WEEKLY EPIDEMIOLOGICAL REPORT

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Water Supply in Disaster Management (Part I)

This is the first of a series of articles on Water supply in Disaster Management.

A disaster is a serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources. Disasters can be natural, man made or technological. A natural disaster is a process or a phenomenon occurring in the biosphere that may constitute a damaging event.

Regardless of the type of the disaster, they cause adverse consequences in terms the basic needs of its victims like water and sanitation, health, economic status, well being and quality of life. It is of utmost importance to restore them as soon and as much as possible to prevent further deterioration and to re-establish the normal functioning of the affected community. Therefore, disaster management aims at organization and management of resources and responsibilities for dealing with all humanitarian aspects of emergencies specially preparedness, response and recovery in order to lessen the impact of the disaster.

Importance of water during an emergency

Disasters and emergency situations lead to compromisation of supply of basic needs of the human beings who are affected. Supply of water which is one of the basic needs of a human being can get easily compromised during a disaster situation. Inadequate supply of water cause a lot of inconvenience to the group of individuals who are already lacking in other basic needs. In fact, water and sanitation are critical determinants for survival in the initial stages of a disaster.

Poor supply of water can easily produce adverse health outcomes. Not only that, consumption of contaminated water is the principal reason why water borne diseases get easily spread during and after a disaster. Therefore continuous supply of clean water is of critical importance in disaster management.

The sphere standards

Sphere humanitarian charter and minimum standards in disaster response is a document developed by a group of relief agencies in 2004. It sets standards for the minimum level of services that should be provided to people who are affected by disasters . According to its standards for water supply " all people have safe and equitable access to sufficient quantity of water for drinking, cooking and personal and domestic hygiene. Public water points are sufficiently close to households to enable use of the minimum water requirement".

Most relief agencies accept these standards in delivering services in disaster situations.

There are also indicators stated by the sphere. These indicators describe how the standards should be delivered to people. According to the indicators,

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- Average water used for drinking, cooking and personal hygiene in any household is at least 15 liters per person per day
- The maximum distance from any household to the nearest water point is 500 meters.
- Queueing time at a water source is no more than 30 minutes.

Factors affecting water requirement by an individual

There are several factors that affect the quantity of water required by a population. This includes the general state of health of the population affected, their level of physical fitness, climate and expectations.

Quantity of water used by an individual

Quantity of water used by an individual varies from person to person. Although water is used for a number of activities, some of these activities may become more important than others. Therefore, the quantity of water used by an individual will depend on how these activities are prioritized.

Generally, higher quantity of water is needed when the activity becomes less important for survival. Usually with the increasing quantity, required quality of water decreases. The following diagram demonstrates the hierarchy of water requirement.

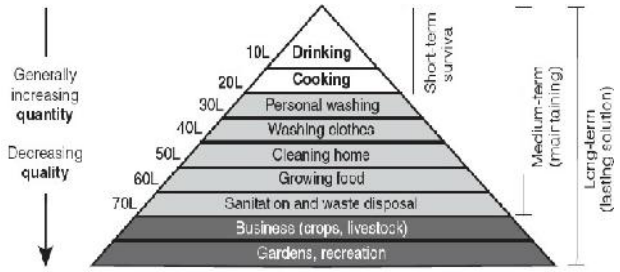

Figure 1. Hierarchy of water requirements

Uses and priorities for water

Specially in a disaster, the most basic use of water is drinking where the best possible quality of water is required. Water is essential to deliver good sanitation facilities as well. However ,the quantity of water required will depend on the type of sanitation. For example, water borne type of sanitation such as flush toilets require a large volume of water (up to 7 liters per person per use) than pit latrines or simple pour flush latrines.

On the other hand, water is also used to deliver health care facilities which is essential specially in a disaster.

However, there can be situations where people use water for various religious activities as well as agricultural activities. The following table gives the minimum quantity of water required for non domestic use.

Use	Guideline quantity
Health centers and hospitals	5L per out patient, 40-60 L/in patient per day. Additional quantities may be needed for laundry equipment, flushing toilets etc.
Cholera centers	60L/patient/day; 15L/career/day
Therapeutic feeding	30L/patient/day; 15L/career/day
Operating theatre/	100L/intervention
SARS isolation	100L/isolation
Viral Haemorrhagic Fever isolation	300-400L/isolation
Schools	3L/pupil per day for drinking and hand washing (Use for toilets not included)
Mosques	2-5L/person per day for washing
Public toilets	1-2L/user/day for hand washing; 2-
All flushing toilets	20-40 L/user/day for conventional flushing toilets connected to a sewer; 3-5 L/user/day for pour flush toilets
Livestock/day	Cattle, horses, mules:20-30 L per head; goats, sheep, pigs : 10-20Lper head, Chickens: 10-20 Lper 100
Vegetable gardens	3-6 L per square meter per day

Table 1. Guidelines for minimum emergency water quantity for non domestic use

Sources

1. How much water is needed in emergencies available at *http://www.who.int/water_sanitation_health/publications/2011/tn9_how_much_water_en.pdf?ua=1*
2. Disaster Management center official web site

Compiled by Dr. S.A.I.K. Sudasinghe of the Epidemiology Unit

to be continued...

Table 1: Selected notifiable diseases reported by Medical Officers of Health 28th – 03rd June 2016 (23rd Week)

RDHS Division	Dengue Fever		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Chickenpox		Meningitis		Leishmaniasis		WRCD	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	T*	C**
Colombo	95	6009	3	59	1	1	1	27	0	19	4	86	0	3	0	15	0	0	3	197	0	22	0	0	13	13
Gampaha	0	1983	0	33	0	5	0	12	0	5	0	124	0	7	0	16	0	0	0	184	0	20	0	3	0	0
Kalutara	19	1229	1	37	1	3	0	16	1	16	4	242	0	4	0	12	0	0	1	109	1	33	0	0	14	14
Kandy	55	951	4	88	0	12	0	9	2	26	3	71	6	55	1	37	0	0	7	89	0	25	0	6	83	87
Matale	5	180	1	21	0	1	0	9	0	2	0	48	1	12	0	13	0	1	1	22	1	45	0	14	77	92
NuwaraEliya	8	141	4	50	0	1	2	26	2	15	2	22	4	43	3	20	0	0	2	70	2	26	0	0	92	92
Galle	30	786	1	35	0	8	0	2	0	2	9	148	4	45	1	6	0	0	4	158	0	24	0	1	80	85
Hambantota	14	322	3	23	0	1	0	2	2	50	6	70	0	35	0	17	0	0	13	131	1	10	0	146	83	83
Matara	17	382	12	53	0	3	0	5	0	34	5	93	0	25	0	16	0	0	3	96	1	9	2	116	100	100
Jaffna	26	1250	3	105	0	3	1	45	3	35	0	8	2	525	0	8	0	0	2	104	0	26	0	1	100	100
Kilinochchi	1	48	0	23	0	0	0	24	0	4	0	11	0	17	0	0	0	0	0	3	0	7	0	0	50	75
Mannar	4	89	0	9	0	4	0	13	0	3	0	8	0	36	0	0	0	0	0	7	0	1	0	0	60	100
Vavuniya	0	149	0	5	0	2	2	22	1	26	0	11	0	8	0	6	0	0	0	19	0	3	0	3	50	100
Mullaitivu	2	99	0	12	0	0	0	13	31	35	1	22	0	5	0	0	0	0	1	9	0	5	0	4	80	80
Batticaloa	18	292	2	135	0	0	1	16	0	85	0	27	0	4	0	9	0	0	2	62	0	5	0	1	71	93
Ampara	3	98	0	15	0	0	0	0	2	17	0	23	0	0	0	6	0	0	4	69	0	1	0	5	43	57
Trincomalee	2	265	1	28	0	0	0	9	0	23	1	19	0	17	0	30	0	1	2	103	0	7	1	3	83	92
Kurunegala	62	865	7	112	0	7	0	1	0	6	6	80	0	10	0	16	0	2	4	156	1	28	1	46	72	90
Puttalam	10	565	1	26	0	2	0	4	0	0	0	30	1	57	0	0	0	0	2	42	1	25	1	1	77	92
Anuradhapura	3	278	1	32	0	1	0	3	0	21	4	176	0	18	0	11	0	0	0	124	0	19	0	100	47	79
Polonnaruwa	5	190	0	14	0	2	0	9	0	5	1	68	0	1	0	2	0	0	3	66	1	11	0	74	71	86
Badulla	26	280	3	59	1	10	1	5	0	19	3	75	5	47	1	74	0	0	2	93	2	100	1	2	82	88
Monaragala	2	164	1	29	0	1	0	2	0	9	2	137	0	64	0	95	0	2	0	34	0	16	0	19	100	100
Ratnapura	58	1014	18	164	1	18	0	17	0	15	26	262	0	17	2	76	0	0	3	100	0	71	0	1	72	83
Kegalle	30	635	2	37	1	12	0	16	1	41	5	107	0	13	0	14	0	0	6	172	2	26	0	0	100	100
Kalmune	1	349	0	37	0	3	0	4	3	37	0	10	0	0	0	2	0	4	0	52	0	12	0	0	46	92
SRILANKA	496	18613	68	1241	5	100	8	311	48	550	82	1978	23	1068	8	501	0	10	65	2271	13	577	6	546	68	79

Source: Weekly Returns of Communicable Diseases (WRCD).

*T=Timeliness refers to returns received on or before 03rd June, 2016 Total number of reporting units 339 Number of reporting units data provided for the current week: 271 C**-Completeness

A = Cases reported during the current week. B = Cumulative cases for the year.

Table 2: Vaccine-Preventable Diseases & AFP

28th – 03rd June 2016 (23rd Week)

Disease	No. of Cases by Province									Number of cases during current week in 2016	Number of cases during same week in 2015	Total number of cases to date in 2016	Total number of cases to date in 2015	Difference between the number of cases to date in 2016 & 2015
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	01	00	00	00	00	00	01	00	00	02	01	26	30	-13.3%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Mumps	00	00	02	00	00	02	01	00	02	07	10	195	183	-6.5%
Measles	00	00	03	00	00	00	00	00	00	03	52	270	1112	-76.1%
Rubella	00	00	00	00	00	00	00	00	00	00	01	06	06	0%
CRS**	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Tetanus	00	00	00	00	00	00	00	00	00	00	00	03	07	-57.1%
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Japanese Encephalitis	00	00	00	00	00	00	00	00	00	00	00	00	07	-100%
Whooping Cough	00	00	00	00	00	00	00	00	00	00	3	30	37	-19.1%
Tuberculosis	131	27	20	13	09	25	07	12	17	261	100	4122	4156	-0.8%

Key to Table 1 & 2

Provinces: W: Western, C: Central, S: Southern, N: North, E: East, NC: North Central, NW: North Western, U: Uva, Sab: Sabaragamuwa.

RDHS Divisions: CB: Colombo, GM: Gampaha, KL: Kalutara, KD: Kandy, ML: Matale, NE: Nuwara Eliya, GL: Galle, HB: Hambantota, MT: Matara, JF: Jaffna, KN: Killinochchi, MN: Mannar, VA: Vavuniya, MU: Mullaitivu, BT: Batticaloa, AM: Ampara, TR: Trincomalee, KM: Kalmunai, KR: Kurunegala, PU: Puttalam, AP: Anuradhapura, PO: Polonnaruwa, BD: Badulla, MO: Moneragala, RP: Ratnapura, KG: Kegalle.

Data Sources:

Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Neonatal Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps., Rubella, CRS,

Special Surveillance: AFP* (Acute Flaccid Paralysis), Japanese Encephalitis

CRS** =Congenital Rubella Syndrome

AFP and all clinically confirmed Vaccine Preventable Diseases except Tuberculosis and Mumps should be investigated by the MOH

Number of Malaria Cases Up to End of May 2016,

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All are Imported!!!

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Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to chepid@sltnet.lk. **Prior approval should be obtained from the Epidemiology Unit before publishing data in this publication**

ON STATE SERVICE

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