



# WEEKLY EPIDEMIOLOGICAL REPORT

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## Let's say 'Goodbye' to polythene (Part I)

### Introduction

Plastic is an expedient innovation and uses in an enormous and growing range of products from paper clips to spaceships due to its low-cost, ease of manufacture, versatility, and imperviousness to water. Accordingly, polythene or polyethylene (PE) records as the most common plastic which exceeds 80 million tons of the global annual production. A German chemist, Hans Von Penchmann first invented polythene accidentally in 1898 while investigating diamethane nearly a decade before Leo Baekeland invented plastics. Though polythene still seems to be a noble companion in every field such as rail, transport, defense, automotive field and aerospace, medical and healthcare, electrical, electronics, telecommunication, building and infrastructure, furniture, composites, it causes serious environmental, social, financial and health effects due to misuse and improper disposal methods, thus, suitable discarding technique is needed.

### Disposal of polythene

There are four major options for disposal of polythene: landfilling, incineration, recycling, and biodegradation. All polythene can be disposed by landfills or incinerated. But, landfills require space and the chemical constituents and energy contained in polythene typically absorbed to the soil in this disposal route. The second option, incineration, returns some of the energy from plastic production but is known to release of carbon dioxide, a greenhouse gas and of other air pollutants such as carcinogenic polycyclic aromatic hydrocarbons (PAHs) and dioxins. Many polythene can be recycled, and some of the materials used to make polythene can be recovered. However, this method is not fully utilized, due to difficulties with the collection and sorting of polythene waste. Finally, certain polymers are designed to biodegrade, thereby preventing long-term environmental damage from pollution. There has been a research carried out internationally that suggests the use of paper bags, leave a higher carbon footprint than their plastic counterpart especially for manufacturing and transporting. However, many biodegradable polythene may not biodegrade rapidly under

ambient environmental conditions to avoid accumulation from continuous inputs; and biodegradable polythene also can contaminate and disrupt the current recycling stream, due to their similar appearance, yet distinct makeup.

### Environmental related effects

Environmental effects are most commonly occur during manufacturing and disposal of polythene. It is made from derivatives of petroleum, thus petroleum related activities are a major contributor to emit greenhouse gases which harm the environment and contribute to global climate change. Moreover, discarded polythene ends up in water ways causing a blockage, while Sri Lanka has been ranked as the world fifth most egregious sea polluter discards around 1.6 metric tons of plastic to the sea annually, though Sri Lanka is a small Island compared to the other top sea polluters. Conversely, it severely affected to around 700 marine animals such as whales, dolphins, and turtles.

### Health related effects

Polythene has posted a serious threat to all living beings on the planet. Various chemicals such as phthalates, bisphenols A, polybrominated diphenyl ethers and tetrabromo bisphenol A are used to produce plastic that leads to alter the hormone system in animals. Consequently, toxic gases such as dioxine, furan, carbon dioxide and carbon monoxide are generated during burning of polythene that leads to cardiovascular diseases, respiratory diseases, reduction of fertility and cancer other than its direct hurt to the environment.

### Polythene ban in Sri Lanka

A recent survey has shown that over 200,000 lunch sheets and about 150,000 polythene bags are used daily and per capita daily consumption of polythene and plastics in Sri Lanka is about 0.5kg. Whereas plastics have been in the public eye recently owing to disasters such as the Meethotamulla garbage dump, flooding in urban areas even in light rain and death of wild life. Recent several studies described

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the main composition of the dumping garbage: 60%-70% as biodegradable, 7% as recyclable waste and lunch sheets, shopping bags and regiform boxes as residuals. Due to long lasting effect in the environment, polythene leads to serious problems, therefore ban is a proper solution.

Though, there was an order published under gazette notifications to ban polythene in 2006 further to National Environment Act No 47 of 1980, it seems to have done nothing to halt the flood of polythene into the market. It failed due to several reasons such as incapable of introducing a substitute to polythene, lack of awareness among public and less motivation. According to the cabinet paper No. 17/1405/704/022 dated on 29<sup>th</sup> June 2017, manufacturing, trading and use of polythene products such as lunch sheets, polystyrene (regiform) disposable lunch boxes and grocery bags (shopping bags) have been banned with effect from 1<sup>st</sup> September 2017. It has been claimed that around 40,000 stakeholders in the polythene industry will be adversely affected by the ban on September 1<sup>st</sup> and after intense lobbying by polythene and plastic industry a grace period may yet to be given to manufactures to make the transition to biodegradable polythene.

Though it is difficult to practice, to make Sri Lanka a polythene free country and find a sustainable solution to solid waste management, we must follow the several measures developed by Central Environmental Authority (CEA). It includes the short term, intermediate and long term measures. National Environment Act, Consumer Act, Importing and Exporting Act and Food Act will be amended to support this also. The government will penalize offenders by imposing a fine of RS. 10,000 or a two-year imprisonment.

**1. Short term measures**

- Prohibition of polythene use for decoration in all events
- Implement the prevailing regulations for the prohibition of use, sale and production of polythene equal or less than 20 microns
- Allow use of polythene < 20 microns for essential activities only with the approval of the CEA
- Prohibition of sale, importation and production of lunch sheets
- Prohibition of sale, importation and production of containers, plates, cups, spoons made using polystyrene
- Prohibition of sale of processed or cooked meals packed in polythene containers
- Promotion of providing paper, cloth or reed bags or biologically degradable plastics for customers when purchasing items in stores
- Prohibition of burning polythene and plastic in open places
- Introduction and promotion of biologically degradable polythene and plastics

**2. Intermediate measures**

- The manufacture of biodegradable plastics remains prohibitively expensive; the Government will, therefore, introduce tax concessions to import machinery for the manufacture of biologically degradable plastic and a cess tax of 15% on the

import of plastic raw material and goods

**3. Long term measures**

- The President has also proposed a blanket ban on import of recycled plastic, as a long-term measure

**Table 1 : Water Quality Surveillance  
Number of microbiological water samples June 2017**

District	MOH areas	No: Expected *	No: Received
Colombo	15	90	68
Gampaha	15	90	NR
Kalutara	12	72	NR
Kalutara NIHS	2	12	NR
Kandy	23	138	NR
Matale	13	78	NR
Nuwara Eliya	13	78	101
Galle	20	120	31
Matara	17	102	NR
Hambantota	12	72	NR
Jaffna	12	72	129
Kilinochchi	4	24	17
Manner	5	30	32
Vavuniya	4	24	39
Mullatvu	5	30	NR
Batticaloa	14	84	57
Ampara	7	42	31
Trincomalee	11	66	21
Kurunegala	29	174	55
Puttalam	13	78	NR
Anuradhapura	19	114	NR
Polonnaruwa	7	42	29
Badulla	16	96	68
Moneragala	11	66	111
Rathnapura	18	108	NR
Kegalle	11	66	NR
Kalmunai	13	78	78

\* No of samples expected (6 / MOH area / Month)  
NR = Return not received

**Sources**

Central Environment Authority, Sri Lanka, 2017. Available online: www.cea.lk  
Sriyananda S. Ban on polythene controls floods, boosts jute products: 'green' bags in Bangladesh. Visvanathan C, Norbu T. Reduce, reuse, and recycle: the 3Rs in South Asia. In 3 R South Asia Expert Workshop 2006 Sep.

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Table 1: Selected notifiable diseases reported by Medical Officers of Health 08<sup>th</sup>- 14<sup>th</sup> July 2017 (28<sup>th</sup> 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	1762	21917	0	40	0	3	0	21	1	25	2	68	0	1	1	11	0	0	1	225	1	19	0	1	22	100
Gampaha	2631	19166	1	21	0	12	0	16	0	8	1	34	0	9	0	7	0	1	2	181	2	22	0	2	6	100
Kalutara	703	6099	0	37	0	3	1	10	6	46	4	186	0	5	1	3	0	0	6	355	7	84	0	0	2	100
Kandy	869	6324	0	51	0	3	0	4	0	9	2	30	5	93	0	9	0	0	6	153	0	27	0	7	14	100
Matale	204	1506	1	16	0	1	0	1	0	6	3	29	0	2	0	5	0	0	1	34	0	40	0	4	12	100
Nuwaraweliya	58	450	0	16	1	7	1	22	0	9	1	23	5	130	2	16	0	0	1	233	0	33	0	0	46	100
Galle	192	3624	5	36	0	7	1	10	0	12	10	188	3	31	0	1	0	1	8	252	2	45	0	0	16	100
Hambantota	138	2109	0	15	0	5	1	7	1	17	2	34	2	37	1	7	0	1	0	137	0	15	4	187	9	100
Matara	378	3415	0	21	0	8	1	2	0	5	6	134	0	16	0	4	0	1	5	142	0	4	3	80	10	100
Jaffna	111	3251	7	163	0	12	0	27	0	51	0	23	3	394	0	3	0	0	4	130	1	30	0	0	37	88
Kilinochchi	27	316	1	11	0	1	1	9	0	1	0	3	0	12	0	2	0	0	0	3	0	7	0	2	24	100
Mannar	2	486	0	5	0	0	0	1	0	0	0	2	0	2	0	0	0	0	0	12	0	0	0	0	14	100
Vavuniya	31	581	1	12	0	0	5	27	1	6	1	24	0	7	0	1	0	0	1	20	0	2	0	9	11	100
Mullaitivu	12	207	0	8	0	1	0	3	0	1	1	12	0	4	0	1	0	1	0	11	0	5	0	1	7	100
Batticaloa	43	4154	1	64	0	8	0	13	0	18	0	17	0	0	0	4	0	1	3	124	0	21	0	1	21	100
Ampara	42	510	1	15	0	2	0	1	0	0	1	9	0	1	0	3	0	0	4	125	1	29	0	3	31	100
Trincomalee	19	4442	0	13	0	2	0	5	0	16	1	16	0	12	0	17	0	0	2	101	0	18	0	3	17	99
Kurunegala	681	6474	1	48	0	6	2	2	0	14	4	45	0	24	0	15	1	2	3	360	7	40	2	94	10	100
Puttalam	284	2878	0	28	0	2	0	2	0	0	2	18	0	11	0	1	0	0	3	108	0	30	0	3	7	100
Anuradhapur	116	1748	1	26	0	2	0	1	0	10	3	50	0	13	0	9	0	0	6	281	1	43	8	161	8	100
Polonnaruwa	63	924	0	11	0	5	0	9	0	5	0	30	0	5	0	6	0	0	7	161	1	12	2	85	2	100
Badulla	305	1817	2	55	0	5	0	7	0	2	2	58	2	71	1	45	0	1	3	232	4	118	1	11	6	98
Monaragala	137	1350	0	39	0	3	1	1	0	9	1	90	5	79	0	16	0	1	1	56	0	40	1	12	27	100
Ratnapura	649	6463	2	96	0	62	0	6	0	8	8	396	0	22	6	56	0	0	2	218	2	122	0	16	9	99
Kegalle	671	5097	0	25	0	8	0	4	0	17	1	49	1	52	0	10	0	0	3	172	2	46	0	6	10	100
Kalmune	32	1816	12	55	0	4	1	4	1	275	0	6	0	0	0	2	0	0	1	112	0	11	0	0	11	100
<b>SRI LANKA</b>	<b>999</b>	<b>105859</b>	<b>36</b>	<b>919</b>	<b>1</b>	<b>173</b>	<b>15</b>	<b>214</b>	<b>10</b>	<b>570</b>	<b>56</b>	<b>1573</b>	<b>25</b>	<b>1022</b>	<b>12</b>	<b>254</b>	<b>1</b>	<b>10</b>	<b>73</b>	<b>392</b>	<b>3</b>	<b>86</b>	<b>21</b>	<b>688</b>	<b>14</b>	<b>99</b>

Source: e surveillance.epid.gov.lk

\*T=Timeliness refers to returns received on or before 14<sup>th</sup> July, 2017 Total number of reporting units 344 Number of reporting units data provided for the current week: 342 C\*\*=Completeness

**Table 2: Vaccine-Preventable Diseases & AFP**

08<sup>th</sup>– 14<sup>th</sup> July 2017 (28<sup>th</sup> Week)

Disease	No. of Cases by Province									Number of cases during current week in 2017	Number of cases during same week in 2016	Total number of cases to date in 2017	Total number of cases to date in 2016	Difference between the number of cases to date in 2017 & 2016
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	01	00	00	00	00	00	00	00	00	01	02	41	35	17.1%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Mumps	00	01	00	01	02	00	01	00	01	06	03	196	227	- 13.6%
Measles	00	01	00	01	00	00	00	00	00	02	00	134	288	- 53.4%
Rubella	00	00	00	00	00	00	00	00	00	00	00	05	06	- 16.6%
CRS**	00	00	00	00	00	00	00	00	00	00	00	01	00	0%
Tetanus	00	01	00	00	00	01	00	00	00	02	00	10	04	150%
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	01	21	08	61.9%
Whooping Cough	00	00	00	00	00	00	00	00	00	00	01	09	31	- 71%
Tuberculosis	83	13	23	07	09	08	06	08	13	170	182	4429	5114	-13.4%

**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

Influenza Surveillance in Sentinel Hospitals - ILI & SARI							
Month	Human				Animal		
	No Total	No Positive	Infl A	Infl B	Pooled samples	Serum Samples	Positives
July	275	36	30	6	1052	742	0

Source: Medical Research Institute & Veterinary Research Institute

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