
Date:

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No:99/1 Jawatta Road
Colombo-05**

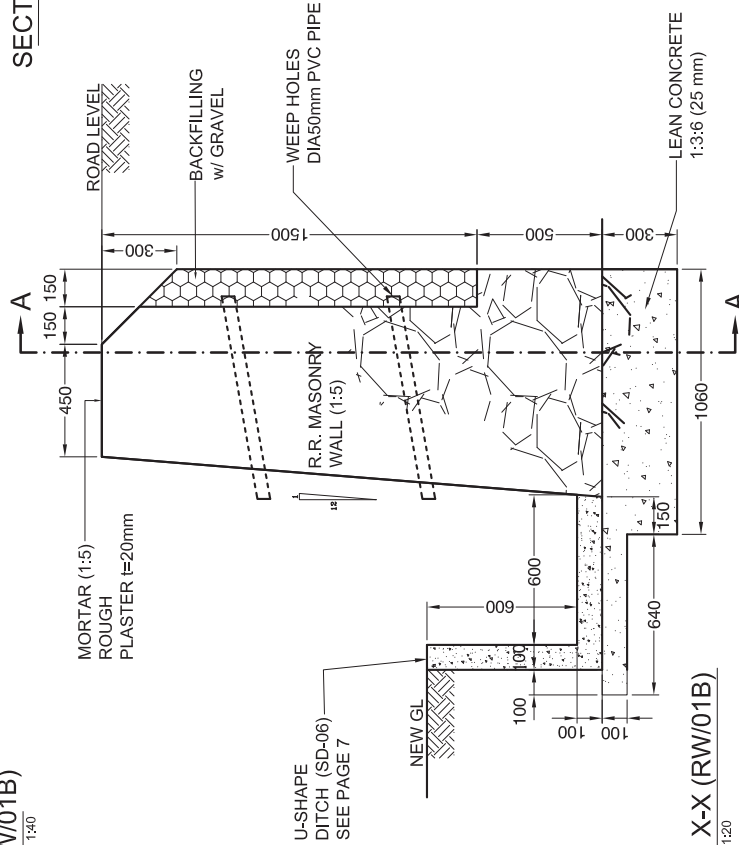


Tel: 011-2588946.

VERTICAL PROFILE



SECTION A-A (RW/01B)
SCALE: 1:40



TYPICAL SECTION X-X (RW/01B)
SCALE: 1:20

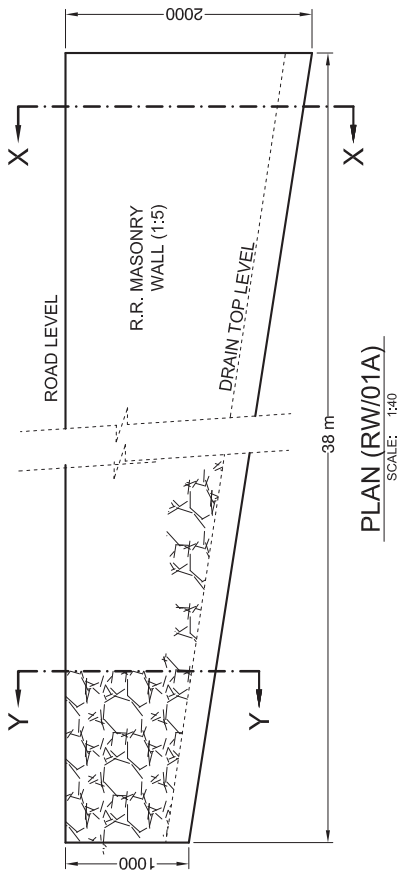
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**Landslide Studies and Services Division
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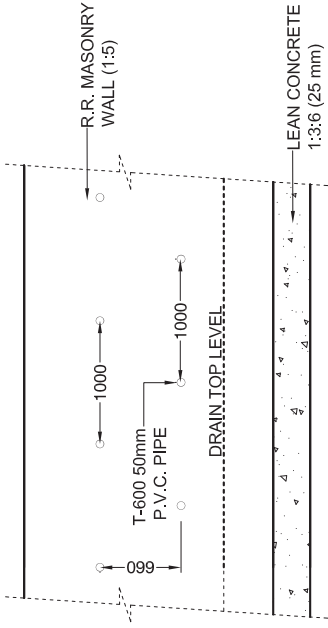


B.K.Kamal Deshapriya Drawing by.	Approved by:	Date:
Drawing No. JICA/GA/04	Certified by:	
Scale: As Shown		

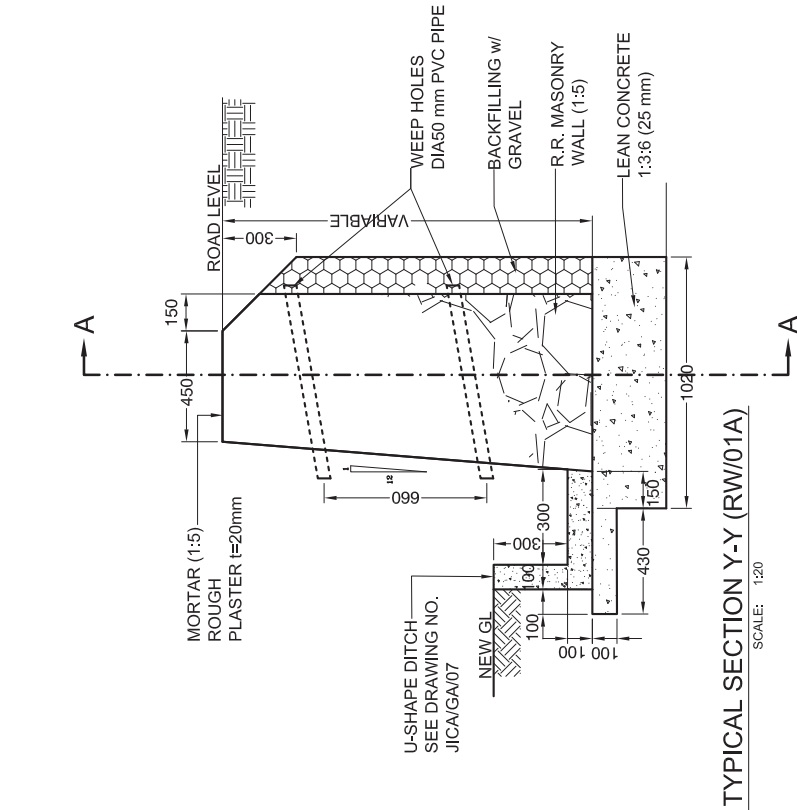
RETAINING WALLS (RW/01B)



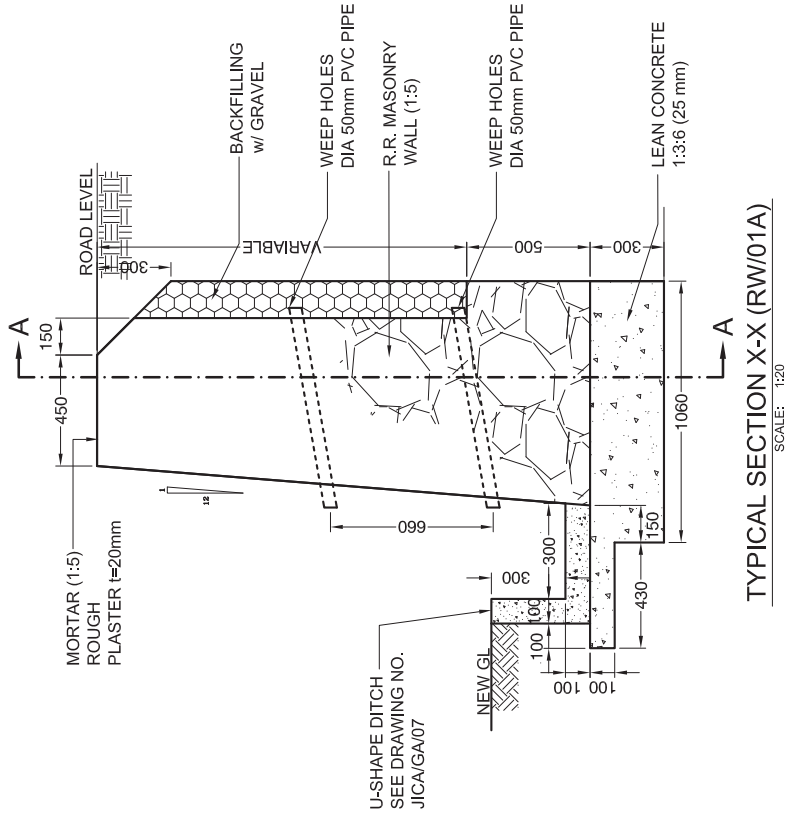
PLAN (RW/01A)
SCALE: 1:40



SECTION A-A (RW/01A)
SCALE: 1:40



TYPICAL SECTION Y-Y (RW/01A)
SCALE: 1:20



TYPICAL SECTION X-X (RW/01A)
SCALE: 1:20

**JICA FUNDED LANDSLIDE MITIGATION
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RATNAPURA DISTRICT**

B.K.Kamal Deshapriya
Drawing by:
JICA/GA/05

Scale: As Shown

RETAINING WALLS (RW/01A)

**Landslide Studies and Services Division
National Building Research Organization
No:99/1 Jawatta Road
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Tel: 011-2588946.**

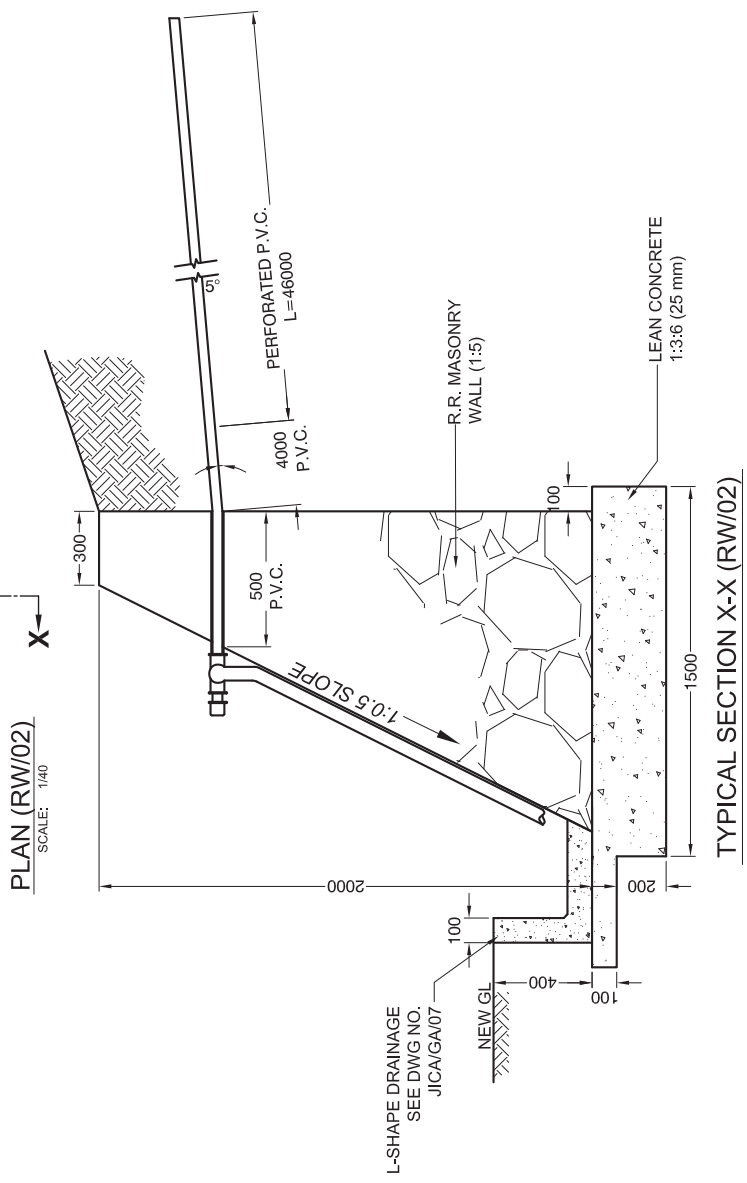
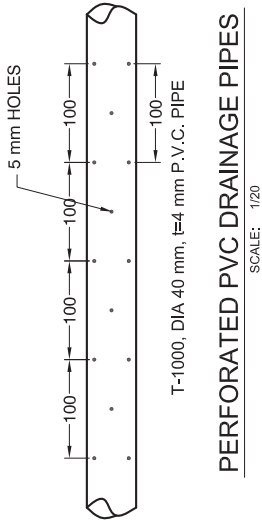
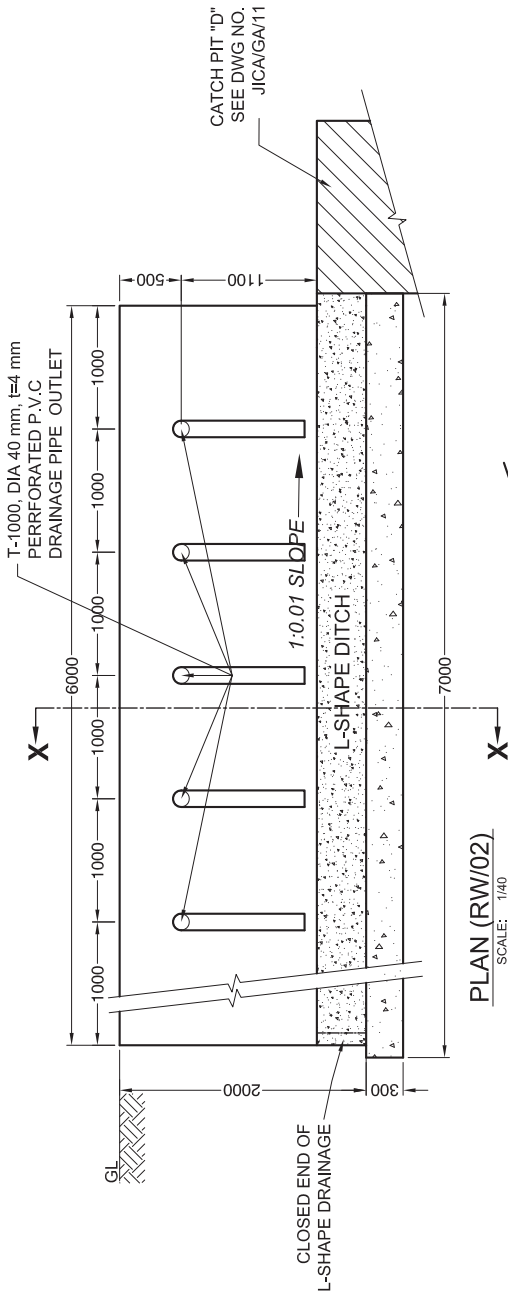


Approved by:

Checked by:

Date:

Certified by:



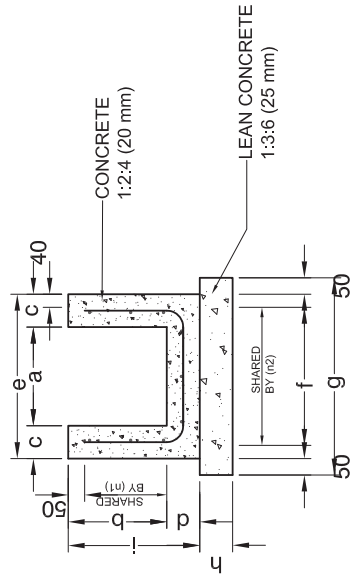
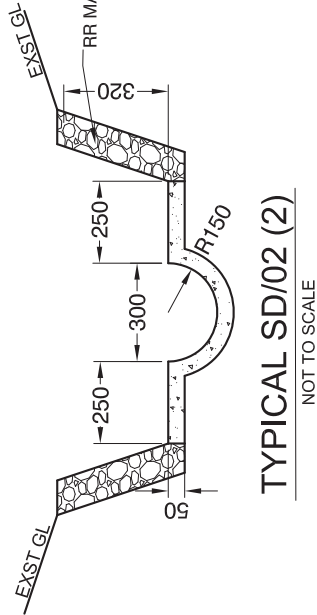
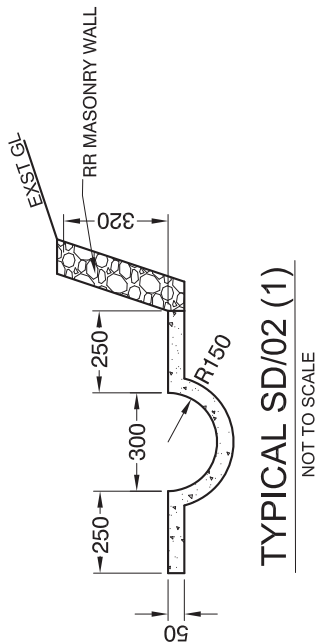
JICA FUNDED LANDSLIDE MITIGATION PROJECT AT GALABODA IN RATNAPURA DISTRICT

RETAINING WALLS (RW/02)

Landslide Studies and Services Division
National Building Research Organization
 No:99/1 Jawatta Road
 Colombo-05
 Tel: 011-2588946.

B.K.Kamal Deshapriya Drawing by: JICA/GA/06	Checked by:	Approved by:
	Scale: As Shown	Certified by:

JICA	JICA FUNDED LANDSLIDE MITIGATION PROJECT AT GALABODA IN RATNAPURA DISTRICT	
	RETAINING WALLS (RW/02)	



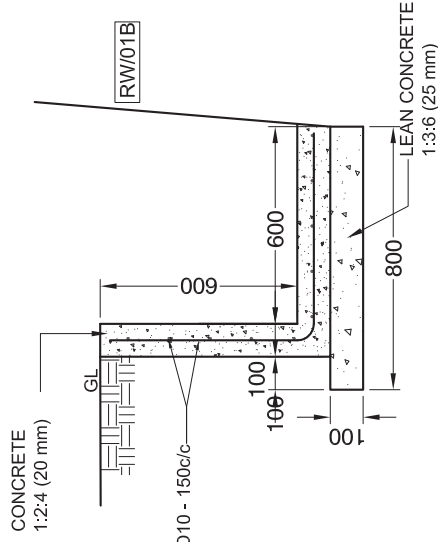
SCHEDULE OF DIMENSION FOR U SHAPED DRAIN

MARK	DIMENSION (mm)								
	a	b	c	d	e	f	g	h	i
SD-01 0.30x0.30	300	300	100	100	500	500	600	100	400

MARK	DIMENSION (mm)						ARRANGEMENT OF REINFORCEMENT BARS (PER 6m)					
	a	b	R	n1	n2	L1	L2	L3	R1	R2	R3	R1 SPACING
SD-01 0.30x0.30	300	300	100	1	2	230	260	157	25-D10x1080	4-D10x6000	2-D10x6000	250

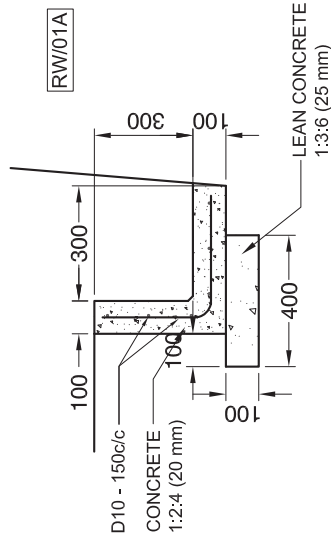
SD/01

SCALE: 1:30



DETAIL OF L-SHAPE DITCH AT RW/01B (JICA/GA/04)

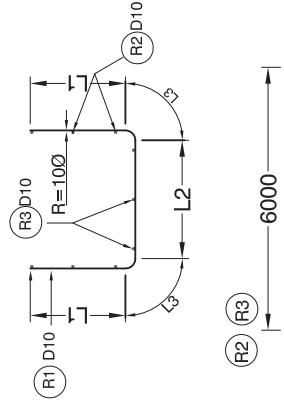
SCALE: 1:30



DETAIL OF L-SHAPE DITCH AT RW/01A (JICA/GA/04)

SCALE: 1:30

REINFORCEMENT BAR ARRANGEMENT



JICA FUNDED LANDSLIDE MITIGATION PROJECT AT GALABODA IN RATNAPURA DISTRICT

CONCRETE U-SHAPE & L-SHAPE DRAINAGES (SD/01 & SD/02)

B.K.Kamal Deshapriya
Drawing by:
JICA/GA/07

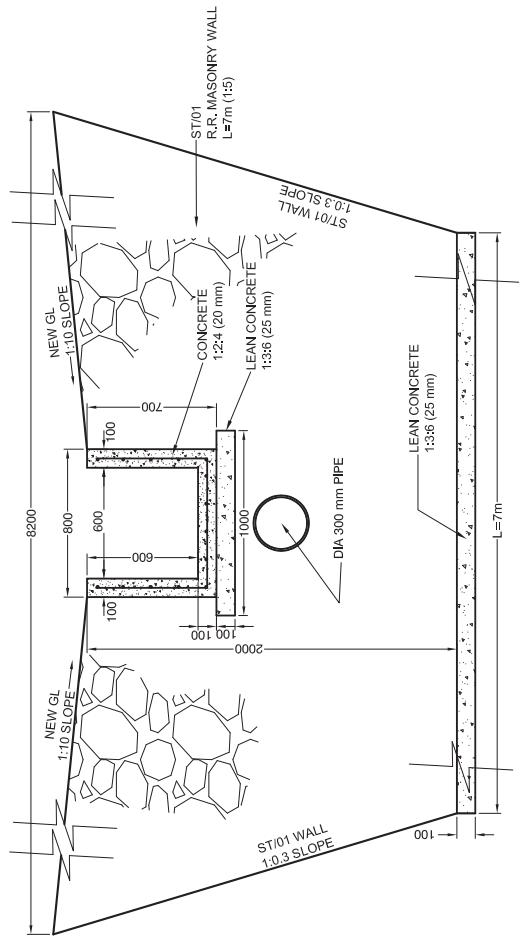
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Checked by:

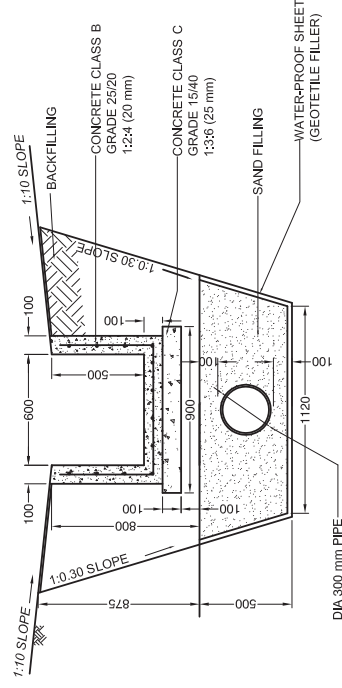
Approved by:

Date:

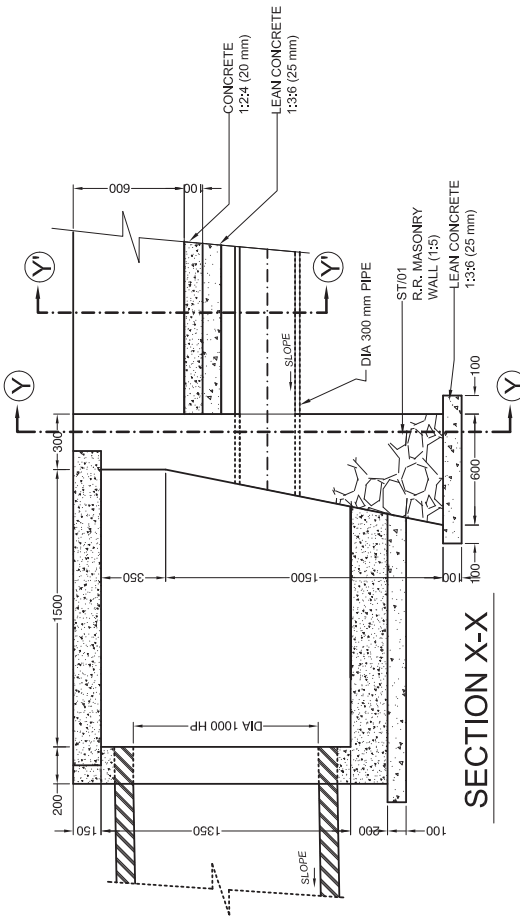
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Colombo-05
Tel: 011-2588946.



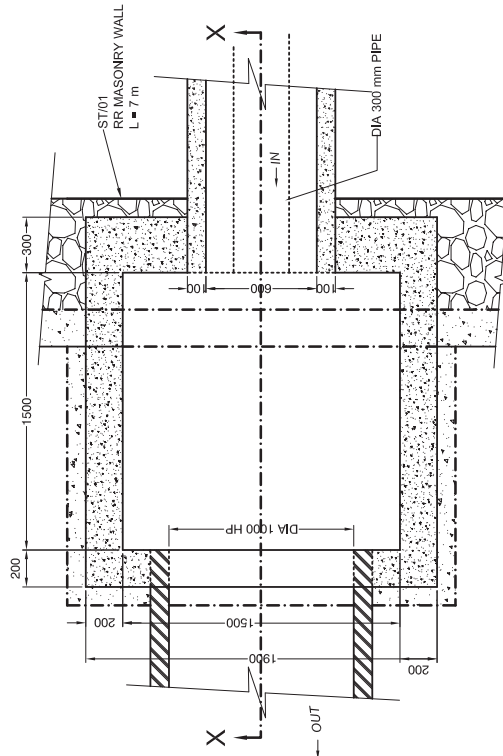
TYPICAL SECTION Y-Y



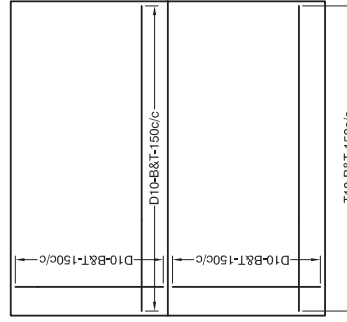
TYPICAL SECTION Y'-Y' (SUD/01)



SECTION X-X



CATCH PIT PLAN (E/01)



COVER SLAB DETAIL

**JICA FUNDED LANDSLIDE MITIGATION
PROJECT AT GALABODA IN
RATNAPURA DISTRICT**



**DROP STRUCTURE & MAIN DRAINAGE
(E1 & SUD/01)**

B.K.Kamal Deshapriya
Drawing by.

Drawing No.
JICA/GA/08

Scale: As Shown

Approved by:

Checked by:

Date:

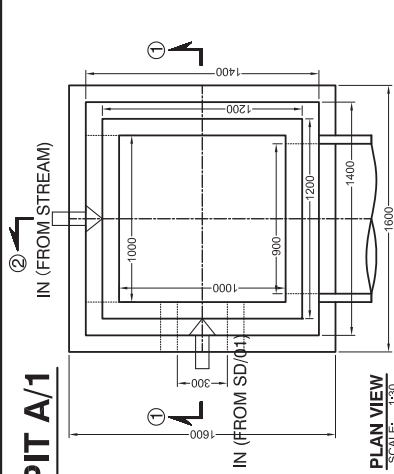
Certified by:

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Colombo-05**

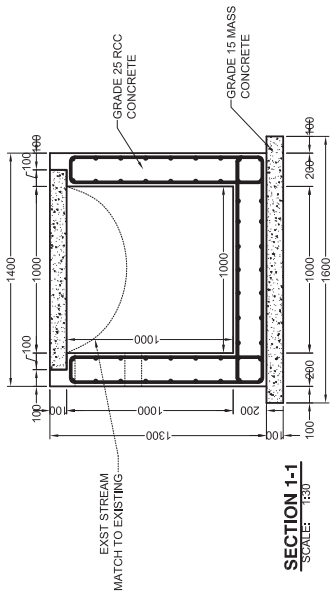


Tel: 011-2588946.

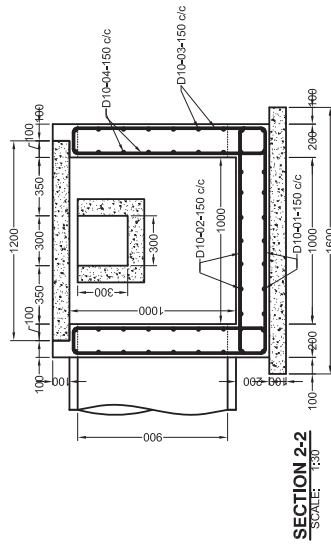
CATCH PIT A/1



PLAN VIEW
SCALE: 1:30

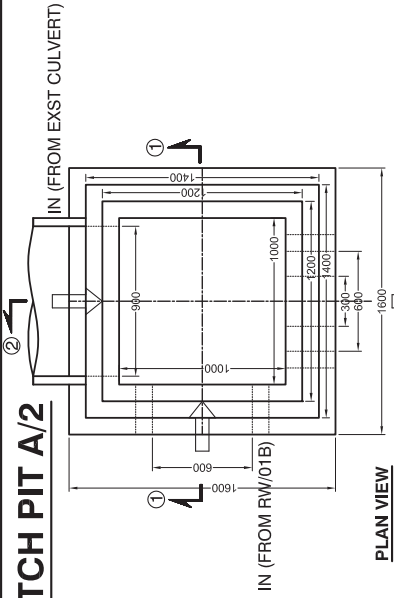


SECTION 1-1
SCALE: 1:30

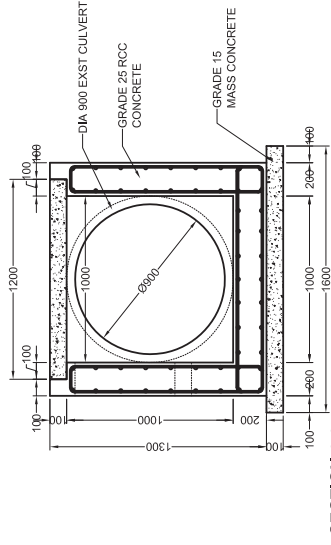


SECTION 2-2
SCALE: 1:30

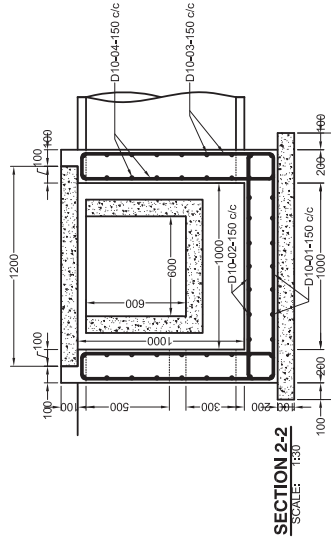
CATCH PIT A/2



PLAN VIEW
SCALE: 1:30

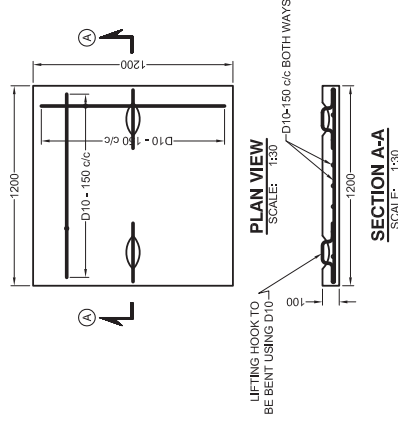


SECTION 1-1
SCALE: 1:30



SECTION 2-2
SCALE: 1:30

CONCRETE PIT COVER FOR A/1 & A/2



PLAN VIEW
SCALE: 1:30

SECTION A-A
SCALE: 1:30

LIFTING HOOK TO
BE BENT USING D10-
D10-150 c/c BOTH WAYS

**JICA FUNDED LANDSLIDE MITIGATION
PROJECT AT GALABODA IN
RATNAPURA DISTRICT**

B.K.Kamal Deshapriya
Drawing by.

Drawing No.
JICA/GA/09

Scale: As Shown

Checked by:

Approved by:

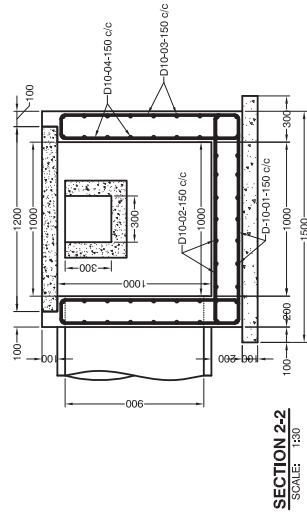
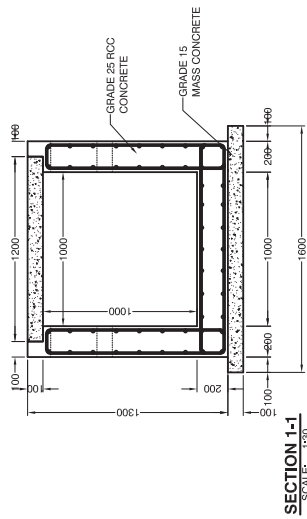
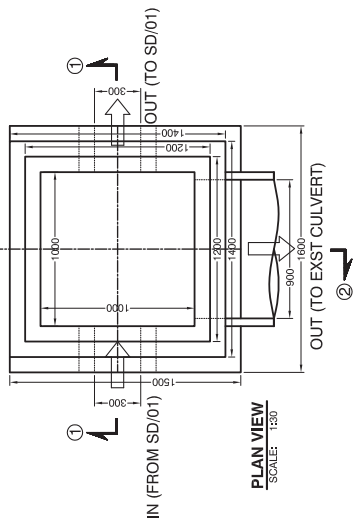
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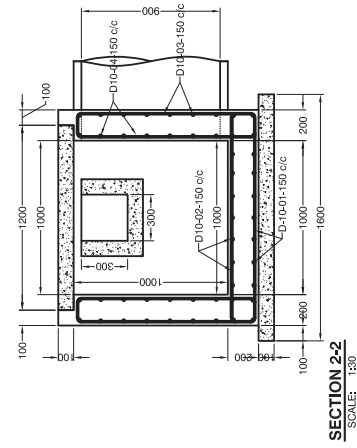
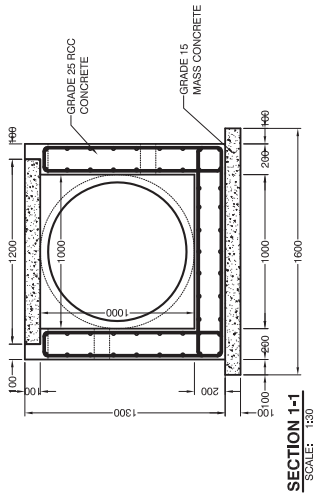
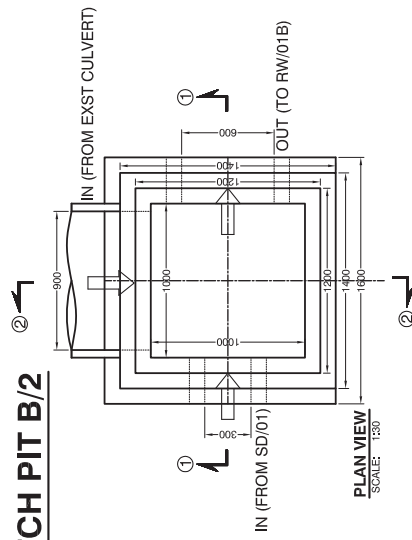
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Colombo-05
Tel: 011-2588946.**



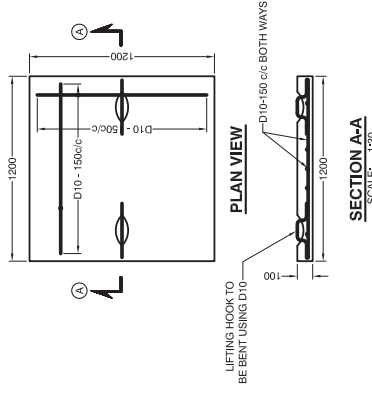
CATCH PIT B/1



CATCH PIT B/2



CONCRETE PIT COVER FOR B/1 & B/2



JICA FUNDED LANDSLIDE MITIGATION PROJECT AT GALABODA IN RATNAPURA DISTRICT

B.K.Kamal Deshapriya
Drawing by:
JICA/GA/10

Scale: As Shown

Checked by:
Approved by:

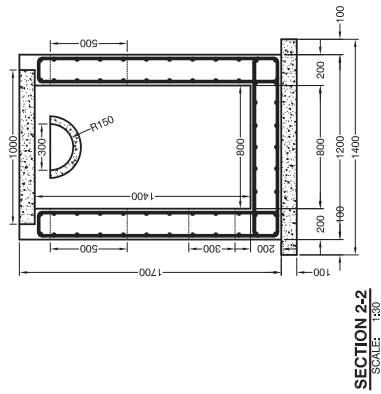
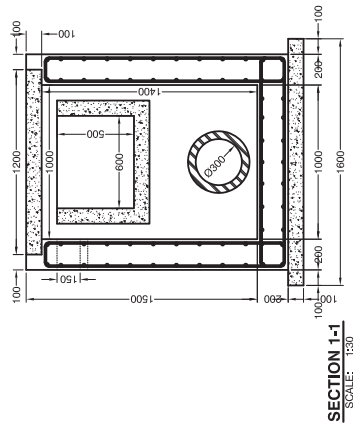
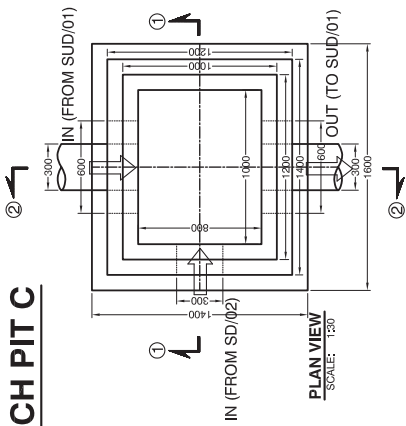
CATCH PITS (B/1 & B/2)

Certified by:
Date:

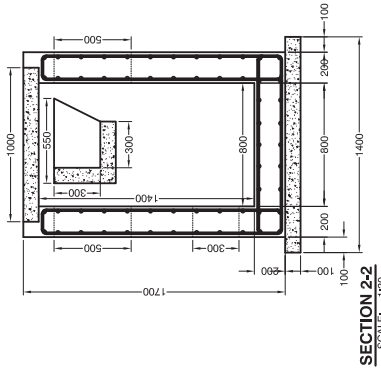
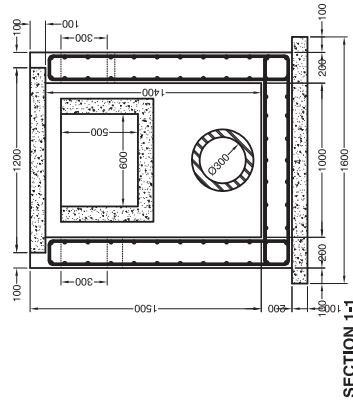
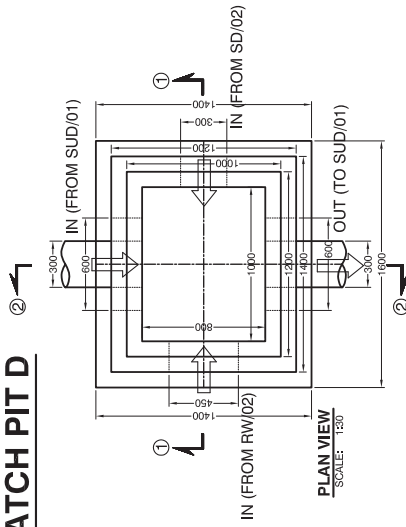
**Landslide Studies and Services Division
National Building Research Organization
No:99/1 Jawatta Road
Colombo-05
Tel: 011-2588946.**



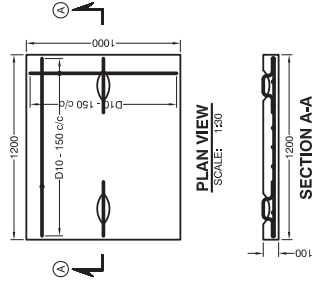
CATCH PIT C



CATCH PIT D



**CONCRETE PIT COVER
FOR C & D**



**JICA FUNDED LANDSLIDE MITIGATION
PROJECT AT GALABODA IN
RATNAPURA DISTRICT**



B.K.Kamal Deshapriya
Drawing by.

Drawing No.
JICA/GA/11

Scale: As Shown

Checked by:

Certified by:

Approved by:

Date:

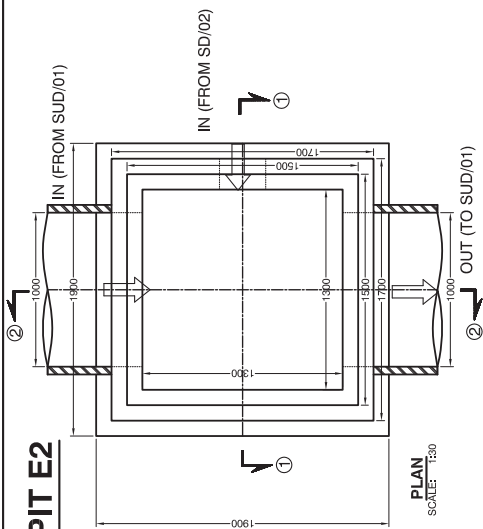
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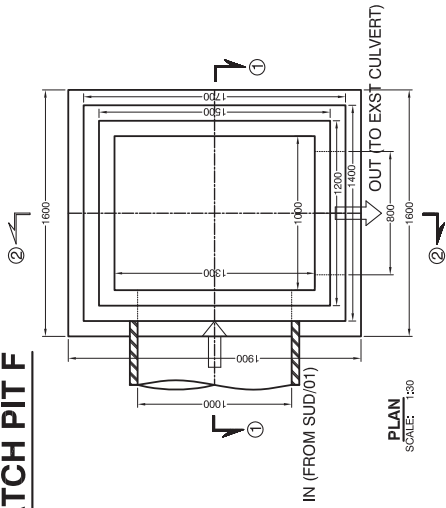
Tel: 011-2588946.

CATCH PITS (C & D)

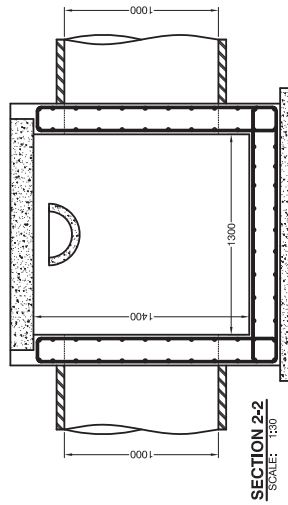
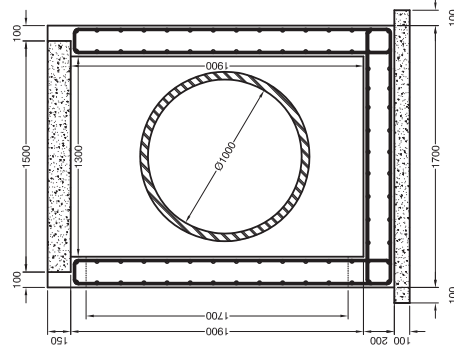
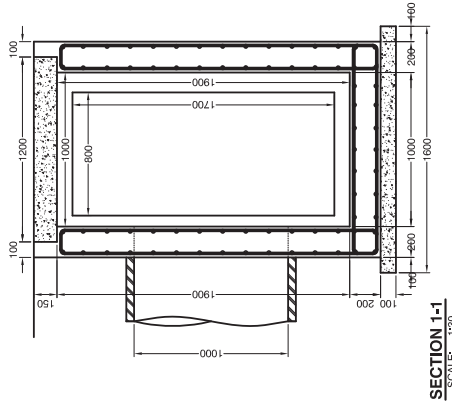
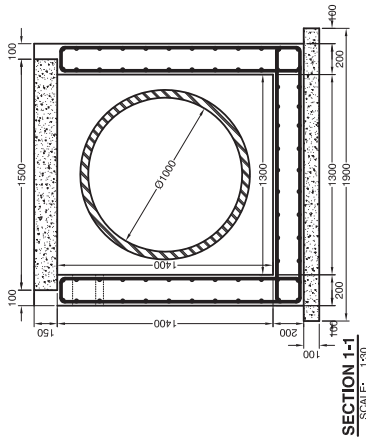
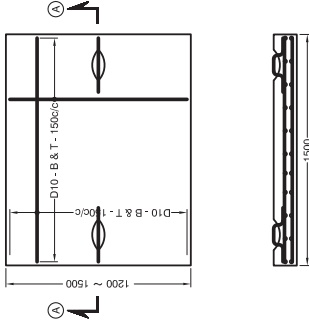
CATCH PIT E2



CATCH PIT F



DETAIL OF COVER SLAB FOR PIT E2 & F



JICA FUNDED LANDSLIDE MITIGATION PROJECT AT GALABODA IN RATNAPURA DISTRICT

B.K.Kamal Deshapriya
Drawing by:

Drawing No.
JICA/GA/12

Scale: As Shown

**Landslide Studies and Services Division
National Building Research Organization
No:99/1 Jawatta Road
Colombo-05
Tel: 011-2588946.**



Approved by:

Checked by:

Date:

Certified by:

CATCH PITS (E2 & F)

*Appendix 4-1 The Manual for Warning Issuance and
Information Sharing for Flood and
Landslide Disasters*



Manual on Warnings and Information Sharing for Flood and Landslide Disasters



DMC & JICA DiMCEP
December 2012

A-4-1



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1 Objective of this manual

- ◆ Information which should be collected and disseminated by related organizations, and their meanings are explained in this manual, so that the related organizations can take necessary actions with common understanding on those information.
- ◆ The detailed procedures and methods for information collection and dissemination are described in this manual in order to ensure effective and efficient disaster response by related organizations.
- ◆ This manual will also be more helpful especially for newly appointed officers or for the area where flood or landslide experiences are not prominent.

2 Information dealt in this manual

- ◆ Local Situation reported by people
- ◆ Bad Weather Advisory (BWA) issued by Department of Meteorology (DOM)
- ◆ Flood Warning issued by Irrigation Department (ID)
- ◆ Landslide Warning issued by National Building Research Organization (NBRO)
- ◆ Evacuation Instruction issued by GA, DS or GN

2.1 Local Situation reported by people

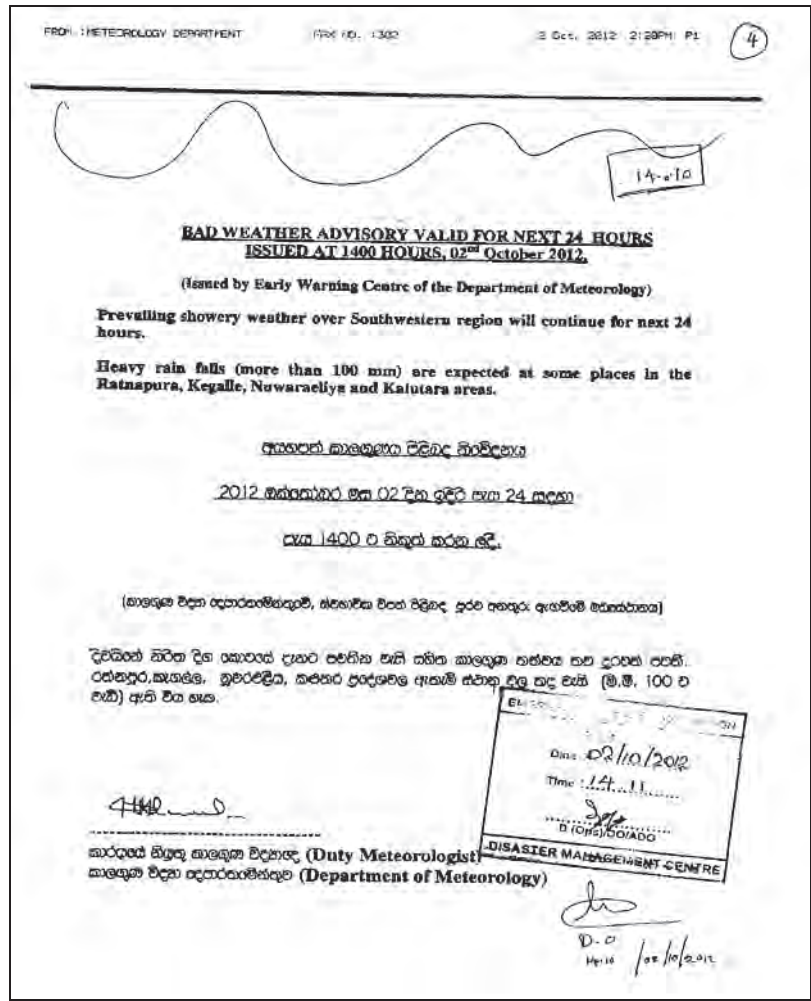
- ◆ Contents of information

Flood	Landslide
<ul style="list-style-type: none">- Water level of nearby rivers- Inundation situation- Damage situation- Evacuation situation etc.	<ul style="list-style-type: none">- Sudden oozing or appearance of water spring on slopes and continuous water logging- Sudden movements in boulders on slopes- Spurt of rock fall activity on unstable upper slopes- Sudden or progressive tilting or trees / towers located on the slope- Sudden opening and progressive widening of cracks on the slope or on walls and floors of building and structures- Subsidence or heaves on the slopes- Subsidence of roads and bulging of roadside retaining slopes- Rainfall amount- Damage situation- Evacuation situation etc.

- ◆ Meaning of information
 - Local situation, that is difficult to be monitored by government organizations, will be complemented, so that the disaster prediction and warning issuance by government organizations will be improved, and disaster response will be facilitated better.
 - Voluntary activities for disaster response by community people including self-evacuation will be facilitated.
 - Any kinds of local situation shall be informed to government organizations for effective and efficient disaster response.

2.2 Bad Weather Advisory (BWA) issued by Department of Meteorology (DOM)

- ◆ Type of information
 - BWA is issued mainly for heavy rainfall, strong wind and high sea waves.
 - BWA is issued for District / Province basis.
 - Duty Meteorologist will analyze the weather situation (past and present situation, and forecast). If there is a necessity to issue BWA, he will get approval from Director General of DOM through Deputy Director and Meteorologist in Charge.
 - Specific values (criteria) for issuing BWA have not been defined. Issuing BWA is decided based on the experience by Duty Meteorologists.
- ◆ Meaning of information
 - People shall aware of more rainfall.
 - Rainfall related disasters such as flood and landslide may occur due to continuous rainfall.
 - Related organizations shall pay attention to the local situation.
 - Flood warning can be issued by ID, and landslide warning by NBRO.



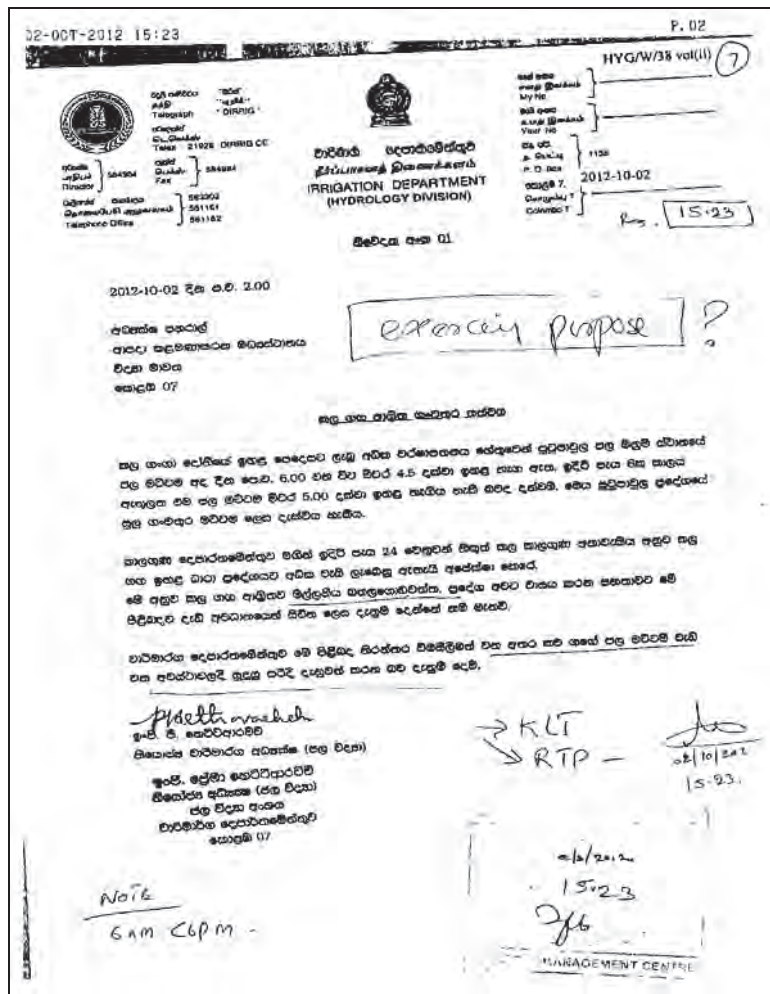
Example of BWA

2.3 Flood warning issued by Irrigation Department (ID)

- ♦ Type of information
 - Flood warning describes the present river water level and flood / inundation situation, and their forecasts by river basis.
 - Flood warning also describes the condition of gate opening / spilling of water reservoirs.
 - Several water levels (Alert, Minor Flood, Major Flood, Critical Flood etc.) are defined for major gauging stations at major rivers. However, detailed procedure and specific values (criteria) for issuing flood warning is not documented except for Kelani River.
 - Director of Hydrology Division will analyze the river situation (rainfall / water level of past / present / forecast) and will decide to issue flood warning based on the experience.

- ♦ Meaning of information

- Related organizations shall take necessary actions. Evacuating people has to be considered.
- Community people shall take necessary actions including voluntary evacuation.
- Evacuation instruction can be issued by GA, DS or GN, so that related organizations / community people shall pay more attention in the situation.



Example of Flood Warning

2.4 Landslide warning issued by National Building Research Organization (NBRO)

- ♦ Type of information

- Landslide warning describes the area where the risk of landslide is high, and the actions to be taken by community people.

- There are three levels of landslide warning.
 - Landslide Watch (Level 1)
 - Landslide Alert (Level 2)
 - Evacuation from slopes with landslide threat (Level 3)

- There are three daily rainfall amounts (criteria) to be considered for issuing warning (75mm/day, 100mm/day, and 150mm/day). However, detailed procedure for issuing landslide warning is not documented. Head of Landslide Research & Risk Management Division, NBRO will analyze the local situation, weather condition and soil condition etc. and will decide to issue landslide warning by GN basis based on the experience.

- ♦ Meaning of information
 - Related organizations shall take necessary actions. Evacuating people has to be considered.

 - Community people shall take necessary actions including voluntary evacuation.

 - Evacuation instruction can be issued by GA, DS or GN, so that related organizations / community people shall pay more attention in the situation.

Sample Landslide Warning Message (For exercise only)
 ආහාරි අවදානම පිළිබඳ අනතුරු පණිවිඩය (ආහාරි අවදානම පිළිබඳ)

 NATIONAL BUILDING RESEARCH ORGANISATION 99/1, Jawata Road, Colombo 05 ආරාමික ගොඩනැගිලි පර්යේෂණ අංශ සංවිධානය 99/1, කවුන්සෙල් පාර, කොළඹ 05 NBRO Tele (දුරකථන) 0112589946 Fax (පණිවිඩ) 0112589947			
LANDSLIDE ALERT (ලැයිට් 2)			
වනාන්තරයේ වැසි පවතින අවදානම (ලැයිට් 2)			
Nature of warning:		If the rain continues within next 24 hours, be alert on the possibility of landslides and cut slope failures.	
අනතුරු ඇතිවීමේ වර්ගය		ඒවනතුළ 24 ඉස් 24 ඉස් තුළදී වැසි අඛණ්ඩව පවතින අවදානම පිළිබඳව අවදානම් පණිවිඩයක් (ලැයිට් 2) නිකුත් කෙරේ.	
Locations at potential risk			
වනාන්තරයේ අවදානම් ඇතිවිය හැකි ප්‍රදේශ			
District	Administrative Division	Grana Sieve Division	Slopes or elements at risk or need special attention
දිස්ත්‍රික්කය	පාලනික වර්ගීකරණ	ග්‍රාම සීව්‍ය වර්ග	වනාන්තරයේ අවදානම් ඇතිවිය හැකි ප්‍රදේශ හෝ විශේෂ අවධානයක් අවශ්‍ය වන ප්‍රදේශ
Ratnapura	Ratnapura	Helwala	Ratnapura Weliswatta road
රත්නපුර	රත්නපුර	හෙල්වල	රත්නපුර වෙලිස්වත්ත පාර
Issued by:			Date
R.M.S. Bandura කේ.එම්.එස්.බන්දාරා Head Landslide Studies and Services Division ආරාමික ගොඩනැගිලි පර්යේෂණ අංශය National Building Research Organisation ආරාමික ගොඩනැගිලි පර්යේෂණ අංශය			Date 2011/08/01 14:00 Hrs. දිනය 2011/08/01 ඉ.ප. 14:00

Copy to: Director General, NBRO.

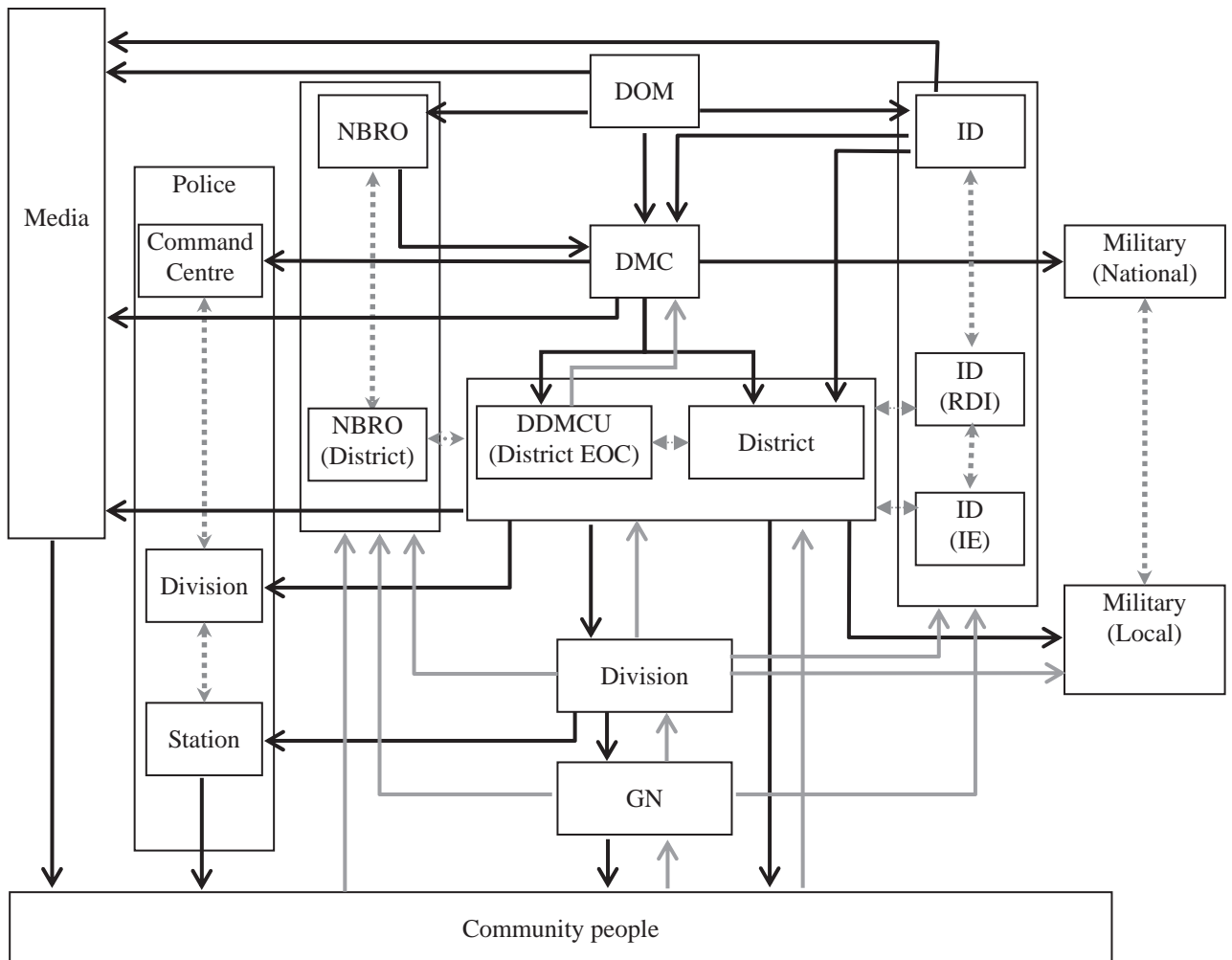
Example of Landslide Warning

2.5 Evacuation instruction issued by GA, DS or GN

- ◆ Type of information
 - Recommendation / Instruction / Order to Evacuate
- ◆ Meaning of information
 - Related organizations shall take necessary actions to evacuate people to safer places.

3 Information Sharing Procedure

3.1 Flow chart of Information Sharing



Organization which disseminates warnings \longrightarrow Organization which receives information





Organization which reports the local situation \longrightarrow Organization which receives information

\longleftrightarrow Mutual exchange of information / Internal communication

Related Organizations and Information Sharing Flow Diagram

3.2 Stages of Disasters

- ♦ The disaster situation is divided into 4 stages shown below.

Stage	Information	Disaster Situation
1	No warning message is issued	<ul style="list-style-type: none"> - No warning message has been issued by government organizations. - However, some places may have been already affected by disaster.  <ul style="list-style-type: none"> - Local situation shall be reported by community people to government organizations.
2	Bad Weather Advisory is issued	<ul style="list-style-type: none"> - DOM has issued Bad Weather Advisory. - However, some places may have been already affected by disaster.  <ul style="list-style-type: none"> - BWA shall be shared by related organizations. - Local situation shall be collected / reported by community people to government organizations.
3	Flood warning is issued by ID / Landslide warning is issued by NBRO	<ul style="list-style-type: none"> - ID has issued flood warning / NBRO has issued landslide warning. - However, some places may have been already affected by disaster.  <ul style="list-style-type: none"> - Flood warning / landslide warning shall be disseminated to related organizations. - Local situation shall be collected / reported by community people to government organizations.
4	Evacuation instruction is issued by GA, DS or GN	<ul style="list-style-type: none"> - GA, DS or GN has issued evacuation instruction based on the warning message and local situation. - However, some places may have been already affected by disaster.  <ul style="list-style-type: none"> - Evacuation instruction shall be disseminated to community people. - Local situation shall be collected / reported by community people to government organizations.

3.3 Target Organizations

- ♦ The target organizations in this manual are as follows.
 - District Secretariat (DDMCU)
 - Divisional Secretariat
 - GN

4 Actions to be taken by each organization

- ♦ The actions related to message / information dissemination are described based on which organizations to which organizations, by which methods, at which stage, on which information etc.
- ♦ The standard operation procedures (SOP) are also prepared for each action for above 3 target organizations.
- ♦ The followings are some notices.
 - “DDMCU” here represents the District Secretariat. The communication with DDMCU includes the communication with District Secretary. If there is an action “DS sends Fax to DDMCU”, DS also may have to send Fax to District Secretary according to their official customs.
 - All the actions by DDMCU here is conducted under the authorization of District Secretary. Therefore, if there is an action “DDMCU instructs DS to take necessary action”, it refers DDMCU has already got authorization from District Secretary to instruct DS.

4.1 District Secretariat (DDMCU)

Stage	Contents	by DDMCU	from	to	Tools for communication	Remarks	Corresponding SOPs
1 No warning message is issued	Local Situation	Received	VDMC/GN/ Divisional Secretary	-	Telephone/Fax/Mobile	Consider necessity to evacuate people	No.1
		Informed	-	ID (RD/IE) NBRO	Telephone/Fax/Mobile	Request ID/NBRO for advice	No.2
			-	DMC	Telephone/Fax/Mobile/Radio/VPN		No.3
2 Bad Weather Advisory is issued by DOM	Bad Weather Advisory	Received	DMC	-	Telephone/Fax/Mobile/Radio/VPN	Communicate with District Secretary and get authorization to disseminate information	No.4
		Disseminated	-	Divisional Secretary	Telephone/Fax/Mobile	Instruct Divisional Secretary to confirm local situation and take necessary actions. (including neighbor divisional secretariat)	No.5
		Received	VDMC/GN/ Divisional Secretary	-	Telephone/Fax/Mobile	Consider necessity to evacuate people	No.6
3 Flood Warning is issued by ID / Landslide Warning is issued by NBRO	Local situation	Informed	-	ID (RD/IE) NBRO	Telephone/Fax/Mobile	Request ID/NBRO for advice	No.7
			-	DMC	Telephone/Fax/Mobile/Radio/VPN	Compile local conditions	No.8
		Received	DMC	-	Telephone/Fax/Mobile/Radio/VPN	Communicate with District Secretary and get authorization to disseminate information	No.9
		Disseminated	-	Divisional Secretary	Telephone/Fax/Mobile	Instruct Divisional Secretary to confirm local situation and take necessary actions. (including neighbor divisional secretariat)	No.10
			-	Police Division	Telephone/Fax/Mobile		No.11
			-	Media	Telephone/Fax/Mobile		
	-	Military	Telephone/Fax/Mobile				

Stage	Contents	by DDMCU	from	to	Tools for communication	Remarks	Corresponding SOPs	
4 Evacuation Instruction is Issued	Local situation	Received	VDMC/GN/ Divisional Secretary	-	Telephone/Fax/Mobile	Consider necessity to evacuate people	No.12	
		Informed	-	ID (RD/IE) NBRO	Telephone/Fax/Mobile	Request ID/NBRO for advice	No.13	
			-	DMC	Telephone/Fax/Mobile/Radio/ VPN	Compile local conditions	No.14	
	Evacuation Instruction	Received	District Secretary	-	Telephone / by hand	If District Secretary issues evacuation information, get authorization to disseminate information	No.15	
			Divisional Secretary	-	Telephone/Fax/Mobile	If Divisional Secretary / GN issues,	No.16	
		Disseminated	-	DMC	Telephone/Fax/Mobile/Radio/ VPN		No.17	
	Local situation	Received	-	Divisional Secretary	Divisional Secretary	Telephone/Fax/Mobile	If District Secretary issues / Instruct Divisional Secretary to confirm local situation and take necessary actions. (including neighbor divisional secretariat)	No.18
			-	-	Police Division	Telephone/Fax/Mobile		No.19
			-	-	Media	Telephone/Fax/Mobile		
			-	-	Military	Telephone/Fax/Mobile		
Local situation	Informed	VDMC/GN/ Divisional Secretary	-	-	Telephone/Fax/Mobile	Consider necessity to evacuate people	No.20	
		-	-	ID (RD/IE) NBRO	Telephone/Fax/Mobile	Request ID/NBRO for advice	No.21	
		-	-	DMC	Telephone/Fax/Mobile/Radio/ VPN	Compile local conditions	No.22	

4.2 Divisional Secretariat

Stage	Contents	by Divisional Secretary	from	to	Tools for communication	Remarks	Corresponding SOPs
1 No warning message is issued	Local Situation	Received	GN	-	Telephone/Mobile	Consider necessity to evacuate people	No.1
		Informed	-	ID (IE) NBRO	Telephone/Mobile	Request ID/NBRO for advice	No.2
			-	DDMCU	Telephone/Fax/Mobile		No.3
2 Bad Weather Advisory is issued by DOM	Bad Weather Advisory	Received	DDMCU	-	Telephone/Fax/Mobile		No.4
		Disseminated	-	GN	Telephone/Mobile	Instruct GN to confirm local situation and take necessary actions (including neighbor GN)	No.5
			Received	GN	-	Telephone/Fax/Mobile	Consider necessity to evacuate people
3 Flood Warning is issued by ID / Landslide Warning is issued by NBRO	Local Situation	Informed	-	ID (IE) NBRO	Telephone/Mobile	Request ID/NBRO for advice	No.7
		Received	-	DDMCU	Telephone/Fax/Mobile/Radio/ VPN	Compile local conditions	No.8
			DDMCU	-	Telephone/Fax/Mobile		No.9
		Disseminated	-	GN	Phone/Mobile	Instruct GN to confirm local situation and take necessary actions (including neighbor GN)	No.10
			-	Police Station	Phone/Mobile		No.11
	Local Situation	Received	-	Military	Phone/Mobile		No.12
			GN	-	Telephone/Mobile	Consider necessity to evacuate people	No.12
		Informed	-	ID (IE) NBRO	Telephone/Mobile	Request ID/NBRO for advice	No.13
			-	DDMCU	Telephone/Fax/Mobile	Compile local conditions	No.14

Stage	Contents	by Divisional Secretary	from	to	Tools for communication	Remarks	Corresponding SOPs	
4 Evacuation Instruction is Issued	Evacuation instruction	Received	DDMCU	-	Telephone/Fax/Mobile	If District Secretary issues,	No.15	
		Issued	GN	-	Phone/Mobile	If GN issues,	No.16	
			Disseminated	-	-	-	If Divisional Secretary issues,	No.17
	Local Situation	Received	-	DDMCU	GN	Telephone/Fax/Mobile	Instruct GN to confirm local situation and take necessary actions (including neighbor GN)	No.18
			-	-	-	Phone/Mobile		No.19
			-	-	Police Station	Phone/Mobile	No.20	
			-	-	Military	Phone/Mobile		
			GN	-	-	Telephone/Mobile	Consider necessity to evacuate people	No.21
			-	-	ID (IE) NBRO	Telephone/Mobile	Request ID/NBRO for advice	No.22
			-	-	DDMCU	Telephone/Fax/Mobile	Compile local conditions	No.23

4.3 GN

Stage	Contents	by GN	from	To	Tools for communication	Remarks	Corresponding SOPs
1 No warning message is issued	Local Situation	Received	Community People	-	Telephone/Mobile/Meet	Consider necessity to evacuate people	No.1
		Informed	-	ID (IE) NBRO Divisional Secretary	Telephone/Mobile	Request ID/NBRO for advice	No.2
2 Bad Weather Advisory is issued By DOM	Bad Weather Advisory	Received	Divisional Secretary	-	Telephone/Mobile		No.3
		Disseminated	-	Community People	Telephone/Mobile/Meet	Confirm local situation and take necessary actions.	No.4
	Received	Community People	-	Telephone/Mobile/Meet	Confirm local situation and take necessary actions.	No.5	
	Informed	-	ID (IE) NBRO Divisional Secretary	Telephone/Mobile	Consider necessity to evacuate people Request ID/NBRO for advice	No.6	
3 Flood Warning / Landslide Warning is issued by ID / Landslide Warning is issued by NBRO	Flood Warning / Landslide Warning	Received	Divisional Secretary	-	Telephone/Mobile		No.7
		Disseminated	-	Community People	Telephone/Mobile	Confirm local situation and take necessary actions.	No.8
	Received	Community People	-	Telephone/Mobile/Meet	Confirm local situation and take necessary actions.	No.9	
	Informed	-	ID (IE) NBRO Divisional Secretary	Telephone/Mobile	Consider necessity to evacuate people Request ID/NBRO for advice	No.10	
	Received	Community People	-	Telephone/Mobile/Meet	Confirm local situation and take necessary actions.	No.11	
	Informed	-	ID (IE) NBRO Divisional Secretary	Telephone/Mobile	Consider necessity to evacuate people Request ID/NBRO for advice	No.12	
	Local Situation		-	Divisional Secretary	Telephone/Mobile		No.13

Stage	Contents	by GN	from	To	Tools for communication	Remarks	Corresponding SOPs	
4 Evacuation Instruction is Issued	Evacuation instruction	Received	Divisional Secretary	-	Telephone/Mobile	If District Secretary or Divisional Secretary issues,	No.14	
		Issued	-	-	-	If GN issues,	No.15	
		Disseminated	-	Divisional Secretary	Telephone/Mobile	If GN issues,	No.16	
	Local Situation	Received	-	Community People	Community People	Telephone/Mobile/Meet	Confirm local situation and take necessary actions.	No.17
		Informed	Community People	-	-	Telephone/Mobile/Meet		No.18
			-	ID (IE) NBRO	Telephone/Mobile			No.19
		-	Divisional Secretary	Telephone/Mobile			No.20	

Corresponding SOPs

Corresponding SOPs - DDMCU

- “DDMCU” here represents the District Secretariat. The communication with DDMCU includes the communication with District Secretary. If there is an action “DS sends Fax to DDMCU”, DS also may have to send Fax to District Secretary according to their official customs.
- All the actions by DDMCU here is conducted under the authorization of District Secretary. Therefore, if there is an action “DDMCU instructs DS to take necessary action”, it refers DDMCU has already got authorization from District Secretary to instruct DS.

Stage1: No Warning message is issued

SOPs		check
No.1 <i>Receive Local situation from GN / VDMC / divisional secretary</i>		
1-1	AD/CA receives local situation from VDMC/GN/DS office by phone.	
1-2	CA informs AD by phone if CA receives information.	
1-3	AD/CA receives local situation from DS office by fax.	
1-4	AD/CA confirms the receiving fax with DS office by phone.	
1-5	AD/CA confirms the local situation with VDMC/GN/DS office by phone if necessary.	
1-6	AD/CA records local situation in log-book with time.	
1-7	AD/CA prepares a situation report by compiling received local situations from all DS offices.	
1-8	AD/CA files all documents.	
Comment		
No.2 <i>Inform Local situation to ID / NBRO</i>		
2-1	AD/CA informs local situation to ID / NBRO and asks for their advice by phone.	
2-2	AD/CA discusses with District Secretary and takes necessary actions according to the instruction by ID / NBRO.	
2-3	AD/CA records actions in log-book with time.	
Comment		
No.3 <i>Inform Local situation to DMC</i>		
3-1	AD/CA informs local situation to DMC by phone.	
3-2	AD/CA informs local situation to DMC by fax	
3-3	AD/CA confirms the receiving of fax by phone.	
3-4	AD/CA records actions in log-book with time.	
3-5	AD/CA files all documents.	
Comment		

Stage2: Bad Weather Advisory is issued by DOM

SOPs		check
No.4 <i>Receive Bad weather advisory from DMC</i>		
4-1	AD/CA receives the phone call from DMC.	
4-2	AD/CA receives the fax from DMC.	
4-3	AD/CA confirms the receiving of fax by phone.	
4-4	AD/CA informs to District Secretary and gets confirmation of necessary action by District Secretary.	
4-5	AD/CA records actions in log-book with time.	
4-6	AD/CA files all documents.	
Comment		
No.5 <i>Disseminate Bad weather advisory to Divisional secretary</i>		
5-1	AD/CA informs bad weather advisory to relevant DS office by phone, and instructs them to confirm local situation and take necessary actions.	
5-2	AD/CA informs bad weather advisory to relevant DS office by fax.	
5-3	AD/CA confirms the receiving of fax by phone.	
5-4	AD/CA informs most vulnerable GN and VDMC directly based on the situation by phone, and informs this action to DS office.	
5-5	AD/CA records actions in log-book with time.	
5-6	AD/CA files all documents.	
Comment		
No.6 <i>Receive Local situation from GN / VDMC / Divisional secretary</i>		
6-1	AD/CA receives local situation from DS office by phone.	
6-2	CA informs AD by phone if CA receives information.	
6-3	AD/CA receives local situation from DS office by fax.	
6-4	AD/CA confirms the receiving fax with DS office by phone.	
6-5	AD/CA confirms the local situation with VDMC/GN/DS office by phone if necessary.	
6-6	AD/CA communicates and discusses with DS for necessary activities such as evacuating people.	
6-7	AD/CA records local situation in log-book with time.	
6-8	AD/CA prepares a situation report by compiling received local situations from all DS offices.	
6-9	AD/CA files all documents.	
Comment		
No.7 <i>Inform Local situation to ID/ NBRO</i>		
7-1	AD/CA informs local situation to ID / NBRO and asks for their advice.	
7-2	AD/CA discusses with District Secretary and takes necessary actions according to the instruction by NBRO.	
7-3	AD/CA records actions in log-book with time.	
Comment		

SOPs		check
No.8	<i>Inform Local situation to DMC</i>	
8-1	AD/CA informs situation to DMC by phone.	
8-2	AD/CA sends situation report signed by District Secretary to DMC by fax. (normally once a day)	
8-3	AD/CA confirms the receiving fax with DMC by phone.	
8-4	AD/CA records actions in log-book with time.	
8-5	AD/CA files all documents.	
Comment		

Stage3: Flood / Landslide Warning is issued by ID / NBRO

SOPs		check
No.9 <i>Receive Flood / Landslide warning from DMC</i>		
9-1	AD/CA receives the phone call from DMC / District office of NBRO.	
9-2	AD/CA receives the fax from DMC.	
9-3	AD/CA confirms the receiving of fax by phone.	
9-4	AD/CA informs to District Secretary and gets confirmation of necessary action by District Secretary.	
9-5	AD/CA records actions in log-book with time.	
9-6	AD/CA files all documents.	
Comment		
No.10 <i>Disseminate Flood / Landslide warning to Divisional secretary</i>		
10-1	AD/CA informs flood / landslide warning issued by ID / NBRO to relevant DS office by phone, and instructs them to confirm local situation and take necessary actions	
10-2	AD/CA sends flood / landslide warning issued by ID / NBRO with cover letter signed by District Secretary to relevant DS office by fax.	
10-3	AD/CA confirms the receiving of fax by phone.	
10-4	AD/CA informs most vulnerable GN and VDMC directly based on the situation by phone, and informs this action to DS office.	
10-5	AD/CA records actions in log-book with time.	
10-6	AD/CA files all documents.	
Comment		
No.11 <i>Disseminate Flood / Landslide warning to Police division / Media / Military</i>		
11-1	AD/CA informs flood / landslide warning issued by ID / NBRO to relevant Police Divisions, media people and military by phone, and instructs them to take necessary actions	
11-2	AD/CA sends flood / landslide warning issued by ID / NBRO with cover letter signed by District Secretary to relevant Police Divisions, media people and military by fax.	
11-3	AD/CA confirms the receiving of fax by phone.	
11-4	AD/CA records actions in log-book with time.	
11-5	AD/CA files all documents.	
Comment		
No.12 <i>Receive Local situation from GN / VDMC / Divisional secretary</i>		
12-1	AD/CA receives local situation from DS office by phone.	
12-2	CA informs AD by phone if CA receives information.	
12-3	AD/CA receives local situation from DS office by fax.	
12-4	AD/CA confirms the receiving fax with DS office by phone.	

SOPs		check
12-5	AD/CA confirms the local situation with VDMC/GN/DS office by phone if necessary.	
12-6	AD/CA communicates and discusses with DS for necessary activities such as evacuating people.	
12-7	AD/CA records local situation in log-book with time.	
12-8	AD/CA prepares a situation report by compiling received local situations from all DS offices.	
12-9	AD/CA files all documents.	
Comment		
No.13 <i>Inform Local situation to ID / NBRO</i>		
13-1	AD/CA informs local situation to ID / NBRO and asks for their advice.	
13-2	AD/CA discusses with District Secretary and takes necessary actions according to the instruction by ID / NBRO.	
13-3	AD/CA records actions in log-book with time.	
Comment		
No.14 <i>Inform Local situation to DMC</i>		
14-1	AD/CA informs local situation to DMC by phone.	
14-2	AD/CA sends situation report signed by District Secretary to DMC by fax. (normally once a day)	
14-3	AD/CA confirms the receiving fax with DMC by phone.	
14-4	AD/CA records actions in log-book with time.	
14-5	AD/CA files all documents.	
Comment		

Stage4: Evacuation Instruction is issued

SOPs		check
No.15 <i>Receive Evacuation Instruction from District Secretary</i>		
15-1	AD/CA discusses with District Secretary for necessary actions based on the collected information.	
15-2	AD/CA receives message to evacuate people from District Secretary by phone.	
15-3	AD/CA receives the signed letter to evacuate people from District Secretary by hand.	
15-4	AD/CA records actions in log-book with time.	
15-5	AD/CA files all documents.	
Comment		
No.16 <i>Receive Evacuation Instruction from Divisional Secretary</i>		
16-1	AD/CA receives message to evacuate people issued by DS/GN from DS office by phone.	
16-2	AD/CA receives the signed letter to evacuate people from DS by fax.	
16-3	AD/CA records actions in log-book with time.	
16-4	AD/CA files all documents.	
Comment		
No.17 <i>Disseminate Evacuation Instruction to DMC</i>		
17-1	AD/CA informs issuance of message to evacuate people to DMC by phone.	
17-2	AD/CA sends signed letter to evacuate people to DMC by fax.	
17-3	AD/CA confirms the receiving fax with DMC by phone.	
17-4	AD/CA records actions in log-book with time.	
17-5	AD/CA files all documents.	
Comment		
No.18 <i>Disseminate Evacuation Instruction to Divisional Secretary</i>		
18-1	AD/CA informs issuance of message to evacuate people to relevant DS office by phone, and instructs them to confirm local situation and take necessary actions	
18-2	AD/CA sends signed letter to evacuate people to relevant DS office by fax.	
18-3	AD/CA confirms the receiving of fax by phone.	
18-4	AD/CA informs most vulnerable GN and VDMC directly based on the situation by phone, and informs this action to DS office.	
18-5	AD/CA records actions in log-book with time.	
18-6	AD/CA files all documents.	
Comment		

SOPs		check
No.19 <i>Disseminate Evacuation Instruction to Police division / Media / Military</i>		
19-1	AD/CA informs issuance of message to evacuate people to relevant police divisions, media people and military by phone, and instructs them to take necessary actions	
19-2	AD/CA sends signed letter to evacuate people to relevant police divisions, media people and military by fax.	
19-3	AD/CA confirms the receiving of fax by phone.	
19-4	AD/CA records actions in log-book with time.	
19-5	AD/CA files all documents.	
Comment		
No.20 <i>Receive Local situation from GN / VDMC / Divisional secretary</i>		
20-1	AD/CA receives local situation from DS office by phone.	
20-2	CA informs AD by phone if CA receives information.	
20-3	AD/CA receives local situation from DS office by fax.	
20-4	AD/CA confirms the receiving fax with DS office by phone.	
20-5	AD/CA confirms the local situation with VDMC/GN/DS office by phone if necessary.	
20-6	AD/CA communicates and discusses with DS for necessary activities such as evacuating people.	
20-7	AD/CA records local situation in log-book with time.	
20-8	AD/CA prepares a situation report by compiling received local situations from all DS offices.	
20-9	AD/CA files all documents.	
Comment		
No.21 <i>Inform Local situation to ID / NBRO</i>		
21-1	AD/CA informs local situation to ID / NBRO and asks for their advice.	
21-2	AD/CA discusses with District Secretary and takes necessary actions according to the instruction by ID/ NBRO.	
21-3	AD/CA records actions in log-book with time.	
Comment		
No.22 <i>Inform Local situation to DMC</i>		
22-1	AD/CA informs local situation to DMC by phone.	
22-2	AD/CA sends situation report signed by District Secretary to DMC by fax. (normally once a day)	
22-3	AD/CA confirms the receiving fax with DMC by phone.	
22-4	AD/CA records actions in log-book with time.	
22-5	AD/CA files all documents.	
Comment		

Corresponding SOPs - Divisional Secretariat

- “DDMCU” here represents the District Secretariat. The communication with DDMCU includes the communication with District Secretary. If there is an action “DS sends Fax to DDMCU”, DS also may have to send Fax to District Secretary according to their official customs.
- All the actions by DDMCU here are conducted under the authorization of District Secretary. Therefore, if there is an action “DDMCU instructs DS to take necessary action”, it refers DDMCU has already got authorization from District Secretary to instruct DS.
- All the actions by DS officers and SSO here are conducted under the authorization of Divisional Secretary based on the close communication.

Stage1: No Warning message is issued

SOPs		Check
No.1 <i>Receive Local situation from GN</i>		
1-1	SSO/DS officer receives local situation from GN/VDMC by phone.	
1-2	DS officer informs SSO by phone if DS officer receives information.	
1-3	SSO/DS officer informs local situation to DS by phone.	
1-4	SSO records local situation in log-book with time.	
1-5	SSO collects notes from GN's log book if necessary.	
Comment		
No.2 <i>Inform Local situation to ID / NBRO</i>		
2-1	DS/SSO informs local situation to ID / NBRO and asks for their advice by phone.	
2-2	DS and SSO discuss and take necessary actions according to the instruction by ID / NBRO.	
2-3	SSO records actions in log-book with time.	
Comment		
No.3 <i>Inform Local situation to DDMCU</i>		
3-1	DS/SSO informs local situation to DDMCU by phone.	
3-2	DS/SSO sends local situation to DDMCU by fax.	
3-3	DS/SSO confirms the receiving of fax by phone.	
3-4	SSO records actions in log-book with time.	
3-5	SSO files all documents	
Comment		

Stage2: Bad Weather Advisory is issued by DOM

SOPs		Check
No.4 <i>Receive Bad weather advisory from DDMCU</i>		
4-1	DS/SSO receives bad weather advisory from DDMCU by phone, and is instructed to confirm local situation and take necessary actions.	
4-2	DS/SSO receives bad weather advisory from DDMCU by fax.	
4-3	DS/SSO confirms the receiving of fax by phone.	
4-4	SSO informs DS and discusses for necessary actions if SSO receives information.	
4-5	SSO records actions in log-book with time.	
4-6	SSO files all documents	
Comment		
No.5 <i>Disseminate Bad weather advisory to GN</i>		
5-1	DS/SSO informs bad weather advisory to relevant GNs by phone, and instructs them to confirm local situation and take necessary actions.	
5-2	DS/SSO informs to relevant VDMC/Samurdi officer or any other active CBO regarding the bad weather advisory if necessary.	
Comment		
No.6 <i>Receive Local situation from GN</i>		
6-1	SSO receives local situation from GN by phone.	
6-2	SSO prepares a situation report by compiling received local situations from all GNs.	
6-3	SSO submits compiled situation report to DS by hand.	
6-4	DS/SSO communicates and discusses with GNs for necessary activities such as evacuating people by phone.	
6-5	SSO records actions in log-book with time.	
6-6	SSO files all documents	
Comment		
No.7 <i>Inform Local situation to ID / NBRO</i>		
7-1	DS/SSO informs local situation to ID / NBRO and asks for their advice by phone.	
7-2	DS and SSO discuss and take necessary actions according to the instruction by ID / NBRO.	
7-3	SSO records actions in log-book with time.	
Comment		

SOPs		Check
No.8 <i>Inform Local situation to DDMCU</i>		
8-1	DS/SSO informs local situation to DDMCU by phone.	
8-2	DS/SSO sends a situation report to DDMCU by fax.	
8-3	DS/SSO confirms the receiving of fax by phone.	
8-4	DS communicates with AD DDMCU for necessary actions.	
8-5	SSO records actions in log-book with time.	
8-6	SSO files all documents	
Comment		

Stage3: Flood / Landslide Warning is issued by ID / NBRO

SOPs		Check
No.9 <i>Receive flood / landslide warning from DDMCU</i>		
9-1	DS/SSO receives flood / landslide warning issued by ID / NBRO from DDMCU by phone, and is instructed to confirm local situation and take necessary actions.	
9-2	DS/SSO receives flood / landslide warning from DDMCU by fax.	
9-3	DS/SSO confirms the receiving of fax by phone.	
9-4	SSO informs DS and discusses for necessary actions, if SSO receives information.	
9-5	SSO records actions in log-book with time.	
9-6	SSO files all documents	
Comment		
No.10 <i>Disseminate Flood / Landslide warning to GN</i>		
10-1	DS/SSO informs flood / landslide warning issued by ID / NBRO to relevant GNs by phone, and instructs them to confirm local situation and take necessary actions.	
10-2	DS/SSO informs to relevant VDMC/Samurdi officer or any other active CBO regarding the landslide information if necessary.	
10-3	SSO records actions in log-book with time.	
Comment		
No.11 <i>Disseminate Flood / Landslide warning to Police station / Military</i>		
11-1	DS/SSO informs flood / landslide warning issued by ID / NBRO to relevant police stations and military by phone, and instructs them to take necessary actions.	
11-2	DS/SSO sends flood / landslide warning issued by ID / NBRO with cover letter signed by DS to relevant police stations and military by fax.	
11-3	SSO confirms the receiving of fax by phone.	
11-4	SSO records actions in log-book with time.	
11-5	SSO files all documents	
Comment		
No.12 <i>Receive Local situation from GN</i>		
12-1	SSO receives local situation from GN by phone.	
12-2	SSO prepares a situation report by compiling received local situations from all GNs.	
12-3	SSO submits compiled situation report to DS by hand.	
12-4	DS communicates and discusses with GNs for necessary activities such as evacuating people by phone.	
12-5	SSO records actions in log-book with time.	
12-6	SSO files all documents	
Comment		

SOPs		Check
No.13 <i>Inform Local situation to ID / NBRO</i>		
13-1	DS/SSO informs local situation to ID / NBRO and asks for their advice by phone.	
13-2	DS and SSO discuss and take necessary actions according to the instruction by ID / NBRO.	
13-3	SSO records actions in log-book with time.	
Comment		
No.14 <i>Inform Local situation to DDMCU</i>		
14-1	DS/SSO informs local situation to DDMCU by phone.	
14-2	DS/SSO sends a situation report to DDMCU by fax.	
14-3	DS/SSO confirms the receiving of fax by phone.	
14-4	DS communicates with AD DDMCU for necessary actions.	
14-5	SSO records actions in log-book with time.	
14-6	SSO files all documents	
Comment		

Stage4: Evacuation Instruction is issued

SOPs		Check
No.15 <i>Receive Evacuation information from DDMCU</i>		
15-1	DS/SSO receives message to evacuate people issued by District Secretary from DDMCU by phone, and is instructed to confirm local situation and take necessary actions.	
15-2	DS/SSO receives signed letter to evacuate people from DDMCU by fax.	
15-3	DS/SSO confirms the receiving of fax by phone.	
15-4	SSO informs DS and discusses for necessary actions, if SSO receives information.	
15-5	SSO records actions in log-book with time.	
15-6	SSO files all documents	
Comment		
No.16 <i>Receive Evacuation instruction from GN</i>		
16-1	DS/SSO receives message to evacuate people issued by GN by phone.	
16-2	SSO informs DS and discusses for necessary actions, if SSO receives information.	
16-3	SSO records actions in log-book with time.	
16-4	DS and SSO discuss for necessary actions based on the collected information.	
16-5	SSO receives message to evacuate people from DS by phone.	
16-6	SSO receives the signed letter to evacuate people from DS by hand.	
16-7	SSO records actions in log-book with time.	
16-8	SSO files all documents	
Comment		
No.17 <i>DS issues Evacuation Instruction</i>		
17-1	DS issues evacuation instruction based on the collected information	
Comment		
No.18 <i>Disseminate Evacuation information to DDMCU</i>		
17-1	DS/SSO informs issuance of message to evacuate people to DDMCU by phone.	
17-2	DS/SSO sends signed letter to evacuate people to DDMCU by fax.	
17-3	DS/SSO confirms the receiving fax with DMC by phone.	
17-4	SSO records actions in log-book with time.	
17-5	SSO files all documents	
Comment		

SOPs		Check
No.19 <i>Disseminate Evacuation instruction to GN</i>		
18-1	DS/SSO informs issuance of message to evacuate people to relevant GNs by phone, and instructs them to confirm local situation and take necessary actions.	
18-2	DS/SSO informs to relevant VDMC/Samurdi officer or any other active CBO regarding the message to evacuate people if necessary.	
18-3	SSO records actions in log-book with time.	
Comment		
No.20 <i>Disseminate Evacuation instruction to Police station / Military</i>		
19-1	DS/SSO informs issuance of message to evacuate people to relevant police stations and military by phone, and instructs them to take necessary actions.	
19-2	DS/SSO sends signed letter to evacuate people to relevant police stations and military by fax.	
19-3	SSO confirms the receiving of fax by phone.	
19-4	SSO records actions in log-book with time.	
19-5	SSO files all documents	
Comment		
No.21 <i>Receive Local situation from GN</i>		
20-1	SSO receives local situation from GN by phone.	
20-2	SSO prepares a situation report by compiling received local situations from all GNs.	
20-3	SSO submits compiled situation report to DS by hand.	
20-4	DS/SSO communicates and discusses with GNs for necessary activities such as evacuating people by phone.	
20-5	SSO records actions in log-book with time.	
20-6	SSO files all documents	
Comment		
No.22 <i>Inform Local situation to ID / NBRO</i>		
21-1	DS/SSO informs local situation to ID / NBRO and asks for their advice by phone.	
21-2	DS and SSO discuss and take necessary actions according to the instruction by ID / NBRO.	
21-3	SSO records actions in log-book with time.	
Comment		
No.23 <i>Inform Local situation to DDMCU</i>		
22-1	DS/SSO informs local situation with NBRO comments to DDMCU by phone.	
22-2	DS/SSO sends a situation report to DDMCU by fax.	
22-3	DS/SSO confirms the receiving of fax by phone.	
22-4	SSO records actions in log-book with time.	
22-5	SSO files all documents.	
Comment		

Corresponding SOPs - GN

Stage 1: No Warning message is issued

SOPs		check
No.1 <i>Receive Local situation from community people</i>		
1-1	GN receives local situation from community people by phone/meet.	
1-2	GN records the received message in log book.	
1-3	GN confirms local situation and considers necessity to evacuate people.	
Comment		
No.2 <i>Inform Local situation to ID / NBRO</i>		
2-1	GN informs local situation to ID / NBRO and asks for their advice by phone.	
2-2	GN takes necessary actions according to the advice by ID / NBRO.	
Comment		
No.3 <i>Inform Local situation to Divisional secretary</i>		
3-1	GN informs local situation to DS officer/SSO by phone.	
Comment		

Stage 2: Bad Weather Advisory is issued by DOM

SOPs		check
No.4 <i>Receive Bad weather Advisory from Divisional secretary</i>		
4-1	GN receives bad weather advisory from DS officer/SSO by phone.	
4-2	GN records the received message in log book.	
Comment		
No.5 <i>Disseminate Bad Weather Advisory to community people</i>		
5-1	GN informs Bad Weather Advisory to community people, and instructs them to confirm local situation and take necessary actions.	
Comment		
No.6 <i>Receive Local situation from community people</i>		
6-1	GN receives local situation from community people.	
6-2	GN records the received message in log book.	
6-3	GN considers necessity to evacuate people and takes necessary action.	
Comment		
No.7 <i>Inform Local situation to ID / NBRO</i>		
7-1	GN informs local situation to ID / NBRO and asks for their advice by phone.	
7-2	GN takes necessary actions according to the advice by ID / NBRO.	
Comment		
No.8 <i>Inform Local situation to Divisional secretary</i>		
8-1	GN informs local situation to DS officer/SSO by phone.	
8-2	GN communicates with DS for necessary action such as evacuation.	
Comment		

Stage3: Flood / Landslide Warning is issued by ID / NBRO

SOPs		check
No.9 <i>Receive Flood / Landslide warning from Divisional secretary</i>		
9-1	GN receives flood / landslide warning issued by ID / NBRO from DS/SSO by phone.	
9-2	GN records the received message in log book.	
Comment		
No.10 <i>Disseminate Flood / Landslide Warning to community people</i>		
10-1	GN informs flood / landslide warning to community people, and instructs them to confirm local situation and take necessary actions.	
Comment		
No.11 <i>Receive Local situation from community people</i>		
11-1	GN receives local situation from community people.	
11-2	GN records the received message in log book.	
11-3	GN considers necessity to evacuate people and takes necessary action.	
Comment		
No.12 <i>Inform Local situation to ID / NBRO</i>		
10-1	GN informs local situation to ID / NBRO and asks for their advice by phone.	
10-2	GN takes necessary actions according to the advice by ID / NBRO.	
Comment		
No.13 <i>Inform Local situation to Divisional secretary</i>		
13-1	GN informs local situation to DS officer/SSO by phone.	
13-2	GN communicates with DS for necessary action such as evacuation.	
Comment		

Stage4: Evacuation Instruction is issued

SOPs		check
No.14 <i>Receive Evacuation Instruction from Divisional Secretary</i>		
14-1	GN receives evacuation instruction from DS/SSO by phone.	
14-2	GN records the received message in log book.	
Comment		
No.15 <i>GN issues Evacuation Instruction</i>		
15-1	GN issues evacuation instruction based on the collected information.	
Comment		
No.16 <i>Disseminate to Divisional secretary</i>		
16-1	GN informs evacuation instruction to SSO/DS officer.	
Comment		
No.17 <i>Disseminate to community people</i>		
17-1	GN informs evacuation instruction to community people, and instructs them to confirm local situation and take necessary actions.	
Comment		
No.18 <i>Receive Local situation from community people</i>		
18-1	GN receives local situation from community people.	
18-2	GN records the received message in log book.	
Comment		
No.19 <i>Inform Local situation to ID / NBRO</i>		
19-1	GN informs local situation to ID / NBRO and asks for their advice by phone.	
19-2	GN takes necessary actions according to the advice by ID / NBRO.	
Comment		

No.20	<i>Inform Local situation to Divisional secretary</i>	
20-1	GN informs local situation to DS officer/SSO by phone.	
20-2	GN communicates with DS for necessary action such as evacuation.	
Comment		

Appendix 4-2 IGN Users Guidance Notes

IGN User Guidance Notes:

- EOC/ DMC –

1. *IGN (Intra Government Network) is a dedicated communication line for EOC/DMC and other key agencies related to DRM.*
2. *There are 06 other agencies linked with EOC at present.*
3. *Advantage of the IGN in Disaster Early Warning / Communication*
 - a. *It is a dedicated line. Therefore, no interruptions by the busy conditions of normal communication network.*
 - b. *Information can be shared/ communication can be done as telephone calls, faxes and digital modes (visual) through Notice Board.*
 - c. *The Notice board application is password protected. Therefore, data/ information sharing is secured.*

Use of IGN Telephone:

1. It is as a usual telephone line. But, the connection is limited only among 07 agencies.
2. The calling numbers are only 03 digits.

a. EOC, Disaster Mgt. Center	- 101, 102, 103
b. Irrigation Department (ID)	- 201
c. Department of Meteorology (DOM)	- 301
d. National Building Research Organization (NBRO)	- 401
e. Sri Lanka Police (119)	- 501
f. Sri Lanka Rupavahini Corporation (SLRC)	- 601
g. Sri Lanka Broadcasting Corporation (SLBC)	-701

3. Test the connection with other agencies on daily Basis.

- **CALL TEST DAILY** – Between **0900 hrs – 0930 hours**

Test Call: “Good Morning, This is the IGN Test Call from DMC. Is Message Clear?”

Reply from Other Agency: “OK, Message Clear”. / “Sorry. Message Not Clear”

1. Lift Handset of the Phone
2. Dial the 03 Digit Number
3. If Connected, Answer the Call / If line busy or Not Answered, Re-Dial or Try Later.
4. **Record** in the IGN Testing Sheets (Provided Telephone Test Record Sheets)

Test Results	Signs for Record
Ringing and Answered /Connection OK	✓
Ringing but No Answer	✓*
No Ringing and No Answer /Connection Failed	✗

Use of IGN Fax Line:

1. It is as a usual Fax line. But, the connection is limited only among 07 agencies.
2. The Fax numbers are only 03 digits.

a. EOC, Disaster Mgt. Center	- 104
b. Irrigation Department (ID)	- 202
c. Department of Meteorology (DOM)	- 302
d. National Building Research Organization (NBRO)	- 402
e. Sri Lanka Police (119)	-502
f. Sri Lanka Rupavahini Corporation (SLRC)	-602
g. Sri Lanka Broadcasting Corporation (SLBC)	-702

3. Test the connection with other agencies on Weekly Basis.
4. Weekly Test the connection with other agencies.

- **FAX TEST WEEKLY – Between 0900 hrs – 0930 hours**
- Schedule – Each Monday - Between 0900 hrs – 1000 hours
- Test Fax Template (Attachment 01)

5. Steps of Sending Fax in IGN

- Mark the Testing Date of the Test Fax Sheet (Find Attachments and See Photo of steps)
- Put the Marked Test Sheet in Sending Drawer of the Fax Machine (See Photo)
- Lift the handset of the Fax Receiver (See Photo)
- Dial the 03 Digit Fax Number of the receiving agency (See Photo)
- Listen to the Dial Tone
- Once Fax Tone comes, Press Button for Send the Fax (See Photo)
- After Sending the Fax, Confirm the receipt of the Fax from the Receiver Agency
- Record in the IGN Fax Testing Sheets- Fax Test

Test Results	Sign for Record
Ringling; Fax Completed /Connection OK	✓
Ringling but Fax Not Completed/ Technical Fault	✓*
No Ringling and Fax Not Completed /Connection Failed	✗

6. Steps of Receiving Fax from IGN

- Always put Minimum 10 Blank A4 Sheets in Receiving Drawer of the Fax machine.
- Always keep the Fax Machine in “Auto Fax Mode”
- After Fax received, confirm the sender.

7. Both Sending & Receiving Faxes need to be submitted to Duty Officer

8. They need to be confirmed by the Duty Officer.

Use of IGN Notice Board:

1. IGN Notice Board is a computer based network to link and data sharing among all linked agencies.
2. All 07 Agencies can “Log- In” the Network.
3. They can Upload Announcements/ Updates/ Situation Reports/ Warning Messages/ Photos/ Data Sheets and Display/ Share them among the linked agencies
4. IGN Agencies can download the information in the network.

- How to Do?

1. Enter in to the Notice Board Window
 - a. Open your web browser and type following link

<http://192.168.1.200>

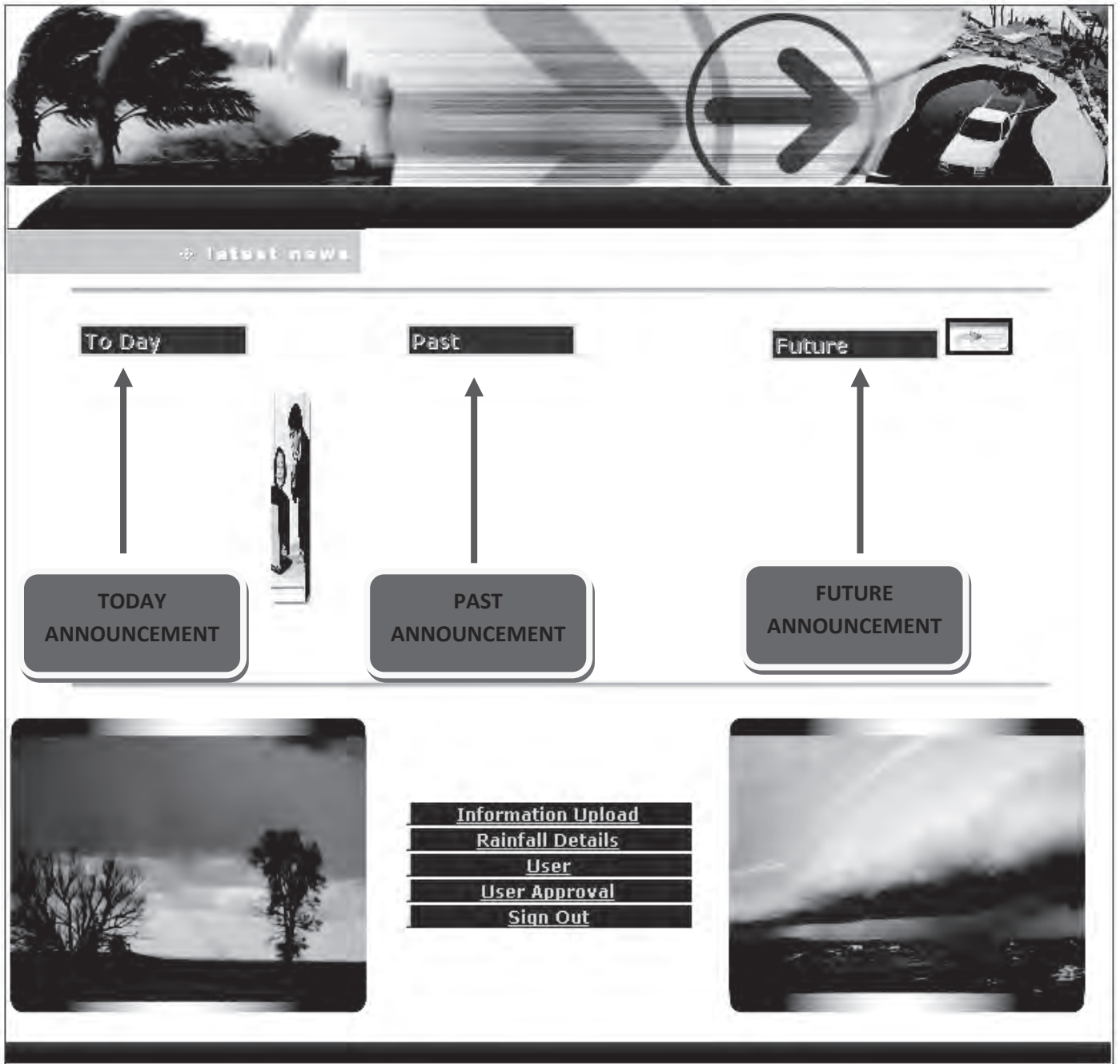


2. Log –In using User Name and Password

a. DMC will provide user name and password for each agency



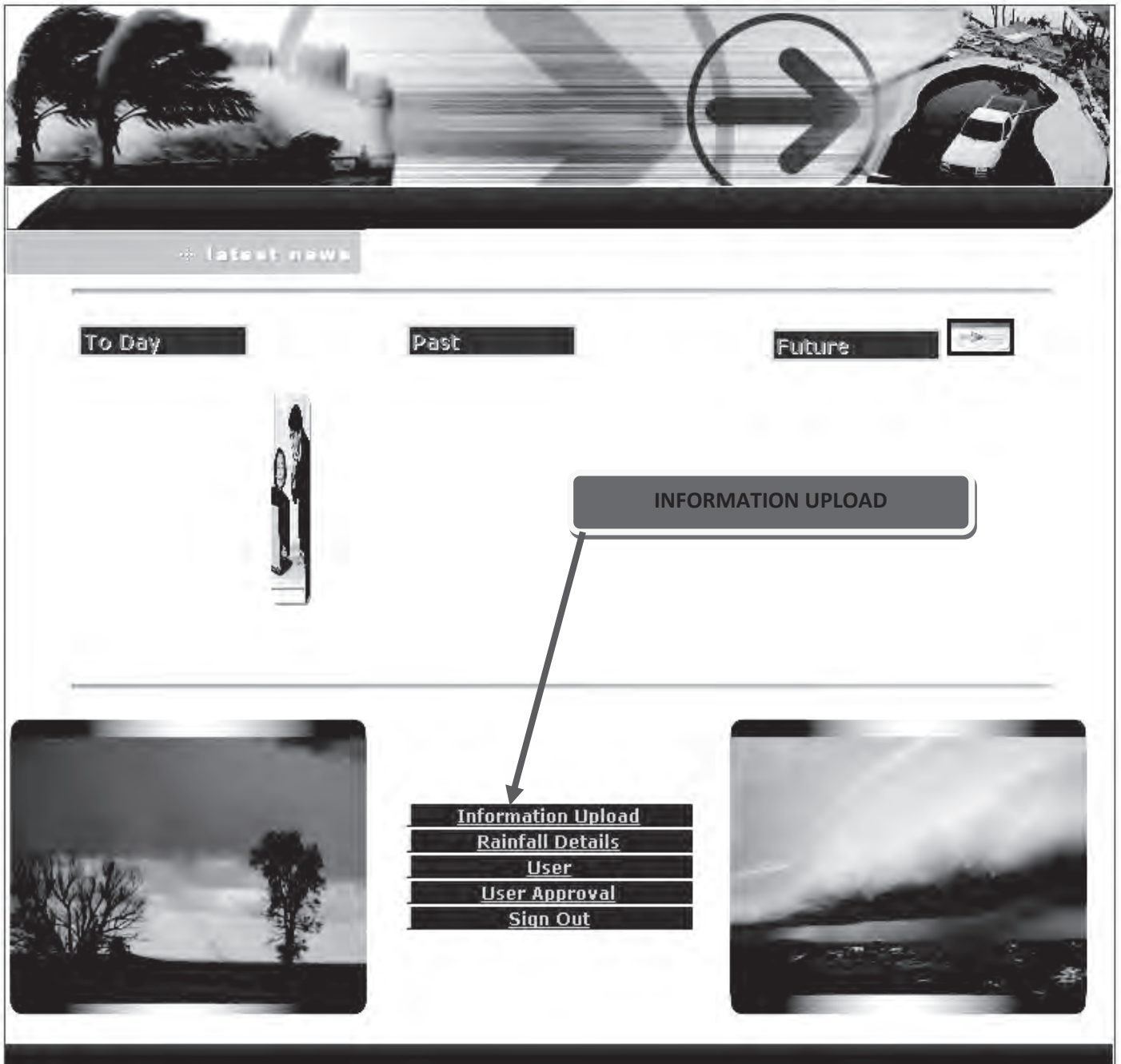
3. See the Updates – Past and Future announcements by each agency



4. Uploading Procedure:

Daily Updates are needed to continuous use of the notice board.

Click on the information upload tab in the home page



You will get the following screen.



Information Upload

Type: 0/18/2012 11:49:24

Comment:

Priority: Very urgent Less urgent Normal

Expected Date & Time: Time - 00.00 (24 hr format)

Attachment:

If there is a flood or any other, the format has listed them for easy selection.



Information Upload

Type: 0/18/2012 11:49:24

Comment:

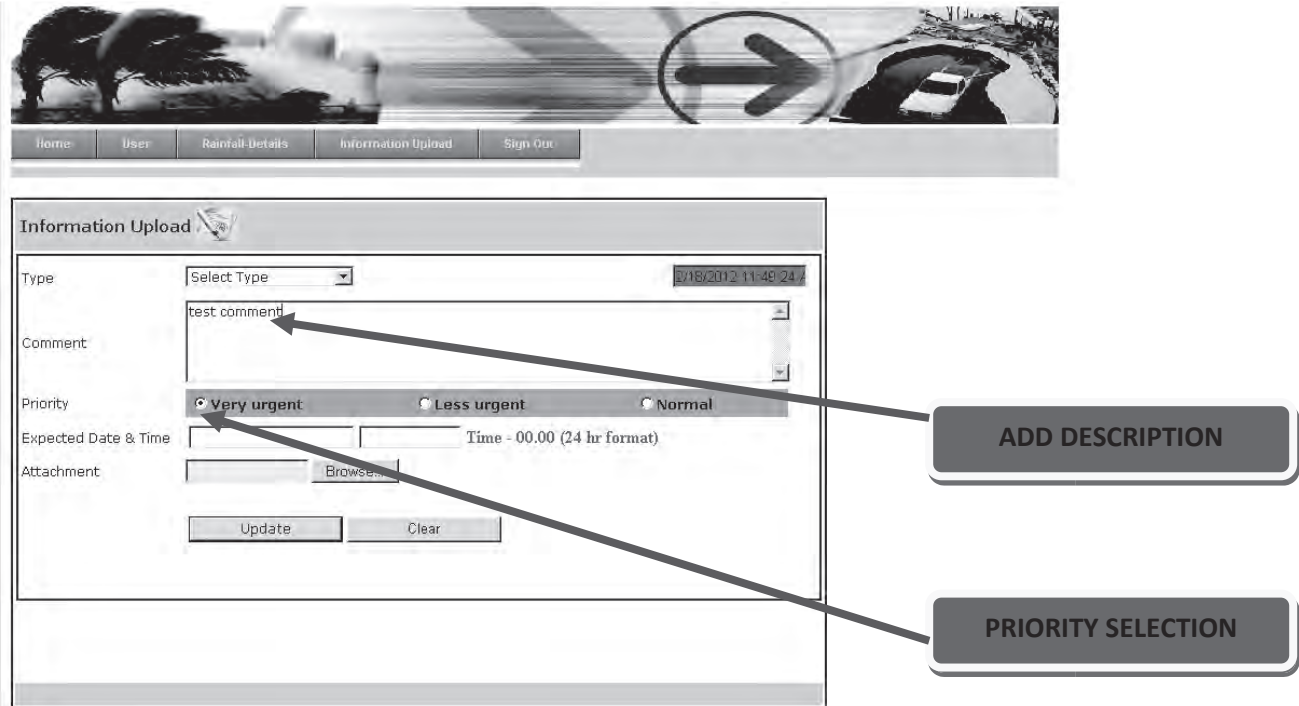
Priority: Very urgent Less urgent Normal

Expected Date & Time: Time - 00.00 (24 hr format)

Attachment:

SELECT TYPE

After selecting the type of Disaster you can add the relevant description under comments. Select it is urgent or not under priority.



The screenshot shows the 'Information Upload' form with the following fields and options:

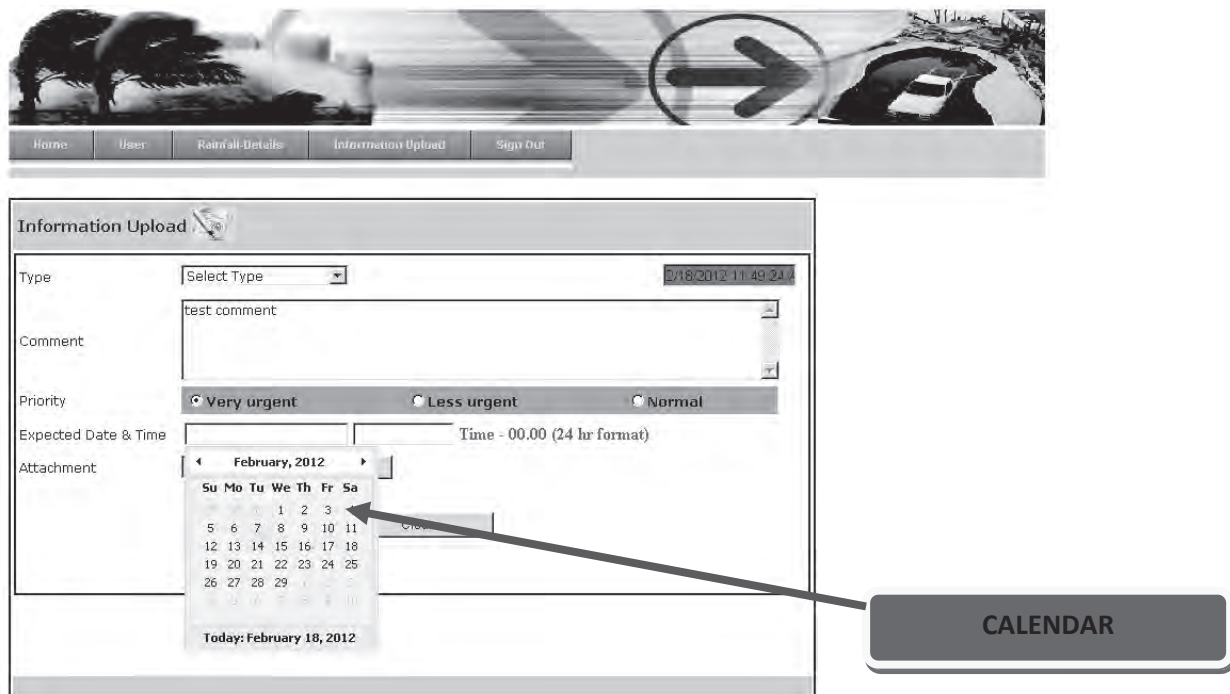
- Type: Select Type (dropdown)
- Comment: test comment
- Priority: Very urgent, Less urgent, Normal
- Expected Date & Time: [] Time - 00.00 (24 hr format)
- Attachment: [] Browse...
- Buttons: Update, Clear

Callouts point to the 'test comment' field and the 'Very urgent' radio button.

ADD DESCRIPTION

PRIORITY SELECTION

Select Expected Date and Time from the calendar



The screenshot shows the 'Information Upload' form with a calendar callout for the 'Expected Date & Time' field.

Calendar: February, 2012

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29			
1	2	3	4	5	6	7

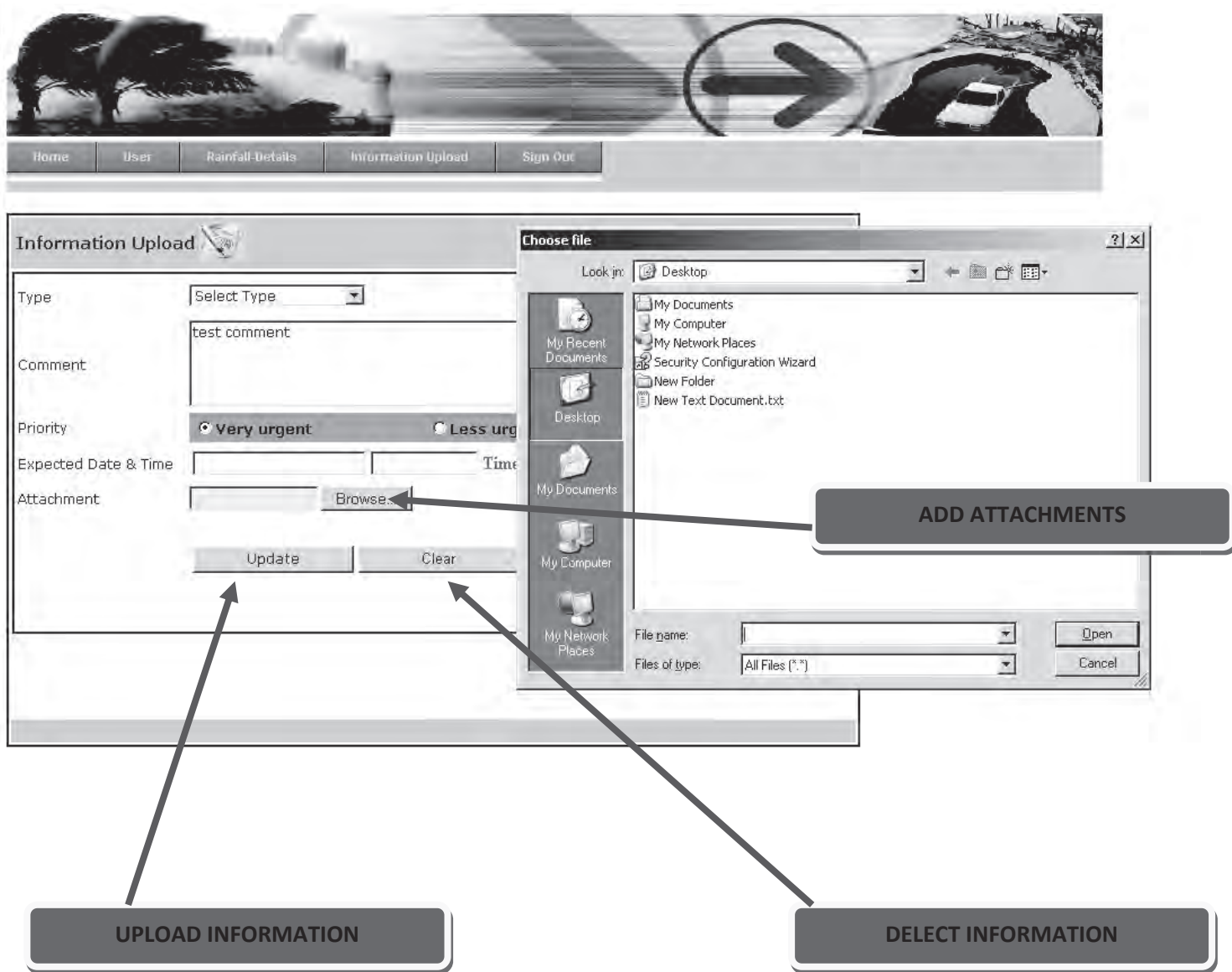
Today: February 18, 2012

Callout: **CALENDAR**

You can attach any support documents in Excel, Word, PDF and JPG format by click on Browse button under Attachment.

If the information is correct click upload button

If the information is incorrect press clear button



If there is no Disaster information, Upload, "No Disaster Events Reported as at.....AM/PM

5. Downloading Procedure:
 - a. At the Moment download is not allowed with the application and with future requirement it will be inbuilt to the system
6. If a message is wrong, how to change and re -send:
 - a. Before upload you can use clear tab to delete the incorrect information.
 - b. If you have found that the message is incorrect after you have upload the information you have to contact system administrator (who will assign by EOC and DMC) and inform to delete the message. Mean time you can create new message with correct information and upload to the system. If you want you can add comment to inform that previous message is incorrect and make the correct message with high priority.
7. How to delete a message:
 - a. Once the Message has been upload only the system administrator can delete the message due to security reasons.
8. If some message in the notice board found new/ urgent, immediately confirm with the agency and report to Duty Officer.


9. Additional Information

You can view additional information (eg rainfall data) by click on relevant tab in the home page



Past 48 hours rainfall data from Department of Metrology



Rainfall-Details 																										
Anuradhapura																										
Date\Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	
2/17/2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2/18/2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Badulla																										
Date\Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	
2/17/2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2/18/2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Batticaloa																										
Date\Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	
2/17/2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2/18/2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Colombo																										
Date\Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	
2/17/2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	270	285	
2/18/2012	120	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	125	
Bandarawela																										
Date\Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	
2/17/2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

IGN – FAX TEST

AGANCY:

YEAR:

Month			
Week -01	Date:		<input style="width: 40px; height: 20px;" type="text"/>
Week - 02	Date:		<input style="width: 40px; height: 20px;" type="text"/>
Week -03	Date:		<input style="width: 40px; height: 20px;" type="text"/>
Week - 04	Date:		<input style="width: 40px; height: 20px;" type="text"/>
Week -05	Date:		<input style="width: 40px; height: 20px;" type="text"/>

Month			
Week -01	Date:		<input style="width: 40px; height: 20px;" type="text"/>
Week - 02	Date:		<input style="width: 40px; height: 20px;" type="text"/>
Week -03	Date:		<input style="width: 40px; height: 20px;" type="text"/>
Week - 04	Date:		<input style="width: 40px; height: 20px;" type="text"/>
Week -05	Date:		<input style="width: 40px; height: 20px;" type="text"/>

*Appendix 4-3 Evaluation Report on Information Transfer
Exercise on Flood and Landslide (2 October
2012) (Draft)*

Evaluation Report
on
Information Transfer Exercise on Flood and Landslide
(2 October 2012)
(Draft)

November 2012

JICA Expert Team

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1 Outline of the Exercise

1.1 Background

By the previous JICA Study, the information transfer exercises were introduced in 2007 and 2008 to practice on flood and landslide scenarios. Since it was the first experience to DMC, JICA Team and DMC had a number of preparatory meetings, and they were totally organized by JICA Team.

However, DMC utilized the experience of these exercises and started to conduct the exercise for Tsunami in 2009. Since then, DMC has been continuing the tsunami exercise by themselves. It is very much worthwhile and admirable step by DMC.

In the DiMCEP, the exercise for flood and landslide was re-introduced. The key objective of this activity is to continue the exercise for flood and landslide by own initiative of DMC like an exercise for tsunami, and to make DMC understand the importance to review the manual or SOPs based on the result of exercise even for Tsunami.

For this purpose, JICA team expected DMC for more voluntary and active involvement in all steps from preparation to the final evaluation.

1.2 Objective

According to the last small exercise conducted in 2011, two key findings were identified and highlighted. One of them is that some landslide and flood information issued by technical organization was not disseminated to people properly. (Sometimes it is ignored or neglected) The other finding is that the ground information, such as occurrence of disaster or rainfall amount etc., is very effective for emergency operations. It should be informed to technical organizations for more accurate warning issuance and to DMC and other relevant agencies for an appropriate response. Therefore, in this time, objectives of the exercise were to prepare, confirm, and revise the manual and SOPs of all the participant organizations to improve the above early warning and information transfer mechanism.

There is another objective for DMC as is written in 1.1. JICA team expects DMC to know the methodology to do the exercise in the future continuously by learning from the experience of this exercise. Therefore, JICA team has strongly requested DMC to dispatch the relevant officers to preparatory meetings so that they can know the process and explain to local level organizations.

1.3 Outline of the Exercise

(1) Style of the Exercise

There are many methods (routes) to disseminate information (Fig.1). This time, simple scenario was set for the exercise to clarify the issues for the selected method. If the effectiveness of the selected method shall be checked in the exercise, other methods should not be used. Otherwise, the evaluation of the selected method cannot be conducted.

In this exercise, only phone and fax were selected for communication. Therefore, no other

(2) Participants

The information transfer exercise was conducted with DMC, Department of Meteorology (DOM), Irrigation Department (ID), National Building Research Organization (NBRO). Additionally, Nuwara Eliya, Ratnapura and Kalutara districts were selected as pilot districts and following DS and GN of each district also participated to the exercise.

Table 1 Participant Local Level Organizations

District	DS	GN
Nuwara Eliya	Wallapane	Landupitha
Ratnapura	Kollona	Ranhotikanda
Kalutara	Millaniya	Paathakada

Communities from Landupitha GN and Ranhotikanda GN conducted the evacuation drill in connection to this exercise.

(3) Schedule

JICA team started the preparation of the exercise from middle of September. They visited each district and DS office and held the preparation meetings with relevant officers before the exercise. GA and/or his subsidiary, AD of DDMCU and/or his staffs, and DS and/or his subsidiary, SSO and GN participated in these meetings

Additionally, the evaluation meeting of the exercise was held in Colombo with relevant officers including those from pilot districts.

Table 2 Schedule of Exercise

Date	Activity
17 th September	Preparation Meeting in DMC
24 th September	PM: Preparation Meeting in Walapane DS
25 th September	AM: Preparation Meeting in Nuwara Eliya District
26 th September	AM: Preparation Meeting in Ratnapura District PM: Preparation Meeting in Kollona DS
27 th September	AM: Preparation Meeting in Millaniya DS AM: Preparation Meeting in Kalutara District
28 th September	Preparation Meeting in DOM, NBRO and ID
1 st October	Preparation Meeting in DMC
2 nd October	Information Transfer Exercise
5 th October	Evaluation Meeting

(4) Phases

The exercise was divided to the five phases based on the actions to be taken by each participating organizations. Description of each phase is as follows.

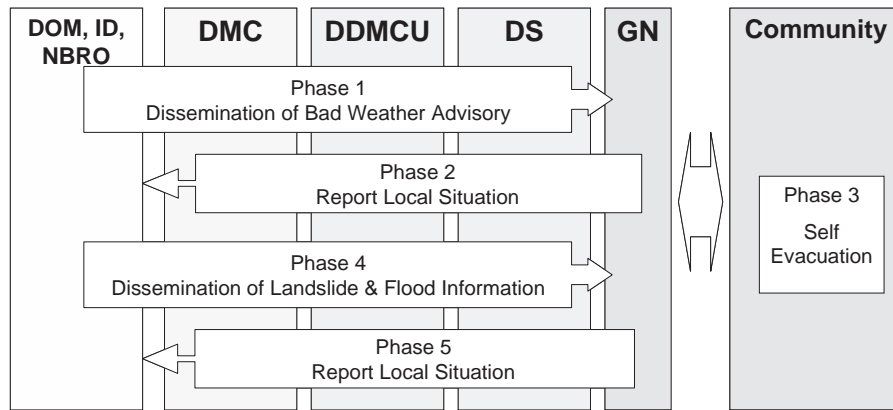
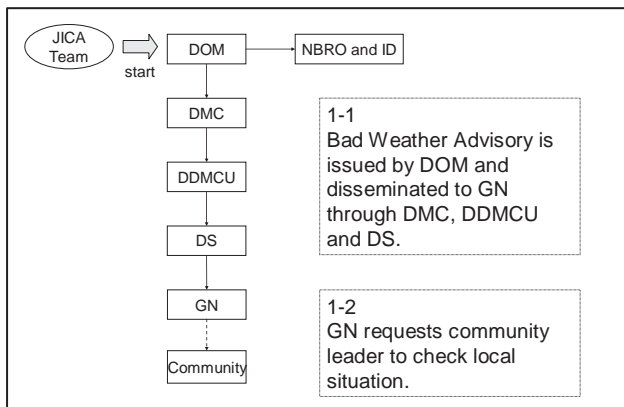


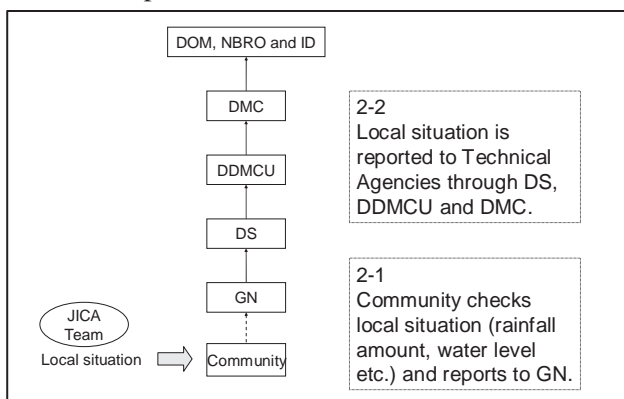
Fig. 2 Phases of Exercise

Phase 1: Dissemination of Bad Weather Advisory



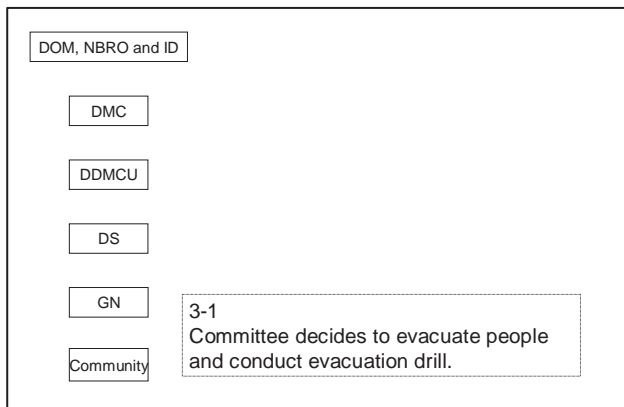
DOM issues Bad Weather Advisory (BWA) and disseminates it to DMC, ID and NBRO by fax. After receiving BWA, DMC disseminates BWA to DDMCU by fax and phone. DDMCU transfers BWA to DS by fax and phone. DS informs BWA to GN by phone. GN disseminates BWA to communities and requests community to check local situation.

Phase 2: Report Local Situation



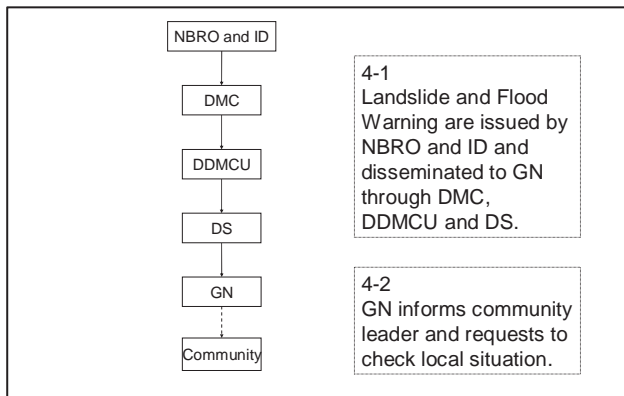
Community checks local situation such as rainfall amount and water level etc. (JICA team provides such information) and report to GN by phone. The local situation is delivered to DOM, NBRO and ID through GN, DS, DDMCU and DMC by phone.

Phase 3: Self Evacuation by Community



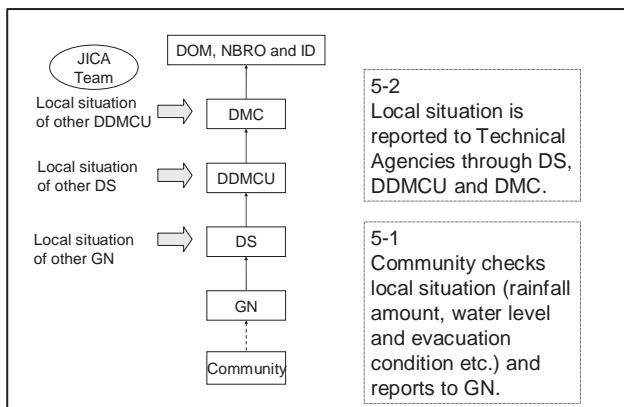
Community level disaster management committee decides to evacuate people and conduct evacuation drill in the community.

Phase 4: Dissemination of Flood and Landslide Information



ID and NBRO issue flood and landslide warning and disseminate to DMC by fax. After receiving warnings, DMC disseminates them to DDMCU by fax and phone. DDMCU transfers them to DS by fax and phone. DS informs to GN by phone. GN informs to communities and requests community to check local situation.

Phase 5: Report Local Situation



Community checks evacuation situation (JICA team provides such information) and report to GN by phone. The local situation is compiled and delivered to DOM, NBRO and ID through GN, DS, DDMCU and DMC by phone and fax.

(5) Staffing

Members of JICA team and DMC and DDMCU staffs were dispatched to the participant local organizations including communities as evaluators.

Table 3 Name of Evaluators

Organizations	JICA team	DMC / DDMCU
DMC	Uchikura	Colombo
Nuwara Eliya DDMCU	Yamamoto	
Walapane DS	Aoki	
Landupita GN	Kitazawa	Pradeep
Ratnapura DDMCU	Takamatsu	Chutra
Kollona DS	Okuno	
Ranhotikanda GN	Matsumaru	Palitha
Kalutara DDMCU	Arai	Soori
Millaniya DS	Tsukamoto	Hiran
Paathakada GN	Priyanga	-

2 Result and Evaluation of the Exercise

2.1 Result and Evaluation by Phases

(1) Phase 1

General

At Phase 1, communication by phone was smoothly conducted. However, it took time to transfer information by fax. If the reliability of the fax is low, it shall be discussed how to confirm the contents of information without fax. Additionally, information transfer to non participating organizations was observed. Since it may cause panic to those organizations, information shall be disseminated correctly and surely according to the defined scenario of exercise.

Details

DOM started dissemination of BWA at 14:00 by using fax of Intra-Government Network (IGN) which was instructed to use in the exercise. On the other hand, Kegalle District was included as warned area in BWA which was not selected as the area for the exercise. In addition, "Exercise Purpose Only" was not described in BWA. It took some time for DMC to receive BWA by fax of IGN because of unfamiliarity with IGN.

DMC received BWA from DOM at 14:10. DMC called DOM to inform the receipt of BWA and circulated BWA internally, and informed the situation to ID and NBRO by phone. EOC officers pasted the message of BWA on DMC letter format effectually and sent it to DDMCUs by fax from 14:17. Although it was not mentioned in the exercise scenario, DMC sent fax to ID, NBRO and Kegalle DDMCU, used DEWN and informed it to the officer who took a role as media.

Ratnapura DDMCU received BWA from DMC at 14:19 by phone and 14:29 by fax. DDMCU typed the contents of BWA in their own letterhead and signed, and transferred it to Kollona DS by phone and fax. Kollona DS received BWA at 15:07 by phone and at 15:39 by fax. Kollona DS transferred the information to Ranhotikanda GN.

Ranhotikanda GN received BWA at 14:44 by phone. The information transfer from DOM to GN took 44 minutes by phone, and it took 1 hour 39 minutes from DOM to DS by fax .

Nuwara Eliya DDMCU received BWA by phone and fax between 14:23 to 14:35. DDMCU transferred BWA to Walapane DS at 14:32 by phone. Walapane DS informed BWA to Landupita GN at 14:45 by phone. Therefore it took 45 minutes to transfer BWA from DOM to GN in Nuwara Eliya. Since the fax of Walapane DS was out of order, the BWA was transferred only by phone.

Kalutara DDMCU received BWA at 14:26 by fax and transferred BWA to Millaniya DS at 14:30 by fax. Millaniya DS received BWA from DDMCU at 14:37 by fax and transferred the BWA to Paathakada GN at 14:46 by phone. Paathakada GN recorded that they received the BWA from Millaniya DS at 14:48 by phone. Therefore it took 48 minutes to transfer BWA from DOM to GN in Kalutara.

Table 4 Time of Information Transfer on Phase 1

Phase 1		Phone		FAX	
		Received	Sent	Received	Sent
National	DOM	-	***	-	14:00
	DMC	***	***	14:10	14:17
Ratnapura	DDMCU	14:21	14:46	14:29	***
	DS	14:46	14:49	15:07	-
	GN	14:49	-	-	-
Nuwara Eliya	DDMCU	14:23	14:32	14:35	×
	DS	14:32	14:45	×	-
	GN	14:45	-	-	-
Kalutara	DDMCU	***	***	14:26	14:30
	DS	***	14:46	14:37	-
	GN	14:48	-	-	-

“ - ”: no defined action, “***”: time was not recorded, “×”: action was not conducted

(2) Phase 2

General

At phase 2, local information was not transferred to NBRO and ID through DMC as planned in the exercise. It should be understood that even small incidents shall basically be informed to technical organizations and such information will help technical organizations to issue more accurate warning.

Details

In Ratnapura, Ranhotikanda GN reported local situation to Kollona DS at 14:49 by phone. Kollona DS informed the local situation to DDMCU at 15:15 by phone. However, DDMCU did not receive any local situation report from Kollona DS. Therefore the transfer of local situation report was stopped at DS level in Ratnapura.

In Nuwara Eliya, Landupita GN transferred local situation report to Walapane DS by phone at 15:30. Walapane DS transferred local situation to DDMCU at 15:37 by phone. DDMCU transferred local situation to DMC by phone. However, time of the transfer to DMC and the contents of information were not clearly recorded.

In Kalutara, Paathakada GN transferred local situation report to Millaniya DS at 14:55 by phone. Millaniya DS transferred the local situation report to DDMCU at 15:05 by phone. DDMCU transferred the local situation report to DMC at 15:11 by phone. However, time of the transfer to DMC and the contents of information were not clearly recorded. The transfer from GN to DMC took 16 minutes.

Although DMC might receive some local situation from DDMCUs, this information was not properly disseminated to the technical organizations due to the lack of understanding of the exercise scenario. Because of this, the technical organizations could not issue warnings at proper timing at Phase 4.

Table 5 Time of Information Transfer on Phase 2

Phase 2		Phone		FAX	
		Received	Sent	Received	Sent
Ratnapura	GN	-	14:50	-	-
	DS	14:50	15:15	-	×
	DDMCU	×	×	×	×
National	DMC	×	×	×	×
	ID/NBRO	×	-	×	-
Nuwara Eliya	GN	-	14:56	-	-
	DS	14:56	15:08	-	×
	DDMCU	15:08	×	×	×
National	DMC	×	×	×	×
	ID/NBRO	×	-	×	-
Kalutara	GN	-	14:55	-	-
	DS	14:55	15:05	-	×
	DDMCU	15:05	15:11	×	×
National	DMC	15:11	×	×	×
	ID/NBRO	×	-	×	-

“-”: no defined action, “***”: time was not recorded, “×”: action was not conducted

(3) Phase 3

At phase 3, community people conducted evacuation drill very well. Although “Self Evacuation” was set as the scenario of this exercise, there were several opinions such that community people can not decide evacuation by themselves and community people sometimes evacuate only to receive relief goods and foods etc. It has to be discussed how to deal with

“Self Evacuation” among related organizations.

(4) Phase 4

General

At Phase 4, the warning messages were not issued based on the scenario of exercise, since this phase was planned to be conducted after the phase 2. The technical organizations supposed to issue warnings based on the local situation reported from the community at the phase 2. However, the local situation was not reported to the technical organizations properly. Under this situation, the warning messages were not disseminated properly to some organizations and communities.

Details

DMC received landslide warning issued by NBRO at 15:29 by fax and EOC officers pasted the message of landslide warning on DMC letter format effectually. DMC disseminated it to Ratnapura and Nuwara Eliya DDMCU. In addition, DMC also disseminated it to Kalutara DDMCU which was not designed in the exercise scenario. At the same time, DMC received the flood warning issued by ID at 15:23 by fax. DMC sent this flood warning to Kalutara DDMCU at 15:45 by fax. In addition, DMC also disseminated it to Ratnapura DDMCU which was not designed in the exercise scenario.

Ratnapura DDMCU received the landslide warning at 15:45 by fax. It is also recorded that they received the flood warning issued by ID at 15:47 from DMC. DDMCU sent the landslide warning to Kollona DS at 16:27 by fax. Kollona DS received the fax at 16:30, though it is not recorded that they transferred the landslide warning to Ranhotikanda GN. Therefore the dissemination of landslide warning in Ratnapura District stopped at DS level.

Nuwara Eliya DDMCU received the landslide warning from DMC at 16:40 by fax. They transferred the landslide warning to Walapane DS at 16:50 by phone. Walapane DS received the landslide warning, though they were not able to transfer it to Landupita GN since it was too late to send any information to GN.

Kalutara DDMCU received the flood warning from DMC at 16:07 by fax and transferred the warning to Millaniya DS at 16:07 by phone. Millaniya DS received the flood warning from DDMCU Kalutara at 16:30 by fax, though it is not recorded that they transferred the landslide warning to Paathakada GN. It is recorded that GN received the flood warning at 15:08, however GN seems not received the flood warning at this time because the received time is one hour before the receipt of warning by Kalutara DDMCU.

Table 6 Time of Information Transfer on Phase 4

Phase 4		Phone		FAX	
		Received	Sent	Received	Sent
National	DOM	-	***	-	14:00
	DMC	***	***	14:10	14:17

Phase 4		Phone		FAX	
		Received	Sent	Received	Sent
Ratnapura	DDMCU	14:21	14:46	14:29	***
	DS	14:46	14:49	15:07	-
	GN	14:49	-	-	-
Nuwara Eliya	DDMCU	14:23	14:32	14:35	×
	DS	14:32	14:45	×	-
	GN	14:45	-	-	-
Kalutara	DDMCU	***	***	14:26	14:30
	DS	***	14:46	14:37	-
	GN	14:48	-	-	-

“-”: no defined action, “***”: time was not recorded, “×”: action was not conducted

(5) Phase 5

General

At phase 5, it took time to compile local situation such as number of affected people and evacuated people etc., since actions to compile local situation provided by JICA team were not understood properly by participant organizations. And the result of compilation which was given by the last situation report prepared by DMC was not correct. It shall be trained to compile local situation correctly and quickly.

Table 7 Result of Situation Report by DMC and Pre-Prepared Information by JICA Team

■DMC situation report(Final?)

		Affected		Death	Injured	missing	Houses Damaged		Evacuation Centre		
		Families	People				Fully	Partially	Nos.	Families	Persons
Kalutara	Millaniya	90	205			8				117	275
	Bulath Sighala	114	555		19			16	4	50	220
	Sub-total	204	760	0	19	8	0	16	4	167	495
Ratnapura	Kalawana	78	359	7	18		5	3	3	116	244
	Kolonna	42	98	3			5	3	1	42	98
	Sub-total	120	457	10	18	0	10	6	4	158	342
Nuwara Eliya	Walapane	30	188	5	13		3	7	3	24	165
	Abagamuwa	57	250	8	27		4	12	3	125	216
	Sub-total	87	438	13	40	0	7	19	6	149	381
Grand total		411	1,655	23	77	8	17	41	14	474	1,218

■Pre-prepared information by JICA

※Landupita GN and Ranhotikanda GN situation reports are based on the evacuation drill results

※Missing people were not assumed

		Affected		Death	Injured	missing	Houses Damaged		Evacuation Centre		
		Families	People				Fully	Partially	Nos.	Families	Persons
Kalutara	Millaniya	126	593	0	28	0	1	49	5	56	272
	Bulath Sighala	142	691	0	24	0	2	43	6	69	307
	Sub-total	268	1,284	0	52	0	3	92	11	125	579
Ratnapura	Kalawana	78	359	7	18	0	5	19	3	58	244
	Kolonna	86	298	4	10	0	7	12	3	72	225
	Sub-total	164	657	11	28	0	12	31	6	130	469
Nuwara Eliya	Walapane	30	203	5	13	0	3	7	3	24	165
	Abagamuwa	57	250	8	27	0	4	12	3	48	216
	Sub-total	87	453	13	40	0	7	19	6	72	381
Grand total		519	2,394	24	120	0	22	142	22	327	1,429

Details

In Ratnapura, Ranhotikanda GN transferred the local situation to Kollona DS at 15:25. Kollona DS recorded that they received the local situation from GN at 16:30. Kollona DS transferred the local situation to DDMCU at 16:49 by phone. DDMCU transferred the local situation to DMC at 16:58 by fax.

In Nuwara Eliya, Landupita GN transferred local situation to Walapane DS at 15:30 by phone. Walapane DS transferred the local situation to DDMCU at 15:37 by phone. DDMCU transferred the local situation to DMC at 17:00 by phone.

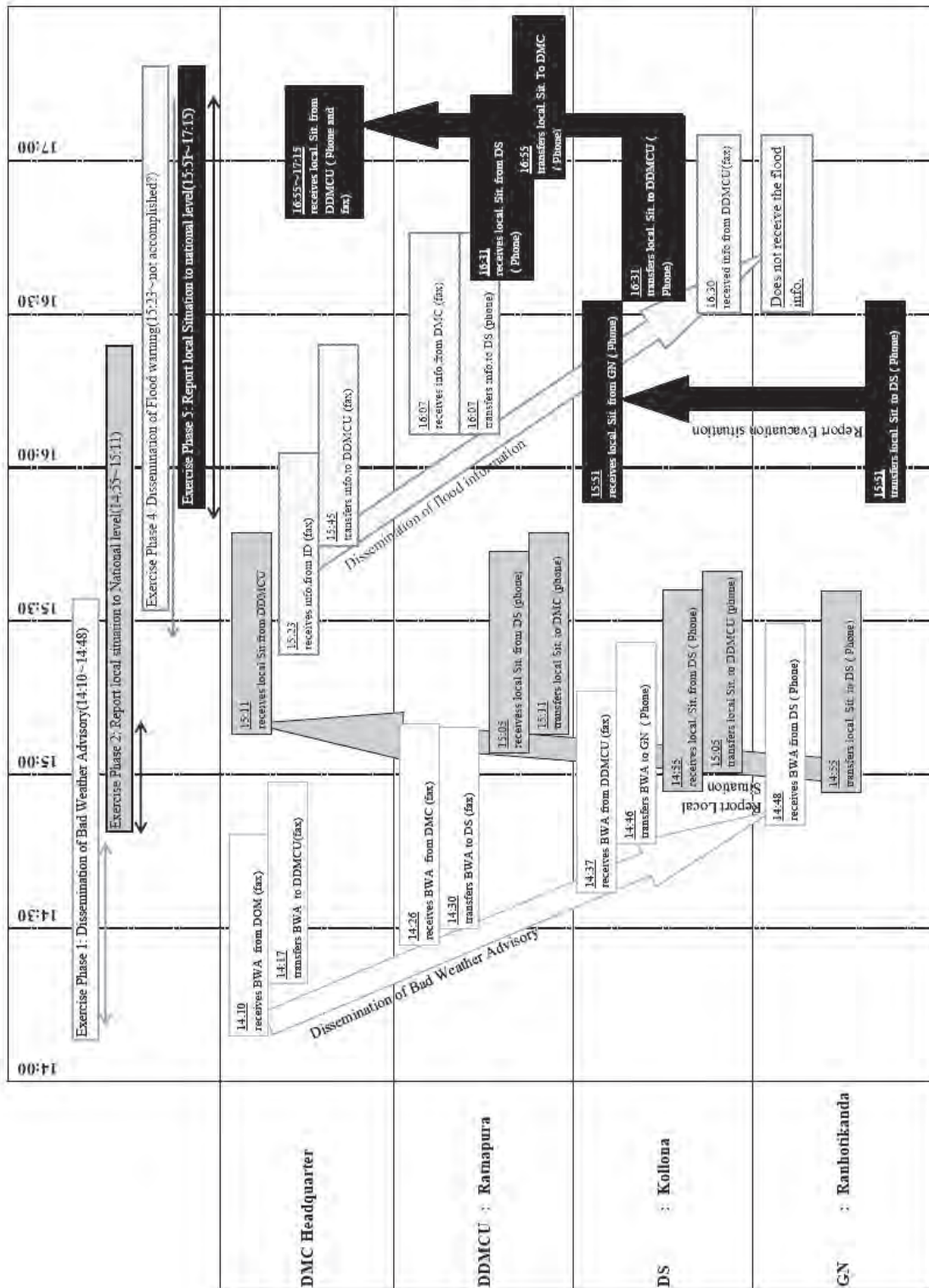
In Kalutara, Paathakada GN transferred local situation to Millaniya DS at 15:51. They also reported the situation of evacuation by community at the same time. Millaniya DS transferred the local situation to DDMCU at 16:31 by phone. DDMCU transferred the local situation to DMC at 16:55 by phone.

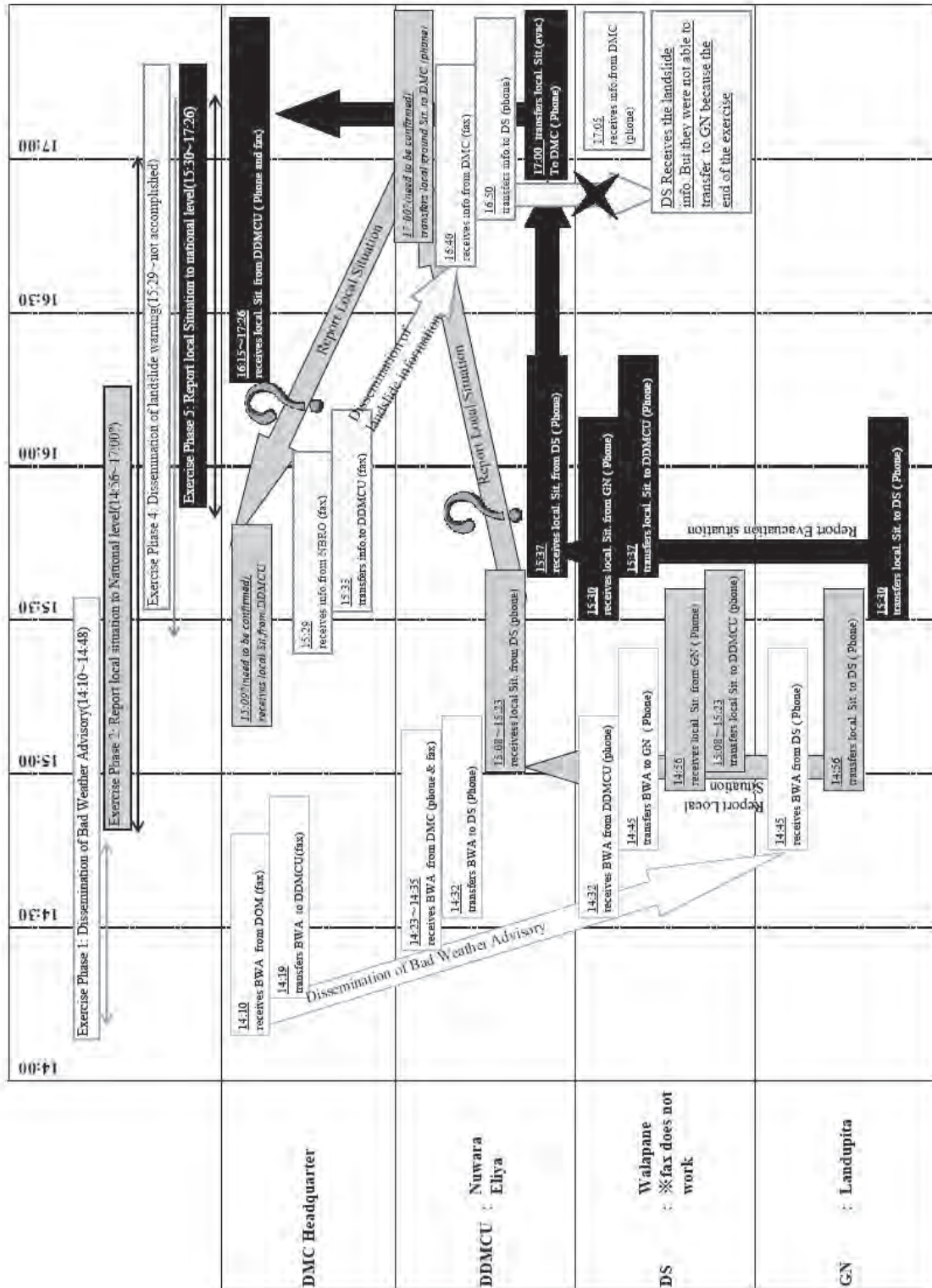
DMC received the local situation from Kalutara DDMCU at 17:15, from Ratnapura DDMCU at 17:20, and from Nuwara Eliya DDMCU at 17:26. DMC compiled the local situations from three DDMCU, and prepared the situation report at 19:30.

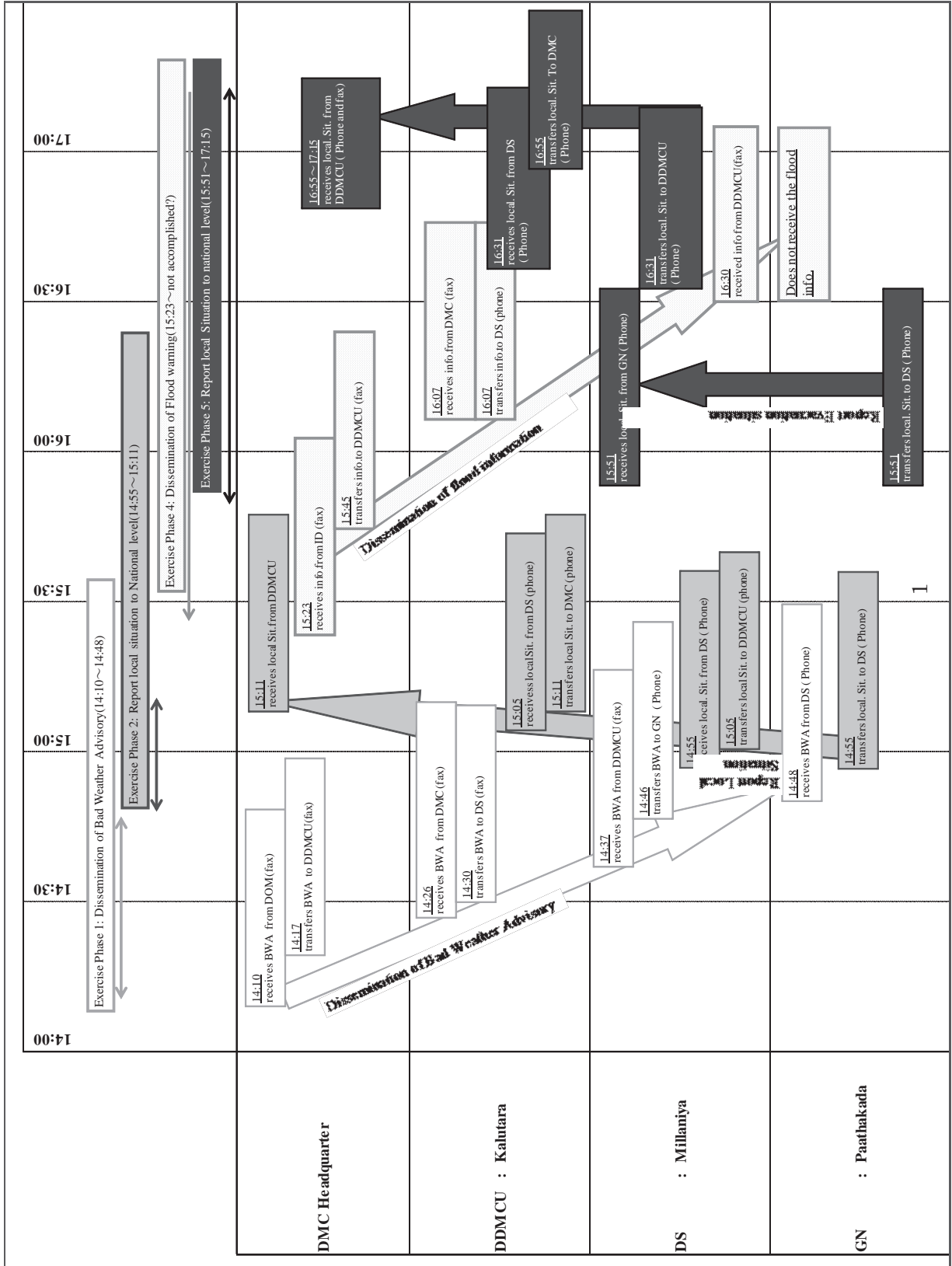
Table 8 Time of Information Transfer on Phase 5

Phase 5		Phone		FAX	
		Received	Sent	Received	Sent
Ratnapura	GN	-	15:25	-	-
	DS	16:30	16:49	-	***
	DDMCU	16:49	***	16:54	16:58
National	DMC	***	-	17:15	-
Nuwara Eliya	GN	-	15:30	-	-
	DS	15:30	15:37	-	***
	DDMCU	15:37	17:00	***	***
National	DMC	***	-	17:26	-
Kalutara	GN	-	15:51	-	-
	DS	15:51	16:31	-	***
	DDMCU	16:31	16:55	***	***
National	DMC	16:55	-	17:15	-

“ - ”: no defined action, “***”: time was not recorded, “×”: action was not conducted







2.2 Result and Evaluation by Organizations

(1) Department of Meteorology

BWA issued by DOM is shown below. DOM used the same format as always used. Although BWA is normally issued on province basis, it was realized that BWA could be issued on district basis according to the interview survey. Thus, for this exercise, BWA was issued on district basis.

There are two issues on the contents of message. One is that Kegalle district was included for warned area in addition to the target districts defined for exercise. DMC disseminated BWA to Kegalle district due to this message. The other one is that BWA sent to DMC did not mention that it was only for exercise purpose. We should be aware that the materials for exercise mention that they are only for exercise.

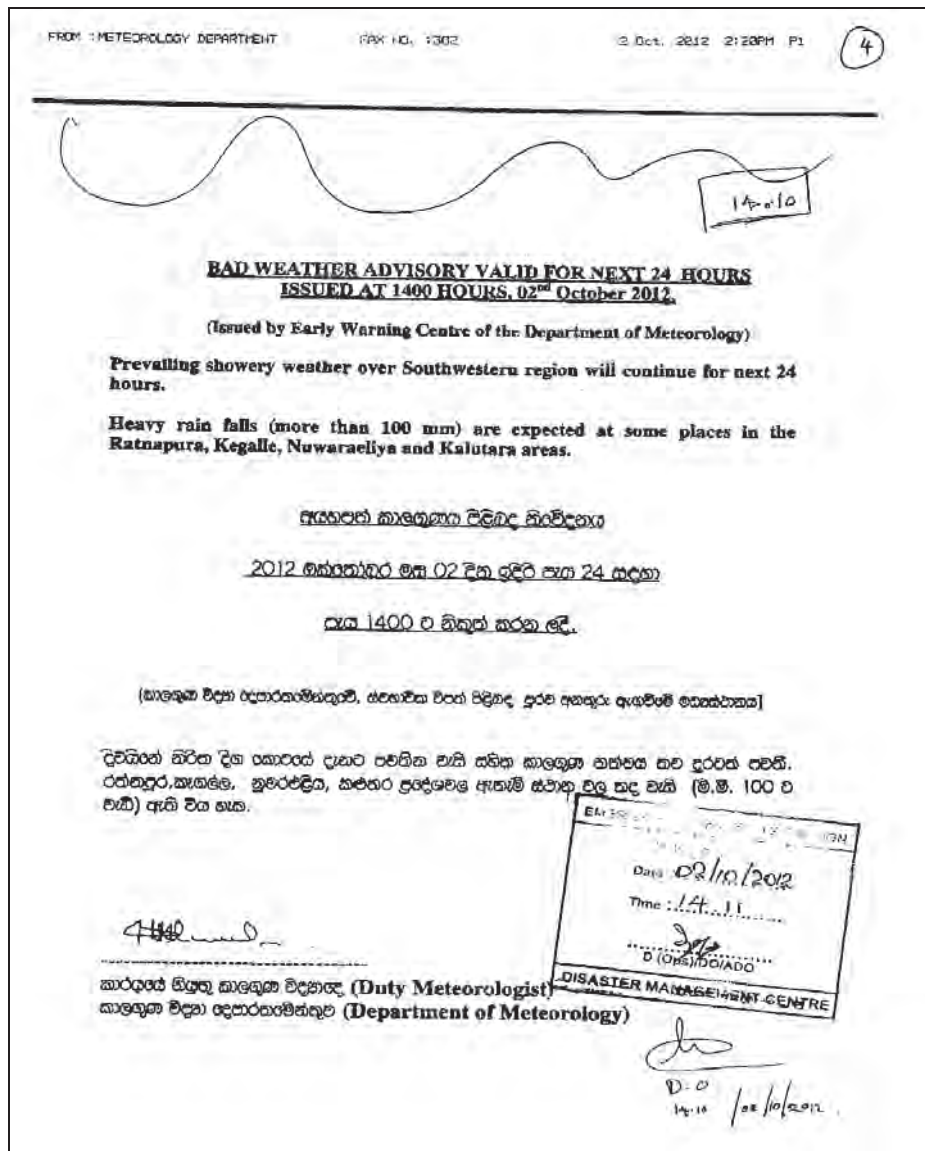


Figure 3 BWA issued by DOM

As instructed before the exercise, phone, fax and Notice Board of IGN were tried to use, though it took time to send fax and failed to upload the information on the Notice Board. One of the reasons is unfamiliarity with IGN, and the other reason is the technical problem of IGN.

Although the SOPs for issuing warning of Tsunami and Cyclone exist, there is no SOP for BWA in DOM. JICA team recommended the preparation of SOP for BWA.

(2) NBRO

SOP only for this exercise was prepared in advance. NBRO was so well-prepared that phone, fax and notice board of IGN were used effectively, though there was a technical problem with IGN. NBRO officers at Nuwara Eliya and Rathnapura were also instructed in advance and conducted activities properly to support community activities.

Landslide warning issued by NBRO is shown below. The contents of message are following the defined rules of exercise.

010 3012 10:29 FAX 94+11+2502811 N.B.R.O.

15.29
9

Sample Landslide Warning Message (For exercise only):
නායයන්ගේ අනතුරු ඇතිවීමේ අවකාශය (අනායය හදිසිය පිළිබඳව)

Nature of warning අනතුරු ඇතිවීමේ අවකාශය		If the rain continues within next 24 hours, be alert on the possibility of landslides and cut slope failures. විදේශගතය අවසර 24 පැයක් තුළදී වර්ෂාව අතිශය වැසීම හේතු වශයෙන් පිළිවෙල වෙනස් වීම. Locations of potential risk නායයන්ගේ අවකාශය වැඩිවිය හැකි ප්‍රදේශ	
District රාජ්‍යය	Administrative Division ප්‍රාදේශීය ලේකම් කොට්ඨාසය	Graine Sect Division ග්‍රාමීය ලේකම් කොට්ඨාසය	Slopes of elements at risk of need special attention විදේශගතය අවසර 24 පැයක් තුළදී වර්ෂාව අතිශය වැසීම හේතු වශයෙන් වැඩිවිය හැකි ප්‍රදේශ
Ratnapura රත්නපුර	Kolonna කොළඹ	All GN Divisions සියලුම ග්‍රා.නි. වසම්	Suriyakanda, Ranhotikanda, Maussakanda, Thalagahawatta, Thennehena, Moragoda area ගුරියකන්ද, රත්තොටිකන්ද, මොස්සකන්ද, තලගහවත්ත, නැන්තොහේන, මොරගොඩ හා මුරගොඩ ප්‍රදේශ
Nuwara Eliya නුවර එළිය	Walapane වලපානේ	All GN Divisions සියලුම ග්‍රා.නි. වසම්	Padiyapellella Walapane road, Padiyapellella, Kiriwanaella, Landupita, Munwatta, Welikadaswatta area පදියපෙලිල්ල-වලපානේ මාර්ගය, පදියපෙලිල්ල, කිරිවනාලුල්ල, ලද්දට, මුත්තමුත්ත, වැලිකදාස්වත්ත ප්‍රදේශ
Issued by නිකුත් කළේ R.M.S. Bandara අර් එම් එස් බන්දාරා Head/Landslide Research and Risk Management Division නායයන්ගේ පර්යේෂණ හා අවදානම් කළමනාකරණ අංශය National Building Research Organisation ජාතික ගොඩනැගිලි පර්යේෂණ සංවිධානය			Date: 2012/10/02 14:00 Hrs දිනය: 2012/10/02 පැය 14:00

* should inform to media
* Defound

EMERGENCY OPERATIONS DIVISION
RECEIVED
Date
Time ...15.29...
.....
D (Ops)/DO/ADO
DISASTER MANAGEMENT CENTRE

1533 NLR
1537 RPA

D.O
20/10/2012
15.29

Figure 4 Landslide Warning Issued by NBRO

Although the landslide warning was not issued based on the exercise scenario, this was because the local situation, which was designed as the trigger for warning, was not informed to NBRO properly at phase 2.

(3) Irrigation Department

As instructed before the exercise, phone, fax and notice board of IGN were tried to use, though there was a technical problem with IGN. Flood warning issued by Irrigation Department is shown below.

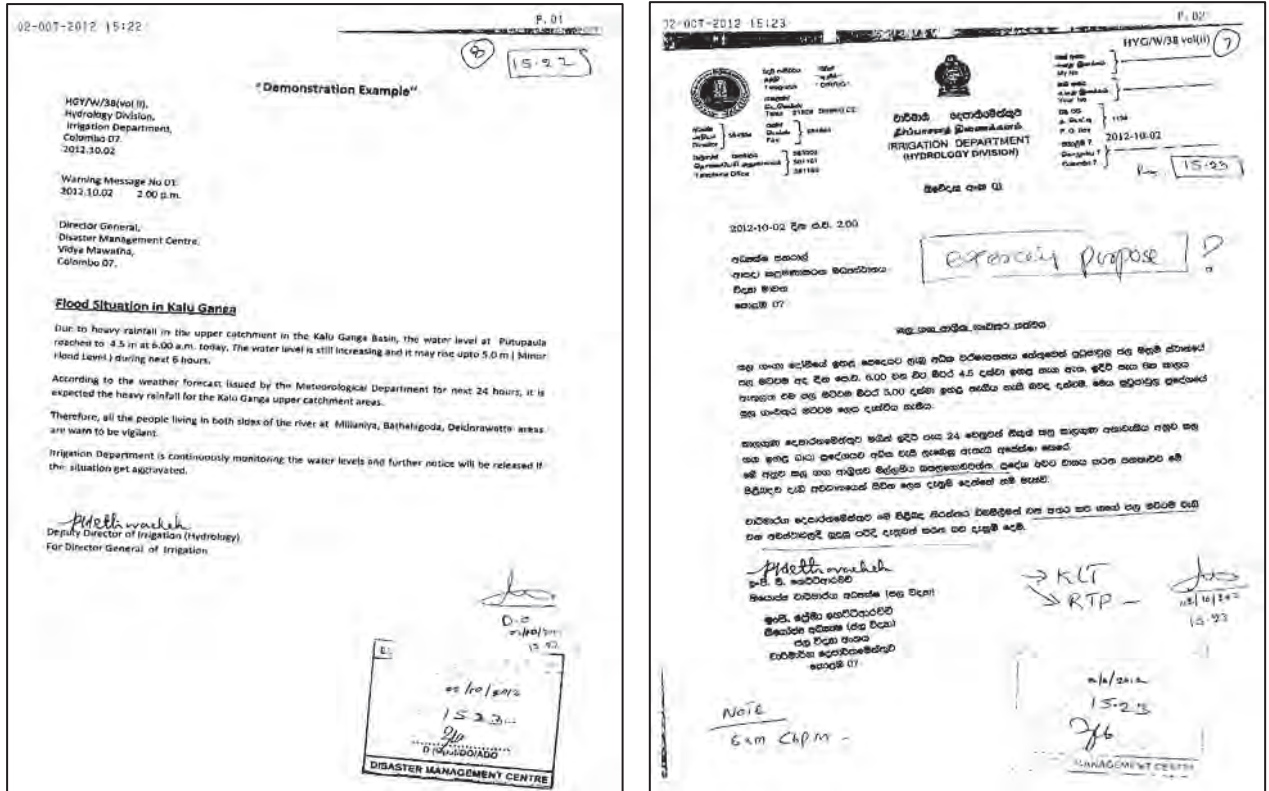


Figure 5 Flood Information Issued by ID

The message was prepared both in Sinhara and English, however “Exercise purpose only” was not mentioned in Sinhara version.

Although the flood warning was not issued based on the exercise scenario, this was because the local situation, which was designed as the trigger for warning, was not informed to ID properly at phase 2. Since Deputy Director of Hydrology, who is responsible for warning issuance, was newly appointed, this kind of exercise is very much useful and effective.

(4) DMC

Exercise was conducted in the normal setting, and no increase of staff for exercise was found. Newly appointed officer was assigned as the duty officer in this exercise for his experience. These were the good attitude for the exercise, however this officer had to be instructed the details of exercise in advance.

It was also found that communication to not selected organizations was conducted such as disseminating BWA to Kegalle DDMCU, flood warning to Rathnapura DDMCU, landslide warning to Kalutara DDMCU etc. Additionally landslide warning was not disseminated to Nuwara Eliya DDMCU for one hour, and the situation report from Ratnapura DDMCU was found 30 minutes after receipt.

Since their actions for exercise were not extracted from existing SOP, evaluator could not evaluate the exercise. Participants recorded only the time of receipt and delivery of information in the log-book. Brief contents of information shall be recorded.

The landslide warning sent by DMC to DDMCU is shown below. The landslide warning was pasted on the letter format of DMC. Some organizations highlighted that the ownership of this message would be unclear.

02/10/2012 10:12 FAX

001

ආපදා කළමනාකරණ මධ්‍යස්ථානය
அனர்த்த முகாமைத்துவ நிலையம்
DISASTER MANAGEMENT CENTRE

විද්‍යා මාවත
කොළඹ 07

ඔබේ අංකය
Your No.

ඔබේ අංකය
අපේ වෙළ
My No

DMC/08

දිනය
Date

02.10.12

(අනෙකුත් පමණි)

දිස්ත්‍රික් රෙගුම් - නුවරඑළිය රික්කපුර කළුකර
 දිස්ත්‍රික් ආපදා කළමනාකරණ කොට්ඨාසය - නුවරඑළිය රික්කපුර කළුකර

<p>Rathnapura රත්නපුර</p>	<p>Kolonna කොළඹ</p>	<p>All GN Divisions සියලුම ග්‍රා.වි. විශාල</p>	<p>Mussakanda, Thalagahawata, Thimmarana, Moragolla area මුසකන්දා, ත්‍රිකුණාමලය, මොරගොලා, මොරගොලා, මොරගොලා, මොරගොලා අවට ප්‍රදේශ</p>
<p>Nuwara Eliya නුවරඑළිය</p>	<p>Weligama වෙලිගම</p>	<p>All GN Divisions සියලුම ග්‍රා.වි. විශාල</p>	<p>Padiyapelle Walapane road, Padiyapelle, Kiriyawelle, Lankurulla, Minuwatta, Welikadamatta etc. පදියාපෙලි-වලාපානේ පාර, පදියාපෙලි, කිරියාවෙලි, ලක්දුරුලා, මිනුවාටි, වෙලිකඩමාට්ටා අවට ප්‍රදේශ</p>

Issued by -
අයදුම් කළේ:

R.N.E.S. Bandara
 නව රේ ජේ ඩේවරාජ
 Head/Landslide Research and Risk Management Division
 පාලක, පර්යේෂණ, හා අනතුරු සලකා බැලීමේ ව්‍යාපාරය
 National Building Research Organisation
 ජාතික ආවරණයේ පර්යේෂණ මධ්‍යස්ථානය

Date: 2012/10/02 19:00 hrs
 දිනය: 2012/10/02 පැය 19:00

සහකාර අධ්‍යක්ෂ (වැඩිදී වෙමින්)

Figure 6 Landslide Warning pasted on the DMC Format



Photo 1 Exercise at DMC

(5) DDMCU Nuwara Eliya

Since Assistant Director (AD) of DDMCU was not appointed, Coordinating Assistant (CA) mainly conducted the exercise. Draft SOP was prepared by JICA team and basically it was followed. CA informed the BWA, landslide warning etc. to GA immediately when he received them, and called DS immediately too. However, it took much time for CA to re-type the information.

02-2012 2:44PM HP LASERJET FAX 052-2222113

දිස්ත්‍රික් ලේකම් කාර්යාලය, නුවරඑළිය
DISTRICT SECRETARIAT, NUWARA ELIYA
 දිස්ත්‍රික් ලේකම් කාර්යාල සංකීර්ණය, නුවරඑළිය
 District Secretariat Building, Nuwara Eliya.

දුරකථන අංකය / Telephone No. } 052-2222113
 ෆැක්ස් අංකය / Fax No. } 052-2222114
 විද්‍යුත් ලේකම් / District Secretary } 052-2222113
 විද්‍යුත් ලේකම් / District Secretary } 052-2222113
 විද්‍යුත් ලේකම් / District Secretary } 052-2222113
 විද්‍යුත් ලේකම් / District Secretary } 052-2222113

වෙබ් අඩවිය / Web site } www.nuwara-eliya.lk
 විද්‍යුත් ලේකම් / District Secretary } 052-2222113

දුරකථන අංකය / Telephone No. } NE/25/DMC/21/01
 විද්‍යුත් ලේකම් / District Secretary } 052-2222113
 විද්‍යුත් ලේකම් / District Secretary } 052-2222113
 විද්‍යුත් ලේකම් / District Secretary } 052-2222113

දිනය / Date } 2012.10.02

ප්‍රධාන අංශයේ සේවකයන්ගේ නාමාවලිය

ප්‍රාදේශීය ලේකම්,
 ප්‍රාදේශීය ලේකම් කාර්යාලය,
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D.P. 09/10/12
 15:09

EMERGENCY OPERATIONS DIVISION
RECEIVED
 Date: 02/10/2012
 Time: 15:09

Dist. Director } 052-2222113
 Deputy Director } 052-2222113
 Asst. Commissioner of Revenue } 052-2222113
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DISASTER MANAGEMENT CENTRE

Figure 7 BWA re-typed on the letter format of DDMCU Nuwara Eliya

Failure of the fax machine in Walapane DS caused the delay of information transfer. Fax machine should be checked periodically, especially before the exercise.

Workload of CA was very heavy due to lack of human resources. He managed the report to GA, documentation of the information, delivery and receipt of document only by himself. As a result, it took long time to receive and send the information at all phases. Only CA can not manage the real disasters.

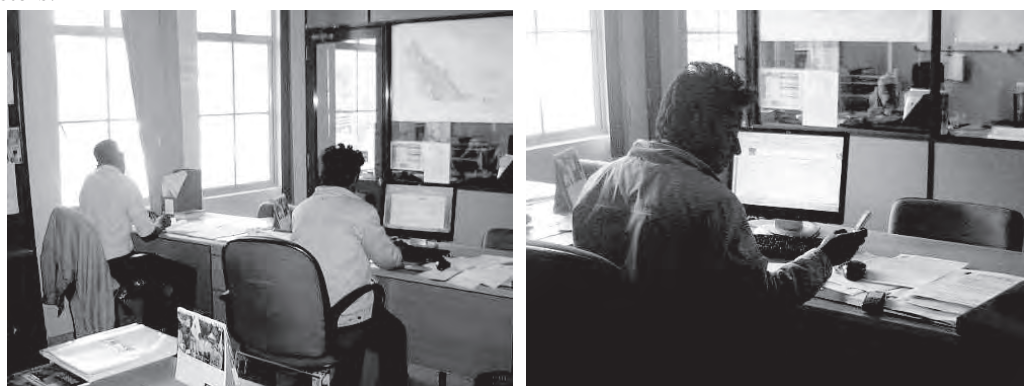


Photo 2 Exercise at DDMCU Nuwara Eliya

(6) DDMCU Ratnapura

Draft SOP was prepared by JICA team and basically it was followed. Defined activities, including the communication with GA, were generally conducted by the participant officers whose roles were allocated properly before the exercise.



Photo 3 Exercise at DDMCU Ratnapura

It took much time to re-type the warning message received from DMC by fax (shown below). And the written documents including warning messages were not properly filed. It is better to discuss about the appropriateness of re-typing of message.

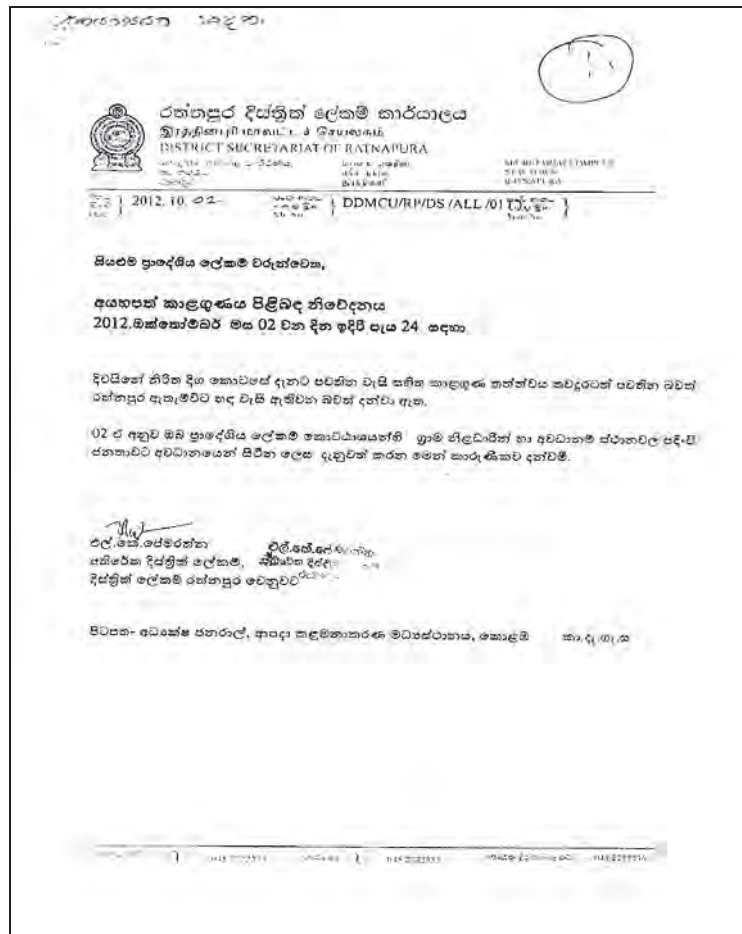


Figure 8 BWA re-typed on the letter format of DDMCU Ratnapura

(7) DDMCU Kalutara

Draft SOP was prepared by JICA team, however AD of DDMCU Kalutara pointed out the necessity of improvement of SOP for emergency operation, not only for information sharing. This motivation of AD is very good. However, at DDMCU Kalutara, some of the actions to be taken during this exercise were not understood properly, and JICA team had to explain the actions of exercise and its meaning during this exercise. To take proper actions in the exercise, all contents of the exercise should have been understood in advance. Voluntary participation by AD will be highly expected.



Photo 3 Exercise at DDMCU Kalutara

(8) Walapane DS

Draft SOP was prepared by JICA team and basically it was followed. Memo was taken by SSO during the exercise properly.

There were two issues at Walapane DS. One is that information was disseminated to Police which was not included in the scenario of exercise. The other one is that the fax machine was out of order. Phone number of participating organizations and operating condition of fax machine should have been checked in advance. However, the communication between GN, SSO and his assistant by phone was very smooth.



Photo 4 Exercise at Walapane DS

(9) Kollona DS

Draft SOP was prepared by JICA team and basically it was followed in Kollona. DS received the messages properly. SSO helped the documentation of received information.

However at phase 2, they seemed to be confused on how to report the local situation to DDMCU. After phase 2, they took long time until they finished the exercise because of the disruption of information transfer at every level.

They usually finish their work and close the office at 4 o'clock. Since their tasks are segmentalized to be simple such as typing, and receiving and giving calls, the information transfer becomes very difficult to finish when even one of them finishes his/her work and goes home. At phase 5, SSO herself wrote down the local situation as official document and sent it to DDMCU, since the time was already after 4 o'clock. This fact can be one of the reasons of delay on information transfer. However, considering this situation, their efforts to complete the exercise and their understanding of the meaning of exercise will be valuable to the future actual emergency situation.

And the documentation process at emergency situation should be simple so that they can grasp their situation quickly and comprehensively.

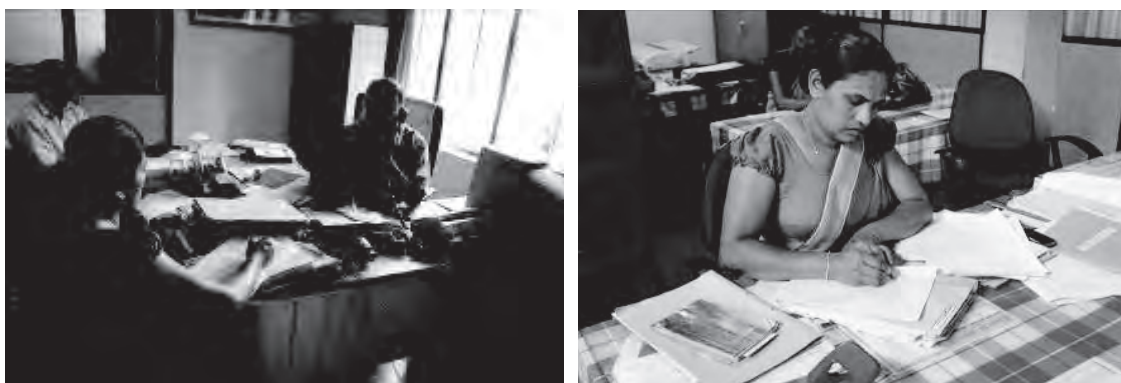


Photo 5 Exercise at Kollona DS

(10) Millaniya DS

Draft SOP was prepared by JICA team and basically it was followed in Millaniya DS. DS understood the purpose of exercise well. SSO and ADS managed the exercise well based on the experience of 2008 flood.

However, fax machine and phone did not work well. The operating condition of phone and fax machine should have been checked in advance.



Photo 6 Exercise at Millaniya DS

(11) Landupita GN

Draft SOP was prepared by JICA team and basically it was followed by GN. The information transfer between community leader/GN and GN/Divisional Secretary was smooth.

However, the local situation which Divisional Secretary recorded was different from the information transmitted from GN. One of the reasons was that the tools used to inform local situation were telephone or mobile phone. Thus it is important to record and transfer the information clearly and correctly, if possible by fax or written document.

The evacuation drill was well-prepared, and the players acted very well. GN level disaster management committee members held the meeting after they reported the local situation to DS at phase 2. They called NBRO to ask for the advice, and decided to evacuate people. They used sirens and megaphones for the drill. After the evacuation, GN reported the evacuation situation to DS, though the landslide warning did not reach them at phase 4.



Photo 7 GN Level DM Committee Meeting and Evacuation Drill

(12) Ranhotikanda GN

Draft SOP was prepared by JICA team and basically it was followed by GN. As information transfer exercise, it is considered that GN understood his position in the chain of information transfer and GN mostly played his role in proper manner in the exercise.

However, in the latter phases, he confused with several requests from DS, since the requests were not in line with the exercise scenario.

In general, the community level evacuation drill was successfully completed. It is considered that GN and DM committee members became familiar the procedure of “self-evacuation” and role of DM committee member. It is also considered that community people participated to the drill understood the evacuation route and place.

Although more than 120 people participated, the number of the participants was limited compared to the total population of the village. And the drill was conducted fine day, but the actual weather conditions will be completely different from the one on the day of drill. Therefore, it is required that continuous and periodical drills with more participants and the considerations of actual situation. In addition, if more evacuees come to the shelter, the space for the shelter will not be enough. In this sense, numbers and locations of evacuation shelter should be re-considered.



Photo 8 GN Level DM Committee Meeting and Evacuation Drill

(13) Paathakada GN

Draft SOP was prepared by JICA team and GN followed each step rightly according to the SOPs. At phase 1 and 2, GN received BWA and reported the local situation without any misunderstanding. At phase 4 and 5, he also transferred the prepared information to DS, though the information and request from DS were not in line with the exercise scenario. All information transfer was done by phone.



Photo 9 Photo of Paathakada GN

2.3 Overall Evaluation

Based on the result and evaluation by phases and organizations described above, this exercise is evaluated as follows.

(1) Achievement of Objectives

- The main objective of this exercise, to prepare the manual and SOP, and to conduct exercise based on them, was achieved. Now, the next process, to improve the prepared manual and SOP based on the result of exercise, is being conducted.
- The other objective, to make DMC officers participate in the process of preparation in order to continue the exercise on flood and landslide, was not fully achieved.

(2) Other Evaluations

- This was a good opportunity to review the meaning of warnings and the actual situation of information transfer for the technical organizations. For the local level organizations such as DDMCU, DS office and GN, this was also a good opportunity to improve the awareness for information sharing.
- Understanding of objectives and scenario of this exercise by participants was not enough. The small mistakes at the early phase of exercise affected the whole exercise, since the phases of exercise were continued each other. The main reason of this problem is insufficient preparation. In addition, the less initiative by participants and the less awareness for the preparation are also the reasons.

3 Recommendation

3.1 Meaning of Exercise

It is important to clarify the objective of exercise. In this exercise, one of the objectives is to check if the actions are taken properly based on SOP or not. Therefore, SOP can be used as “Checklist”. Moreover, exercise cannot be evaluated and objectives cannot be achieved if SOP is not prepared.

Exercise shall be arranged to achieve the objective. For example, one of the objectives of previous Tsunami Exercise conducted by DMC was “to check the effectiveness of the last-mile dissemination and response”. There are several alternatives for the last mile dissemination such as verbal communication, megaphones and sirens etc. However, only the Tsunami Tower was used at several places. In this case, above objective could not be achieved by this exercise, and the objective shall be “to check the effectiveness of tsunami tower”.

3.2 Importance of Early Warning and Information Sharing

Dissemination and sharing of early warning message and local situation are the first step for any kinds of emergency operations. For example, NBRO will issue landslide warning based on “BWA” and local situation by collecting local situations as much as possible after receiving BWA. DMC also has to coordinate with other organizations for the proper emergency operations such as damage assessment, provision of necessary equipments and materials etc. based on this information. Some people say the emergency operation is more important, however, emergency operations can not be

conducted properly without proper early warning and information sharing.

3.3 Relation with NEOP

Information transfer is not an only role of DMC and DDMCU, but just a first step. DMC and DDMCU have to conduct more activities for emergency operations. Therefore, early preparation of NEOP is necessary. Existing SOP at EOC shows only actions for information transfer. SOP has to be improved based on the role and responsibility which will be defined in NEOP not only for information transfer but also for other emergency operations. More variety of exercises can be conducted based on the improved SOP.

3.4 Self Evacuation by Community

In the scenario of this exercise, GN level committee decided “Self Evacuation”, based on “BWA”, local situation, and advice by NBRO. There were several opinions related to this “Self Evacuation” as follows. Those opinions have to be discussed carefully

- GN level committee can not decide the evacuation appropriately.
- Technical organizations have to visit the site to make responsible advice to community people.
- Any decision can be done by any level by their own responsibility. “Self Evacuation” done by community is under the responsibility of community.
- No relief goods are necessary for the people who conducted “Self Evacuation”.

The meaning of “Self Evacuation”, and the actions to be taken by governmental organizations for the people have to be discussed and clarified.

3.5 Contents of Warning Message

Contents of warning message shall be discussed among related organizations. There are several opinions related to the warning message as follows. Those opinions have to be discussed carefully.

- The level of warning shall be standardized among the different disaster types.
- The actions to be taken have to be clearly described by each warning message.

3.6 Correctness of Information

Because of the unstableness of fax line in Sri Lanka, verbal communication mainly by telephone is the most common method for information sharing. However, as is shown in the difference between the total numbers of affected people planned by JICA team and the compiled numbers by DMC, it is very difficult to communicate the correct information each other. It has to be discussed how to keep the correctness of information. The first step will be to keep any kinds of information on the log book.

It took long time to re-type the message at DDMCU Nuwara Eliya and Ratnapura. This re-typing is not a good idea from the point of correctness of information. Now, DMC is pasting the message from technical organizations on their own letter format, though DMC was also re-typing the message before. This time, there was an opinion from NBRO against the pasting way of DMC, since the ownership of the message will be unclear by this way. It should be discussed among related organizations.

*Appendix 4-4 Evaluation Report on Tsunami Simulation
Exercise*

Evaluation Report
on
Tsunami Simulation Exercise

JICA Expert Team

Table of Contents

1. Exercise on 22 June 2012
2. Exercise on 20 December 2011

EVALUATION REPORT
TSUNAMI EARLY WARNING & EVACUATION DRILL
(Community Level)
20TH DECEMBER 2011: 1500 HRS – 1730HRS

1. General

1.1 Evaluation Team Members

- Hideto Namiki
- Yoshihiko Uchikura
- Chuji Yamamoto
- Priyanga Premarathne
- Maheesha Kariyawasam
- Harshana Kanishka Ranasinghe

1.2 Background

This evaluation was based on the observations from community level operations related to evacuation drill. The evaluation team was authorized by DMC for the task.

Tsunami early warning and evacuation exercise was conducted by Disaster Management Center with the active participation of all coastal district disaster management coordinating units. The community level early warning and evacuation responses were randomly and independently evaluated by JICA/ DiMCEP team, by the request from Disaster Management Center. The evaluation team consisted of 06 members (one Japanese member, One Sri Lankan member for each team). Based on the available number of team members, team selected 03 districts, Colombo and Kalutara Districts, operating with early warning towers and Gampaha district, without early warning tower operations.

With the instructions from Early Warning (EW) Division of Disaster Management Center, the team restricted to evaluate only community level exercise activities. The EW Division expected from the evaluators to monitor and record the ground level operations and their successes and failures.

At first, all selected DDMCUs were contacted to get clarifications of the exercise arrangements and information flow mechanism specific to the district. The exercise related operational plans for each district, according to the DDMCUs are given by Annexure I.

Based on that, a questionnaire for evaluation was drafted (Annexure II).

The evaluation was started from 1430 hours and continued till the drill was completed in each selected districts. The evaluation teams visited evacuation centers and early warning tower locations, participating village areas to see the arrangements.

According to the each sub-team observations, the successes and failures of the evacuation drill are reported as follows;

2. Evaluation

2.1 Colombo District

- The Village : Modara
- The GND : EgodaUyana South (Moratuwa DSD)
- Evacuation Centre : Walana Temple
- EW Tower Location : Arafath School, Modara

1) Observations

General Description of Village

- The Village is located closer to the sea. In 2004 Tsunami, this village was also affected. The Tsunami water level in the area was around 06 feet high and the number of deaths was 02.
- Arafath School, Modara is the location of EW Tower. The EW Tower is presently established at a safer location in the school premises. The evacuation centre is located approximately 02 Kilometers inwards from the village.



Tsunami EW Tower Location

Condition of Evacuation Drill

- People started walking at evacuation center after 1526 hours. It was not the response for alarm from EW tower. The Siren was not operated at that time. Without warning alarm, people in groups started going at evacuation center. Until that time they didn't receive warning alarm such as telephone call, SMS, radio, television warning messages or any localized early warning.



People walking to evacuation center

- The early warning message was received by the EW Tower at 1559 hours. At that time, more than 90% of the participants have reached at the evacuation center. Simultaneously, a convoy of vehicles with sirens consisted of DDMCU and SL Army teams reached at the evacuation center. Finally, an awareness programme was conducted by DDMCU for the gathering.
- At the end of the drill, more than 150 people participated at the evacuation center and satisfactory representation of both Sinhalese and Muslims was observed. Most of the participants were middle aged women. Around 20% of male representation was observed.



Evacuation Centre



People gathered at Evacuation Center

- According to the DMC records of EW, the time sheet is as follows;

District	Type of Message	Telephone Call (Time)	EW Tower (Time)	DEWN (Time)
Colombo	Alert	1620	1559	-
	Warn & Evacuation	1631	1612	1619
	Clear	-	1635	1632

(Source: EW Exercise Time Records, EOC, DMC, 2011)

2) Findings

- There is a concern that the access route to the evacuation center could not be used in case of a higher Tsunami since the route lies across a bridge which can have the possibility of getting hit by future events.
- According to the interview to the participants, it was found that, they had started evacuation based on the information given by previous day (19th) that exercise starts at 1500. It should be noted that most of the people who were walking at the evacuation center before receiving alarm had no clear understanding about the purpose of the drill. Also, no clear instructions had been reached to the community related to the messages and actions to be taken.
- Some participants explained that they are well aware of tsunami and safe evacuation before since they have participated in 02 other previous drills.
- Proper situation and time records at community level have not been done.

2.2 Kalutara District

- The Village : Maha Waskaduwa
- The GND : Maha Waskaduwa
- Evacuation Centre : Kande Temple (Sudarshanarama Temple for this drill)
- EW Tower Location : Tangerine Beach Hotel, Kalutara

1) Observations

General Description of Village

- The village locates along the coastal line. This selected area had been slightly affected by Tsunami event in 2004. There are 56 GNDs in Kalutara District along the coastal lines which are vulnerable to Tsunami. EW Tower locates at Tangerine Beach Hotel where many tourists stay including foreign tourists.
- Compared to the pre-arranged evacuation center, new place (Sudarshanarama Temple) locates closer to the sea (less than 300m from the coast). Originally selected evacuation center, the Kande Viharaya (Temple) locates over 2.5 Kilometers inland from the village.

Condition of Evacuation Drill

- At 1500, there had been already around 30 people at the evacuation place. DDMCU staffs including AD and Military people had been already dispatched to the village at this time.
- At 1550, before EW message, Assistant Director, Kalutara started to conduct an awareness session of Tsunami and how to escape from such emergency situation.

- The first warning was issued by EW Tower at 1601 hours. But, there were already around 30 female and 50 male in the evacuation centre. Only some people started evacuation by the first message. The second warning received at 1611 hours and the third was at 1635 hours. Finally, people participated in the awareness program.
- Some of young people (committee member?) conducted rescue training (carry injured people with stretcher) by the first information.



Walk to Evacuation Centre



Rescue Training

- According to the DMC records of EW, the time sheet is as follows;

District	Type of Message	Telephone Call (Time)	EW Tower (Time)	DEWN (Time)
Colombo	Alert	-	1600	-
	Warn & Evacuation	-	1612	1619
	Clear	-	1636	1632

(Source: EW Exercise Time Records, EOC, DMC, 2011)



Evacuation Centre



Awareness Program

2) Findings

- This activity cannot be called as an evacuation drill but an awareness program.
- Although it is not confirmed, evacuation centre was temporarily shifted to Sudarshanarama Temple only for this drill, since original evacuation centre, Kande Temple, is too far for community people to participate in the drill.
- According to the interview to some of participants, it is found out that they were instructed to participate in the awareness program at 1500 without any explanation of the drill. Some participants did not have an idea of the purpose of drill. Also some didn't aware of the purpose of coming to the temple.
- Information transfer except for EW towers could not be seen.

2.3 Gampaha District

- The Village : Mada Pitipana Beach Aea
- The GND : 162 D Mada Pitipana
- Evacuation Centre : St. Mary's Church
(The pre-selected place was Katuwapitiya Church)
- EW Tower Location : No EW Towers

1) Observations

General Description of Village

- The selected village is located in a land strip between sea and Negombo lagoon. Fishing is the key income source of more than 80% of the families in the area. In 2004 Tsunami, the village experienced minor damages and not severely affected.
- The evacuation center had been decided at Katuwapitiya Church located in around 07 Km distance from the village. The new location was St. Mary's Church located within 01 Km in the village.

Condition of Evacuation Drill

- Previous day (19th), the area was announced of the drill by DDMCU.
- Before the drill starts, around 10-15 people were present in the center.
- At 1556, the first message received by Assistant Director, Gampaha by his mobile phone. (He was at the evacuation centre) He confirmed it and informed directly to the village committee at 1558. Since this is the Alert, message did not pass further beyond the village committee.
- The second message for evacuation received by Assistant Director, Gampaha at 1605 was received by committee and activated for evacuations at 1610. Evacuation warning

for the community was done using Sirens of two motor cycles and DMC vehicle.

- The evacuation drill completed with a number of 330 people in to the evacuation center. Majority of the participants were female and children.
- During the evacuation, people came with the important documents and equipments such as ID Cards, Birth Certificates, Torch and Pocket Radio.



Evacuation



Resistration



Motorbike with Siren



Resistration



Motorbike with Siren

- According to the DMC records of EW, the time sheet is as follows;

District	Type of Message	Telephone Call (Time)	EW Tower (Time)	DEWN (Time)
Colombo	Alert	1556	-	-
	Warn & Evacuation	1608	-	1619
	Clear	1638	-	1632

(Source: EW Exercise Time Records, EOC, DMC, 2011)

2) Findings

- This evacuation drill seems a successful case compared from other two districts, since community people waited for the message and evacuated based on the message.
- Although it is not confirmed, for the drill arrangements, the originally selected evacuation centre (Katuwapitiya Church) was changed to St. Mary Church. It is said that in case of a real situation, this place is used as the gathering place prior to evacuation.
- People had to pass a bridge which is the only route for the evacuation.
- Two villages were selected for this drill. In message transferring stage, alert message has been given to one village while evacuation message was not received properly to the same village. Meanwhile, the other village community had received these messages in opposite way.

3. Recommendations

3.1 Recommendations for Drill

1) Evacuation Place and Route

- Evacuation place and route need to be verified and reviewed considering the tsunami height.
- Evacuation place should not be changed for the drill even though the place is far from the target community.

2) Planning and Evaluation of Drill

- Plan of the drill should be prepared by each DDMCU. Plan includes who will receive information from who, who will inform to who and how, what kind of methods will be used for dissemination, etc.
- In case of an evacuation drills, the actual conditions need to be maintained as much as possible to identify the gaps and success points. However, the difference between real situation and drill should be clarified in the plan if any.
- The plan should be evaluated by the systematic record keeping and time records at community level for better preparedness.

3) Pre-arrangement for Community

- Provision of sound awareness to the participating community of the EW mechanism and the procedures to follow in drills is needed.
- People need to be well trained for responding to EW signal oriented, not time oriented is needed. In future drills, a time range can be suggested (eg. within 01 hour from 1500 to 1600 hours)

4) Selection of Community or Target

- Selection of different communities in the same vulnerable area can make more effective.
- Participation of different family members in different drills, instead of participation of same member in all events helps to ensure that all people are experienced and improved on Tsunami response.
- The drills can be arranged in weekends to get the higher participation of various people.
- DDMCUs need to consider auxiliary EW options for unexpected contingencies or for the people those who live in uncovered area of the tsunami tower.
- Develop Tsunami drills for other target groups such as hotel staff, tourism operators and business community along the beaches.

3.2 Recommendations for DMC

- It is very difficult for us (evaluators) to understand the result of the drill in Colombo and Kalutara, since the evacuation drill is basically very simple and the ADs, especially AD Kalutara, have enough experiences. It is necessary to survey the reasons of this result. There might be some problems or difficulties to conduct the drill for them that are not conceivable by DMC staffs. More communications with District ADs are strongly recommended.
- Policy or plan of community activity for tsunami should be discussed with DDMCU in cooperation with Training Division. How many communities are vulnerable for tsunami? How much budget can be allocated to train the community? How many communities can be trained in one year? How many times tsunami drill will be conducted? There should be proper plan for each DDMCU, and DMC has to support it.
- It may be better to conduct tsunami drill not for all coastal districts at once but for selected districts, or several communities in one district. Then more inputs can be allocated for selected drills. ADs of non-selected district can be utilized as evaluator for the drills and it will be good experience for those ADs.



DiMCEP
The Disaster Management Capacity Enhancement Project
Disaster Management Centre
3rd Floor, Vidya Mawatha, Colombo-7, Sri Lanka

Evaluation Report
Tsunami Simulation Exercise
(Local Level)
22 June 2012: 15:00 -

July 2012

JICA Expert Team

1.0. Background of the Evaluation of Tsunami Exercise

1.1. Objectives of exercise (by DMC)

- To ascertain the preparedness levels for responding tsunami warnings
- To test the speed and the reliability of disaster early warning dissemination process
- To check the effectiveness of last-mile dissemination and response to the warnings
- To identify gaps and shortcomings of early warning dissemination and response

1.2. Objectives of evaluation (by JICA Expert Team)

- To observe the real situation of exercise at GN level
- To check the achievement levels of exercise objectives expected by DMC
- To confirm the enhancements of the exercise with the experience from last drill

1.3. Selection of districts for evaluation

Three teams by JICA/ DiMCEP, with the request and permission from DMC were deployed to evaluate the actions related to the exercise in selected districts.

District	Tsunami Tower in the selected area	Remarks
Puttalam District	Available	-
Gampaha District	Not available	evaluated at last exercise
Kalutara District	Available	evaluated at last exercise

2.0. Observations by the Evaluation Teams

2.1. Puttalam District



- The evacuation place of this exercise was not the actual evacuation center for the area. Since the actual place is far from the selected community, this place was used as the evacuation center for the exercise.
- Some people started to evacuate before receiving message. It had happened since they were informed earlier that the exercise starts at 15:00 hours. Therefore, they were only time oriented and not seriously thoughtful on the purpose of drill.
- In the exercise, Tsunami tower worked properly. Followings are some comments

from the community participants.

▪ <u>Response 01:</u> The sound volume of the tower siren was higher enough to hear clearly
▪ <u>Response 02:</u> Clearness of the sound differs depending on the wind direction
▪ <u>Response 03:</u> The generated sound from the tower generally limits to 01 km radius. Therefore, horizontal coverage area of the dissemination may not be effective and sufficient as the sole early warning mean used for the area.
▪ <u>Response 04:</u> The voice of announcement was not clear. Therefore, the contents in the message were not understandable.
▪ <u>Response 05:</u> The area received only one message, though the arrangements was to send Three (Alert, Evacuation and Cancellation)

- Mobile cellular phones and radio communication sets were used by the DM officials for the communication apart from the tsunami tower.
- Representatives from DS office, Police, Army and Red Cross Society participated in the exercise for any support on coordination and security exercise and community. Red Cross society conducted a demonstration on some important aspects relevant to an emergency response.
- At the end of the exercise, debriefing session was held with the participation of DDMCU, Police, Army, SL Red Cross society, Village level officers and the participated community members. The session consisted of Questioning & Answering on different aspects related to the drill, tsunami, emergency response, evacuation etc.

2.2. Gampaha District



- The evacuation place of this exercise was not the actual evacuation center for the area. Since the actual place is far from the selected community, this place was used as the evacuation center for the exercise.
- Tsunami EW tower is not available for this community. Therefore, the other means of disseminations such as, messengers by cycles, motor bikes and vehicle with the siren were used.

- People started evacuation after receiving the evacuation message.
- At the end of the exercise, awareness program on Tsunami and the safety measures for the participants was conducted by DDMCU, Police and Army officers.

2.3. Kalutara District



- The evacuation place of this exercise was not the actual evacuation center for the area. Since the actual place is far from the selected community, this place was used as the evacuation center for the exercise.
- Community was well informed about the exercise arrangements by DDMCU. Therefore, people started evacuation after receiving tsunami warnings accordingly.
- Tsunami early warning tower was used as the only dissemination channel.
- GN officer, Police and Army officials participated in the exercise for providing coordination and security support to DDMCU.
- Same as two other sample districts, awareness program was conducted after the exercise for the participant communities.

3.0. Evaluation Results

3.1. Real situation of the tsunami exercise

- Community people were well educated about the actions to be taken during the exercise, once they receive tsunami warnings and related instructions.
- Selected evacuation places of three districts were considered only for this exercise. The officially earmarked evacuation centers to be used in real scenarios were not able to use in this exercise due to practical difficulties.
- Two communities, where the tsunami-warning towers used for dissemination were highly depending on tower messages. The other communication methods were hardly used.
- In three districts, members of DDMCUs, Police and Army officers had arrived at the sites earlier to start the exercise. This was different from the actual situations.

3.2. Achievement of objectives

- It could be notable that the objectives set by DMC were different from the objectives set by the districts. The objectives by DMC were to find out the preparedness levels to respond on tsunami warnings, to test the speed and the reliability of dissemination process, to check the effectiveness of last-mile dissemination with respond to the warnings and to identify gaps and shortcomings of early warning dissemination and response.
- On the other hand, the objectives by districts are to enhance the understanding of community on tsunami itself, tsunami warning, tsunami tower and related operational matters. Some people in Kalutara district expressed, “The objective of the exercise was to demonstrate tsunami tower”. Objectives set by both DMC and districts take high importance in their accomplishment. However, it could be realised that the objectives set by DMC were not achieved by this exercise since districts expectations were kept at high priority. In other words, priority of the districts did not address the purpose expected by DMC.
- Effectiveness on last mile dissemination was practically impossible to evaluate for the two communities where the tsunami towers operated, since the tsunami tower had been used as the only method for the exercise.

3.3. Improvement from last exercise

- In the evaluation report prepared for previous Tsunami Drill, one important recommendation was that to conduct the exercise in line with the actual situation as much as possible. However, the situation of this exercise was also not changed from the previous drill. However, by the sense of fulfilling the objectives set by districts, to enhance capacity of the community was very successful and achieved.
- In the previous evaluation report, the importance of explanation to the community people before the exercise was emphasized. Kalutra district was insufficiently fulfilled the above requirement in previous drill. However, in this time, missing points in previous events had been overcome by Kalutara District in more progressive and appreciable way. It could be understood that most of the participants were with clear understanding of the meaning of tsunami messages and actions according to the messages. It was a result of the early explanation to the community.

4.0. Recommendations for Improvements

4.1. Clarification of objectives

- As explained in Section 3.2, the exercise could not fulfill the objectives set by DMC at ground level. If the exercise is conducted for the objectives set by DMC, such as “to check the effectiveness of last-mile dissemination and response” or “to identify gaps and shortcomings of early warning dissemination and response”, it is necessary to

conduct exercise in line with the real situation or under some severe conditions.

- Information dissemination methods apart from the tsunami tower (dissemination through DS, GN, and committee member at community level etc.) can be trialed and evaluated.
- DDMCU, Police and Military officers need to stay at their offices instead of visiting the evacuation sites except the limited staffs deployed to keep the security and arrangement during the exercise.
- Evacuation centers and routes decided for the real situations need to be used for the exercises too.
- On the other hand, if the exercises are conducted by the district to enhance the capacity of community, in that sense, this kind of exercise will be effective enough. However, it is important to clarify the objectives of the exercise. Based on that, the best way to achieve the objectives can be decided.
- If the objective is to confirm the effectiveness of the dissemination by tsunami tower, hearing levels of the sounds made by tower can be confirmed within the community. Then, the variations of hearing levels due to weather conditions such as wind directions, existence of rains etc can be identified. According to the DMC sources, the hearing levels had been checked at the installation stage of towers. However, it needs to be confirmed periodically through the events such as evacuation exercise.

4.2. Selection of evacuation place for exercise

- By this evaluation, actual evacuation centers and routes are recommended to use as much as possible in the rehearsals. The advantages of that practice can be highlighted as follows;
 - Necessary conditions such as space requirements, sufficient levels of sanitary facilities in the evacuation centers can be confirmed more comprehensively, if the communities can involve in the trial with the actual places and routes.
 - The approximate time to the real time for actual evacuations related to a particular area and evacuation center can be estimated by the usage of actual locations. The time durations may differ based on the route conditions and other associated geographical features. Those difficulties can be identified more clearly with use of actually defined locations and routes.
 - There are different categories in the community groups based on the knowledge level. By practicing the evacuation exercise with arrangements for actual situations, it will be more beneficial to know the right information of the evacuation place and route. The beneficiaries will be the people who are not aware of and not prepared for tsunami before.
 - There are many things to learn and experience by actual exercises. Those are specific in nature and difficult to know without actual practice.
 - If the evacuation place for the exercise is decided at the place near the

community due to some reasons, it is essential to explain the people about the location of actual evacuation place and reason for selection of the place for exercise. GN level committee members are also needed to confirm the actual conditions by periodical checkups.

4.3. Preparation of manual and action report

- Preparation of a Manual is a key requirement to show how to take actions when the tsunami information is disseminated. The manual users will be DDMCUs, related organizations as well as community organizations. If such manual is available, it will be easy to plan the exercises (which parts of the manual will be conducted or not conducted). It will also be helpful to evaluate the actions of evacuation exercise as well as in an actual tsunami warning situations. The manual can be revised based on the evaluation findings.
- If the manual is prepared from the viewpoint of usage as a checklist, it will be possible to make an action report in a real situation only by putting the action time in the manual.

4.4. Selection of target area for tsunami exercises

- As proposed by the previous evaluation report too, selected districts can be targeted at the exercise instead of taking all coastal districts at once. The objective of this proposal is to make the available resources of DMC to utilise in more concentrated and focused way in exercises. If it is done in the proposed way, the number of opportunities to inspect the activities at district level by DMC staffs will be increased. In addition, the neighbouring district DDMCU staffs will also be able to involve and learn of the exercises.

4.5. Coordination arrangements with CBDRM activities

- It can be observed that the present objective of the exercise by the district level is more or less similar to the objective of CBDRM activities coordinated by the Training Division of DMC. Therefore, avoiding the duplication of activities, joint implementation plan can be arranged by Education, Training and Public Awareness Division and Early Warning & Emergency Operations Division of DMC. Coordinated with the joint implementation plan of CBDRM activity and evacuation exercises, more appropriate communities with priority needs for the drills can be selected.

