



WEEKLY EPIDEMIOLOGICAL REPORT

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Ministry of Health, Nutrition & Indigenous Medicine

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E-waste: an Emerging Problem

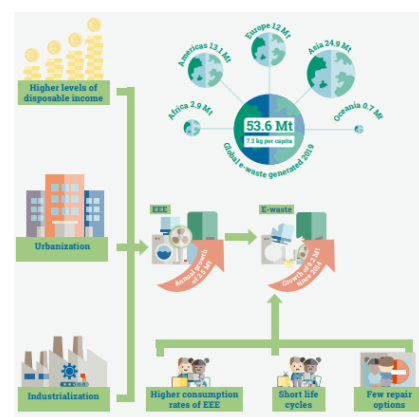
An accelerating growth in the consumption of information and communications technology equipment and other electronic equipment can be seen worldwide. This consumption pattern is strongly linked to widespread global economic development. Although the production and usage of Electrical and Electronic Equipment (EEE) can be very resource-demanding, it has become indispensable in modern societies and is enhancing living standards. Consequently, there is a growing amount of equipment that becomes waste after its time in use. This growth is expected to speed up with the decreasing the equipment lifetime with time and growing consumption. Hence, e-waste is one of the fastest-growing waste streams in the current world.

E-waste or Waste Electrical and Electronic Equipment is defined as EEE that is waste, including all components, sub-assemblies, and consumables that are part of the equipment at the time the equipment becomes waste by the Basel Convention.

The consumption of EEE is most prevalent in the developed world. However, developing countries also show rapid consumption growth. Typically, developed countries have growth rates of 1% to 5% annually on a weight basis. Developing countries typically range from 10% to 25%. In 2019, Global E-waste Monitor estimated the global production of e-waste at approximately 53.6 million metric tons. This figure is expected to grow to 74.7 million metric tons by 2030. Asia generated the highest quantity of e-waste in 2019 at 24.9 Mt, followed by the

Americas (13.1 Mt) and Europe (12 Mt), while Africa and Oceania generated 2.9 Mt and 0.7 Mt, respectively.

E-waste consists of Halogenated compounds like Polychlorinated biphenyls (PCB), Polybrominated biphenyls (PBB), Polybrominated diphenyl Ethers (PBDE), Polyvinyl Chloride (PVC), metals like Iron, Copper, Arsenic, Chromium, Lead, Mercury, Nickel, gold, Silver and Tin, etc. and other substances like Toner dust and Radio-active substances which release the toxic substances like Polychlorinated dibenzo-p-dioxins (PCDDs) and Polychlorinated dibenzofurans (PCDFs) in open burning during the extraction of precious metals informally. These can lead to severe skin disease, reproductive, immune, nervous system, and endocrine dysfunction and some of these substances are carcinogenic. Hence, the safe management of e-waste is crucial for the healthy future of mankind.



In 2014 and 2016, the estimated quantity of e-waste was about

41.8 and 44.7 million metric tons, respectively,

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all over the world, whereas only about 15% (6.5 million metric tons) and 20% (8.9 million metric tons) were formally collected and recycled by a proper channelized system.

The majority of this undocumented domestic and commercial e-waste is probably mixed with other waste streams, illegally dumped overwhelmingly in low- or middle-income countries, where it is recycled by informal workers. Due to the lack of enforcement of waste management laws, e-waste in some less-developed countries will often be treated in suboptimal ways by the informal sector. These developing countries can become the dumping sites of e-waste generated in developed countries as they do not have the capacity for effective management of e-waste.

This leads to severe consequences for the environment and human health. To treat e-waste in an environmentally-sound manner, it needs to be regulated. Appropriate collection and recycling of e-waste are key to protecting the environment and reducing climate emissions. This means that an appropriate system needs to be created and financed, a recycling infrastructure needs to be developed or improved, and workers' health and safety standards need to be implemented.

E-waste is an 'urban mine', as it contains several precious, critical, and other noncritical metals such as gold, copper, and nickel and rare materials of strategic value such as indium and palladium. These metals can be extracted and can be used as secondary materials. The value of raw materials in the global e-waste generated in 2019 is equal to approximately USD 57 billion. This also points out the urgent need for a properly functioning e-waste recycling mechanism for the world.

E-waste management closely relates to many Sustainable Development Goals (SDGs). A better understanding and management of e-waste is closely linked to Goal 3 (Good health and Well-being), Goal 6 (Clean water and Sanitation), Goal 11 (Sustainable Cities and Communities), Goal 12 (Responsible Consumption and Production), Goal 14 (Life Below Water), and Goal 8 (Decent Work and Economic Growth).



The Basel Convention which addresses the transboundary movements of hazardous waste was ratified by 190 countries and Sri Lanka is also a party. It started to address e-waste issues in 2002 with the adaptation of the Mobile Phone Partnership Initiative (MPPI). In 2006, the Nairobi Declaration on the Environmentally Sound Management (ESM) of e-waste was adopted and Parties to the Convention agreed to cooperate, among others, to develop policies and strategies, to enhance the environmentally sound collection, separation from household waste, repair, recycling and final disposal of e-

waste and to prevent illegal traffic of e-waste. Both hazardous and non-hazardous e-waste transboundary movements will be subject to the Prior Informed Consent Procedure (PIC) according to the amendments proposed in 2022 to the Basel Convention.

In Sri Lanka, mercury waste, e-waste, and waste from specific sources like discarded batteries have been considered hazardous and handling requires a Scheduled Waste Management License (SWML) from Central Environmental Authority. The responsibility for the management of electronic waste in Sri Lanka is devolved on the Central Environmental Authority. The Ministry of Health, the Department of Import and Export Control, the Sri Lanka Standards Institution, the Consumer Affairs Authority, and the Telecommunications Regulatory Commission of Sri Lanka are also connected with safe e-waste management within the country. Under Corporate E-waste Management, the Sri Lanka government encourages e-waste recycling for an e-waste-free environment. To raise public awareness CEA holds the E-waste Collection Days and National E-waste Management Weeks regularly. E-waste management at present is executed by the Collection of Electronic Waste supervised by that Authority. A list of authorized e-waste collectors has been published on the website of the CEA and the public can hand over their e-waste to the nearest waste collector.

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Source Materials

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- Chapter 2, E-waste and Its Relation to the Sustainable Development Goals
<https://www.itu.int/en/ITU-D/Climate-Change/Documents/GEM%202017/Global-E-waste%20Monitor%202017%20-%20Chapter%202.pdf>
- Parvez SM et al. Ecological Burden of e-Waste in Bangladesh-an Assessment to Measure the Exposure to e-Waste and Associated Health Outcomes: Protocol for a Cross-sectional Study. JMIR Res Protoc. 2022 Aug 16;11(8):e38201. doi: 10.2196/38201. PMID: 35972788; PMCID: PMC9428780.
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- Central Environmental Authority. 2013. Acts and Regulations. [ONLINE] Available at; <http://www.cea.lk/web/index.php/en/acts-regulations>.

Table 1: Selected notifiable diseases reported by Medical Officers of Health 25th-03rd Mar 2023(9th Week)

RDHS	Dengue Fever		Dysentery		Encephaliti		Enteric Fever		Food Poi-		Leptospirosis		Typhus		Viral Hep-		Human		Chickenpox		Meningitis		Leishmania-		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	244	2846	1	3	2	4	0	1	3	6	5	36	0	0	0	2	0	0	0	5	36	0	5	0	3	18	92
Gampaha	203	2421	2	3	0	5	0	1	0	0	9	52	0	0	1	4	0	0	0	5	51	0	21	0	8	2	85
Kalutara	62	803	1	5	1	1	0	0	1	3	4	67	0	1	0	1	0	1	1	4	52	3	17	1	1	5	74
Kandy	59	615	0	7	0	0	0	1	0	1	5	37	3	17	1	1	0	0	9	56	1	4	4	10	64	100	
Matale	17	225	0	1	0	0	0	1	0	1	5	19	0	1	0	2	0	0	2	11	1	2	6	58	27	100	
NuwaraEliya	6	40	2	12	0	0	0	0	0	5	1	20	2	16	0	0	0	0	5	24	1	3	0	0	41	91	
Galle	32	374	1	8	0	1	0	0	0	5	11	101	2	17	0	0	0	0	14	73	0	1	0	0	25	100	
Hambantota	24	202	0	0	0	0	0	0	0	4	1	42	0	29	0	8	0	0	1	28	1	5	8	82	32	100	
Matarata	42	342	0	6	0	2	0	0	0	3	12	79	0	7	0	2	0	0	6	51	0	5	1	28	48	100	
Jaffna	33	735	0	11	0	1	1	4	0	5	0	4	29	311	0	0	0	1	4	31	0	0	0	0	57	91	
Kilinochchi	4	35	0	2	0	0	0	0	0	0	0	4	0	2	0	0	0	0	0	2	0	0	0	0	15	94	
Mannar	0	25	0	4	0	0	0	0	0	0	0	11	0	3	0	0	0	0	0	0	0	2	0	0	11	78	
Vavuniya	9	32	0	5	0	1	0	0	0	0	2	10	1	5	0	1	0	0	3	6	0	1	0	0	0	100	
Mullaitivu	0	15	0	6	0	0	0	0	4	6	0	3	0	3	0	0	0	0	0	2	0	0	0	0	16	80	
Batticaloa	45	393	4	48	0	4	0	2	0	6	0	18	0	0	0	1	0	0	0	16	1	8	0	0	38	100	
Ampara	0	38	0	1	0	1	0	0	0	0	0	11	0	0	0	1	0	0	0	15	0	5	0	2	15	87	
Trincomalee	74	368	0	3	0	0	0	0	0	1	0	12	0	5	0	0	0	0	2	10	0	3	0	1	21	98	
Kurunegala	39	603	2	9	1	4	0	0	0	0	3	49	1	7	0	3	0	0	12	109	4	27	1	83	21	95	
Puttalam	79	1648	0	0	0	0	0	0	0	0	8	0	0	6	0	0	0	0	0	22	0	10	0	0	15	94	
Anuradhapur	2	109	0	1	0	0	0	1	0	1	6	80	1	16	1	1	0	0	6	48	0	7	3	92	19	97	
Polonnaruwa	16	168	0	3	0	2	0	0	0	1	5	36	0	3	0	3	0	0	3	17	0	8	20	94	24	89	
Badulla	29	317	0	8	0	2	0	0	0	4	9	70	3	6	3	23	0	0	4	28	0	5	1	7	51	100	
Monaragala	13	92	0	4	0	0	0	0	0	0	9	75	1	11	1	5	0	0	5	16	3	22	5	33	16	99	
Ratnapura	53	406	2	8	1	4	0	1	1	6	15	179	0	9	0	6	0	0	2	20	3	43	3	34	32	100	
Kegalle	44	519	0	1	0	0	0	0	1	2	4	63	1	7	0	1	0	0	16	85	0	9	3	7	23	100	
Kalmune	58	895	2	18	0	0	0	0	0	0	1	10	0	0	0	0	0	0	6	9	2	7	0	0	32	97	
SRI LANKA	118	14266	17	177	5	32	1	12	10	60	10	1096	44	482	7	65	0	2	11	818	20	220	56	543	29	95	

Source: Weekly Returns of Communicable Diseases (esurveillance.epid.gov.lk). T=Timeliness refers to returns received on or before 03rd Mar, 2023. Total number of reporting units 358. Number of reporting units data provided for the current week: 309. C**=Completeness

Table 2: Vaccine-Preventable Diseases & AFP

25th–03rd Mar 2023(9th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2023	Number of cases during same week in 2022	Total number of cases to date in 2023	Total number of cases to date in 2022	Difference between the number of cases to date in 2023 & 2022
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	01	01	00	00	00	00	00	00	00	02	03	17	14	21.4 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps	00	01	00	00	00	00	00	00	00	01	00	27	06	350 %
Measles	00	00	00	00	00	00	00	00	00	00	01	03	07	- 50 %
Rubella	00	00	00	00	00	00	00	00	00	00	00	00	00	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	01	01	0 %
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	01	0 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	00	01	00	0 %
Tuberculosis	120	10	22	04	10	23	11	19	14	233	238	1513	1275	18.6 %

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
NA = Not Available

Seek medical advice if you get a fever after exposure to muddy water or soil.

It could be Leptospirosis.

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@slt.net.lk. **Prior approval should be obtained from the Epidemiology Unit before publishing data in this publication**

ON STATE SERVICE

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