



WEEKLY EPIDEMIOLOGICAL REPORT

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Solid Waste Management

When the enormous burden of solid waste is considered, it is obvious that any country should have a proper solid waste management system. It will either prevent or minimize adverse effects on the human life, society, environment and the economy. In a 'waste management hierarchy' there are various strategies to avoid or to minimise waste generation and to extract the maximum benefit out of waste. These options include, avoiding, reducing, reusing, and recycling of waste and recovering value from waste and then final disposal.

In a proper waste management programme due consideration should be paid to waste generation, collection and transportation, intermediate treatment and final disposal of waste.

Waste generation

Waste avoidance: Avoidance of waste generation is the best possible preventive action. Then there is no waste to deal with. However, it is not possible at all times and we should pay attention to avoid wastes as much as possible.

Waste reduction: When waste generation is unavoidable, best alternative would be to minimise waste generation. Consumption pattern, human behaviours and their attitudes greatly influence on waste generation. Interventions at different levels such as at household or at market level etc., would be necessary. For example, household generation of waste can be minimised by correct decisions on what materials in what quantities should be bought. This is especially relevant with regard to perishable items such as food. Paying attention to the quality and the quantity of goods bought could help in waste reduction at household level.

At the market level, waste generation can be

reduced to a great extent by using proper transport and storage techniques. This is very relevant to vegetable market where a great proportion of agricultural products are wasted by rotting or damaging the products during transportation. For example, in the Pettah Manning Market, the daily collection of waste is 30 tonnes on average. If rotten materials are removed and vegetables are stored properly at the field level and transported in proper storage containers, such waste could be avoided to a greater extent.

Waste reuse: The next step to reduce waste generation is reusing them. Use of disposable materials has overwhelmingly increased waste generation. Their use may be beneficial for health reasons, but in many instances it does not bear benefit that outweighs the disadvantages. Plastic waste ranks first in the list of such wastes. Some of the materials discarded as waste can be reused for the same purpose or some other purpose. Reuse of plastic bags is one example.

Waste collection and transportation

Other than a small proportion of reuse at the same place of its origin, most of the reuse, recycling and recovering value occur elsewhere. For these activities and for final disposal of waste, they have to be transported from the places of their origin. An efficient waste disposal occurs only when all stakeholders, mainly local authorities who are responsible for waste management and those who generate waste bear equal responsibility. It is everybody's responsibility to sort wastes at source according to its category and hand over them separately.

Contents

Page

1. Leading Article - Solid Waste Management	1
2. Surveillance of vaccine preventable diseases & AFP (08 th - 14 th November 2008)	3
3. Summary of newly introduced notifiable diseases (08 th - 14 th November 2008)	3
4. Laboratory surveillance of dengue fever (08 th - 14 th November 2008)	3
5. Summary of selected notifiable diseases reported (08 th - 14 th November 2008)	4

At present, what most local authorities practice is heap collection of wastes where people dump their waste by the road side and vehicles of local government or other responsible companies collect and transport them to the dumping sites. Often there is no regular waste collection mainly due to lack of manpower and material. This results in accumulation of heaps of garbage by the road side.

In a waste transportation system, due consideration should be paid on selection of suitable vehicles, safe transportation, workers' safety and selection of suitable route and a time to transport. Selection of a vehicle depends on the type of waste. Vehicle with compression devices, i.e. compactors are a suitable and convenient method for day to day household waste transport. However, the high maintenance cost prevents ac-

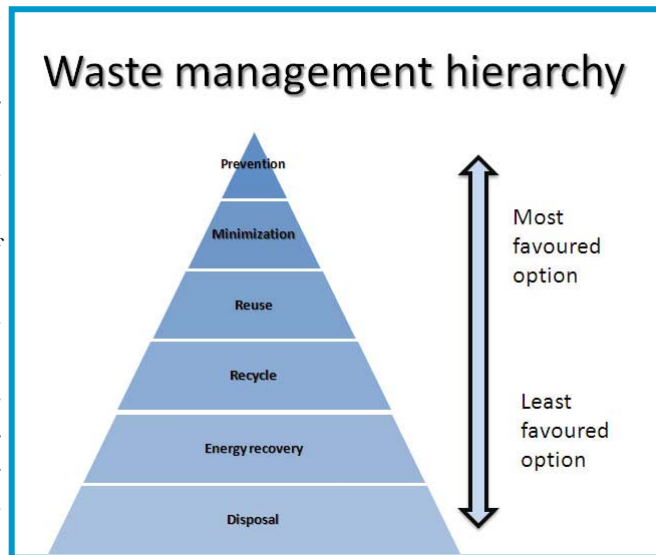
quiring them by most of the local governments. To avoid disturbance to the public and to avoid traffic congestion disturbances, it is better to pre-determine the suitable time and route to transport. Workers engaged in garbage handling are at a greater risk of injuries and also of infectious diseases. Therefore, they should be provided with proper personal protective equipment (PPE). Proper supervision should be exercised to ensure that they are using provided PPEs as there are many instances where workers prefer not to wear them despite their availability. Routine health checks of workers also will ensure their good health.

Intermediate treatment of waste

Prior to the final disposal there are procedures that can be employed to minimise the volume and hazardous materials. This is called intermediate treatment and includes recycling and resource recovering (energy and materials).

Recycling: Waste recycling is one of the major strategies of waste management. Ironically, it is a topic widely talked of with less action taken. This is the process used to recover the original raw materials from discarded goods. This helps in protecting the natural resources and the environment.

Paper, plastics, glass and metal are some of the recyclable wastes. Collecting them separately at the source of origin is the most effective method. If they are entered into the routine waste stream, then it has to be sorted out before recycling and if contaminated may need cleaning. This may not be economically productive for some industries.



Recovering value: This refers to converting waste materials into different products. Production of compost manure and biogas out of organic waste are examples. This is a very effective management method of largely organic wastes. On the other hand it can be used as a good source of nutrients in agricultural practices. The other advantage is that it can be

practiced on small scale at household level or on large scales. There are several methods of composting of which a suitable method can be selected according to the requirement.

Incineration: This is an intermediate treatment method in waste management. Incineration can produce residual ash amounting to about 10-15% and have to be disposed of as landfills. Incineration also produces other pollutants by means of gas, and airborne ash which is

expensive to control.

Final disposal

Disposal of waste is the final option if other methods described above fail, inadequate or inappropriate. Sanitary land filling is one option. Sometimes, incineration is also used as a final disposal method.

Sanitary land filling is an essential element of waste management. This is because, all management options produce some residue that needs disposal. The purpose of sanitary land filling is to dispose of wastes hygienically through proper dumping and decomposing using natural metabolic processes. To become land filling practical and viable, it is important to evaluate the local conditions and then decide a proper disposal method and location. When making this decision, it is important to consider type, form, composition of wastes, location of landfill site, hydrological and climate conditions of the location.

Both construction and maintenance costs of standard sanitary landfills are very high. Therefore, low cost sanitary land filling is the best alternative for countries like Sri Lanka.

Reference:

Harvey P, Baghri S and Reed B (2002). Emergency Sanitation. Assessment and Programme Design. WEDC, Loughborough University, UK.

Malwana C (2008). Solid Waste Management in Sri Lanka. Economic Review; 34 (3&4): 34-37.

This article was prepared by Dr Sudath Samaraweera, Consultant Community Physician

Table 1: Vaccine-preventable Diseases & AFP

08th - 14th November 2008 (46th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2008	Number of cases during same week in 2007	Total number of cases to date in 2008	Total number of cases to date in 2007	Difference between the number of cases to date between 2008 & 2007
	W	C	S	N	E	NW	NC	U	Sab					
Acute Flaccid Paralysis	00	00	01 NE=1	00	00	00	00	00	00	01	05	88	75	+17.3
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	01	00	-
Measles	00	00	01 HB=1	00	02 TR=2	00	00	00	00	03	01	105	71	+47.9%
Tetanus	01 GM=1	00	00	00	01 AM=1	00	00	00	00	02	00	35	31	+12.9%
Whooping Cough	00	00	00	00	00	01 KR=1	00	00	00	01	01	46	43	+07.0%
Tuberculosis	158	00	04	05	04	04	05	08	05	193	161	7444	8699	-14.4%

Table 2: Newly Introduced Notifiable Disease

08th - 14th November 2008 (46th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2008	Number of cases during same week in 2007	Total number of cases to date in 2008	Total number of cases to date in 2007	Difference between the number of cases to date between 2008 & 2007
	W	C	S	N	E	NW	NC	U	Sab					
Chicken-pox	16	09	13	00	10	05	10	05	04	72	72	4874	3033	+60.7%
Meningitis	02 KL=2	00	01 GL=1	00	00	01 PU=1	00	01 BD=1	02 RP=1 KG=1	07	26	1171	647	+81.0%
Mumps	05	02	05	00	06	04	02	05	00	29	39	2646	1955	+35.3%

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.
DPDHS 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.

Table 3: Laboratory Surveillance of Dengue Fever

08th - 14th November 2008 (46th Week)

Samples	Number tested		Number positive *		Serotypes										
					D ₁		D ₂		D ₃		D ₄		Negative		
	GT	AH	GT	AH	GT	AH	GT	AH	GT	AH	GT	AH	GT	AH	
Number for current week	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
Total number to date in 2008	124	138	09	23	00	00	06	08	01	08	00	00	02	00	

Sources: Genetech Molecular Diagnostics & School of Gene Technology, Colombo [GT] and Genetic Laboratory Asiri Surgical Hospital [AH]

* Not all positives are subjected to serotyping.

NA= Not Available.

Data Sources:

Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Whooping Cough, Human Rabies, Dengue Haemorrhagic Fever, Japanese Encephalitis, Chickenpox, Meningitis, Mumps.

Special Surveillance: Acute Flaccid Paralysis.

National Control Program for Tuberculosis and Chest Diseases: Tuberculosis.

Table 4: Selected notifiable diseases reported by Medical Officers of Health
08th - 14th November 2008 (46th Week)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Returns Received Timely*
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	%		
Colombo	20	1470	9	253	0	15	6	166	5	139	25	981	0	6	3	107	0	0	92
Gampaha	9	895	6	210	0	20	0	56	1	104	20	776	0	7	3	176	0	7	86
Kalutara	9	437	13	304	0	13	1	68	0	40	15	598	0	4	0	43	0	2	92
Kandy	6	285	3	294	0	8	1	61	0	99	16	480	1	93	1	124	0	2	84
Matale	1	146	3	204	0	4	0	51	0	16	14	723	0	2	1	29	0	0	100
Nuwara	0	28	0	259	0	3	0	242	1	167	0	64	1	42	1	107	0	1	77
Galle	0	100	3	185	0	20	0	17	2	45	10	405	0	14	0	8	0	5	94
Hambantota	7	94	3	116	2	8	0	8	0	12	6	109	1	92	0	16	0	1	100
Matara	6	316	4	202	0	14	0	36	0	15	12	456	2	221	0	14	0	1	94
Jaffna	0	58	1	146	0	4	1	255	0	17	0	1	0	156	0	38	0	0	50
Kilinochchi	0	0	0	129	0	0	0	1	0	4	0	2	0	0	0	2	0	0	0
Mannar	0	25	0	22	0	6	1	157	0	0	0	0	0	1	0	16	0	0	25
Vavuniya	0	12	0	62	0	3	0	13	0	22	0	5	0	1	0	5	0	0	50
Mullaitivu	0	0	0	54	0	0	0	16	0	13	0	0	0	1	0	9	0	1	0
Batticaloa	0	86	10	195	0	7	2	30	0	29	0	9	0	0	3	95	0	16	82
Ampara	0	33	1	260	0	0	0	9	0	283	0	23	0	0	0	13	0	0	71
Trincomalee	1	179	8	116	0	1	0	13	0	14	0	30	0	17	1	15	0	0	90
Kurunegala	4	331	10	232	1	16	0	52	0	27	22	646	0	30	1	80	0	8	89
Puttalam	1	281	5	129	2	10	3	157	1	40	1	65	0	38	2	32	0	5	78
Anuradhapu	1	119	11	141	0	10	0	12	3	16	3	240	0	11	0	15	0	3	58
Polonnaruw	0	64	1	130	0	1	1	28	0	23	0	71	0	1	0	21	0	0	86
Badulla	2	92	11	484	1	7	0	121	0	96	0	68	1	113	0	152	0	1	93
Monaragala	2	60	2	348	1	4	4	50	0	121	0	93	0	102	1	54	0	2	91
Ratnapura	2	276	9	383	0	32	0	51	0	80	1	223	0	79	0	55	0	0	78
Kegalle	5	407	1	299	0	25	2	81	0	16	8	535	1	68	1	494	0	1	82
Kalmunai	0	37	6	269	0	2	0	14	0	16	0	3	0	3	0	25	0	0	92
SRI LANKA	76	5831	120	5426	7	233	22	1765	13	1454	153	6606	7	1102	18	1745	0	56	81

Source: Weekly Returns of Communicable Diseases (WRCD).

*Dengue Fever / DHF refers to Dengue Fever / Dengue Haemorrhagic Fever.

**Timely refers to returns received on or before 22 November, 2008 Total number of reporting units =309. Number of reporting units data provided for the current week: 251

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