

ELECTRONIC WASTE MANAGEMENT IN SRI LANKA



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AUDITOR GENERAL'S DEPARTMENT
PERFORMANCE AND ENVIRONMENT AUDIT DIVISION



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1. Executive Summary

The use of electronic and electrical equipment facilitate in making community life easy. Nevertheless, in view of the gradual increase of the waste generation as a result of the increased use of such equipment creates hazardous situations to the community life and the environment due to lack of proper management.

The objective of this audit was the evaluation whether the import requirements had been satisfied in the import of the electronic and electrical equipment and that the adverse impacts caused by the disposal of such equipment to the environment and the community life had been taken into consideration and the evaluation of the prevailing legal mechanism for the disposal of electronic waste and its operation.

The responsibility for the management of electronic waste in Sri Lanka is devolved on the Central Environmental Authority. The waste management at present is executed by the Collection of Electronic Waste supervised by that Authority. In addition, there are a large number of collectors who collect such waste informally and their work is not supervised by any institution. Herein, it was observed that there are a large number of weaknesses in the process for the issue of licences to the collectors and the methodology of collection of waste by the Collectors.

The Department of Import and Export Control, the Sri Lanka Standards Institution, the Consumer Affairs Authority, the Telecommunications Regulatory Commission of Sri Lanka and the Ministry of Health, Nutrition and Indigenous Medicine are also connected with this process and the functions performed by those intuitions as well were subjected to this evaluation.

Even though the Central Environmental Authority had formulated a national policy on the Management of Electronic Waste in Sri Lanka in the year 2008, and as it had not been made public, it was observed that the Management of Electronic Waste is being done without a recognized policy. It was also observed that the Environmental Orders of the year 2008 included only the regulations for implementation of the discarded computers, computer accessories, and mobile phones whilst there was no other control whatsoever in connection with the other electronic and electrical equipment. Even though the Orders specified that the generator should be responsible for the waste management only two institutions had obtained the licences for that purpose.

The Awareness Programmes conducted for the creation of an understanding among the general public on the damage caused by haphazard disposal of electronic waste, to the environment, had not been conducted adequately. Further, the Environmental Act did not contain provisions for co-opting the manufacturer for the waste management. The activities of the Electronic Waster Management had not been coordinated among the Central Environmental Authority, the Collectors of Waste and the Government and the private institutions connected herewith. The absence of a database for this sector was a noticeable feature. The formulation and implementation of a National

Policy on the Electronic Waste Management is an urgent need and a legal base should be provided for the concept on the responsibility of the manufacturer and the importer thereto. A course of action for the creation of an awareness among the general public at the time of sale of electronic equipment should be implemented. The Central Environmental Authority should establish a database covering all the parties involved in the Electronic Waste Management and ensure updated maintenance. The controls in force at present cover only the imported used articles whilst such controls should be set in place for the new articles imported as well.

Comparatively, the Electronic Waste Management in Sri Lanka is at a weak level due to reasons such as the inadequacy of awareness, lack of coordination among the relevant institutions and the slowness of intervention by the Central Environmental Authority, the main institution responsible for the process.

2. Introduction

2.1 Background

The development of science led the mankind to the manufacture of electronic and electrical equipment which in turn became an integral part of the community life due to their versatile utility quality. The household electrical equipment, office equipment, engineering equipment, medical equipment, factory equipment, etc., can be identified as the major electronic equipment.

All these electronic equipment are converted to waste after elimination from use. Such equipment and their accessories eliminated from use are called electronic waste. For example, a computer is an electronic equipment and the other connected articles including the wires are its accessories which are also disposed of. The Central Environmental Authority identifies such electronic waste as hazardous waste.

2.2 Contents of the Electronic Waste

The chemical contents of the electronic and electrical waste are given below and the heavy metals included therein as a hazardous waste, are those that cannot be disposed of freely to the environment.

Substances -----	Occurrence in E-waste -----
Heavy Metals and other Metals	
- Arsenic	Small quantities in the form of gallium arsenide within light emitting diodes.
- Barium	Gatters in CRT
- Beryllium	Power supply boxes which contain silicon controlled rectifiers and x-ray lenses.
- Cadmium	Rechargeable Nicd Batteries, fluorescent layer (RCT Screens), printer inks and toners, photocopying machines (printer drums)
- Chromium VI	Data Tapes, Floppy Disks
- Lead	CRT Screens, Batteries, Printed Wiring Boards.
- Lithium	Li-batteries
- Mercury	Fluorescent lamps that provide backlighting LLDs, in some alkaline batteries and mercury wetted switches.

- Nickel Rechargeable Nicd batteries or NIMH batteries, electron Gun in CRT.
- Rare Earth Elements (Yttrium, Europium) Fluorescent layer (RCT Screens)
- Selenium Older photocopying Machinery (photo drums)
- Zinc Sulphide Interior of CRT screen mixed with Rare Earth Metals.

Others

- Toner Dust Toner Cartridges for Laser Printers/ Copiers

Radio-active Substances

- Americium Medical Equipment, Fire Detectors, Active Sensing Element in Smoke Detectors

(Extracted from e wasteguide. Info Web Site)

The chemical contents in the electronic and electrical equipment eliminated from are very important and those as percentages can be given as follows.

Material	Large household Appliances	Small household Appliances	ICT and Consumer Electronics	Lamps
Ferrous Metal	43	29	36	0
Aluminum	14	9.3	5	14
Copper	12	17	4	0.22
Lead	1.6	0.57	0.29	0
Cadmium	0.0014	0.0068	0.018	0
Mercury	0.000038	0.00018	0.00007	0.02
Gold	0.00000067	0.00000061	0.00024	0
Silver	0.0000077	0.000007	0.0012	0
Palladium	0.0000003	0.00000024	0.00006	0
Indium	0	0	0.0005	0.0005
Brominated Plastic	0.29	0.75	18	3.7
Plastic	19	37	12	0
Lead Glass	0	0	19	0
Others	10	6.9	5.7	5
Total	100	100	100	100

(Extracted from e waste guide. info Web site)

Among the Waste increasing rapidly in the present day world the impact of the electronic waste occupies the leading position and the mankind is faced with the challenge for the management of that waste, because the failure to manage it properly could create environmental as well as health problems even threatening the life of mankind. Further it has been identified that the release of the heavy metals in the electronic waste to the environment could be a challenge to the existence of all living beings.

2:3 Impact of Electronic Waste to Health

The further examination of the information on the electronic waste revealed that the heavy metals added to the environment through the irregular release of electronic and electrical equipment after use to the environment are the agents for causing the following diseases.

Heavy Metal -----	Afflicted Disease -----
Arsenic	Skin diseases, lung cancer, nervous debility and can be fatal in certain instances.
Barium	Muscle pain. Damage to heart and liver increase in blood pressure on long term
Beryllium	Skin diseases, lung cancer
Cadmium	Kidney diseases, fever, headache, muscle pains, lung cancer
CFCS (Chlorofluorocarbons)	Skin diseases, gene distortion
Chromium	Diseases of the eye and skin
Lead	Vomiting, dysentery, shock, fainting or death in certain instances, damage to the nervous system, sleepiness, headache.
Mercury	Damage to brain and liver
Polychlorinated Biphenyls	Nervous diseases, cancer

(Extracted from e waste guide. Info Website)

Out of the countries world – wide, specially the developed countries paid their attention for the control of the above positions, formulated the policies and regulations and taking remedial actions on the problems. For example the responsibility for electronic waste in the developed has to be borne by the manufacturer and as such the manufacturer himself takes over such articles after use and manage them according to the environmental friendly methodologies.

As a developing country, Sri Lanka has not up to date followed a specified methodology for the Electronic Waste Management whilst only a very few items are being managed at the minimal level such as CFL Bulbs, Mobile Phones, Computers, etc.

2:4 Generation of Electronic Waste in Sri Lanka and the Legal Background relevant to the Management of such Waste.

2:4:1 Generation of Electronic Waste

The annual generation of electronic waste in Sri Lanka is 92,000 metric tons approximately. CFL Bulbs, Mobile Phones, Television Sets, Batteries, Computers, etc., are the major items in the electronic waste. A substantial part of them is disposed of without following a proper management methodology. According to the data forecasted during the course of this audit it is expected that about 120,000 metric tons of electronic waste will be generated by the year 2020.

In the day to day disposal of normal household waste, electronic waste is also disposed of by mixing with the normal waste. Such unprotected disposal of the heavy metals in them, such as Cadmium, Arsenic, Mercury and Lead to the environment could lead to different environmental and health problems. In view of the minimal level of the awareness among the general public of Sri Lanka about the damaging effects of the electronic waste any interest in handing over those to the collection lessened.

2:4:2 Legal Background on the Management of Electronic Waste

The Central Environmental Authority is the main institution on which the responsibility for the Management of Electronic Waste in Sri Lanka is devolved. The Authority was established under the National Environmental Act, No. 47 of 1980 and the provisions in this connection had been made in Section 23(a) and (b) of the Act.

Further details thereon appear in Order No. 15 of the National Environmental (Protection and Quality) Orders No. 1 of 2008. Further, in the export of electronic waste, the responsibility for the grant of permission for export in accordance with Standards relating thereto is with the Central Environmental Authority. The next institutions of importance in the Electronic Waste Management is the Department of

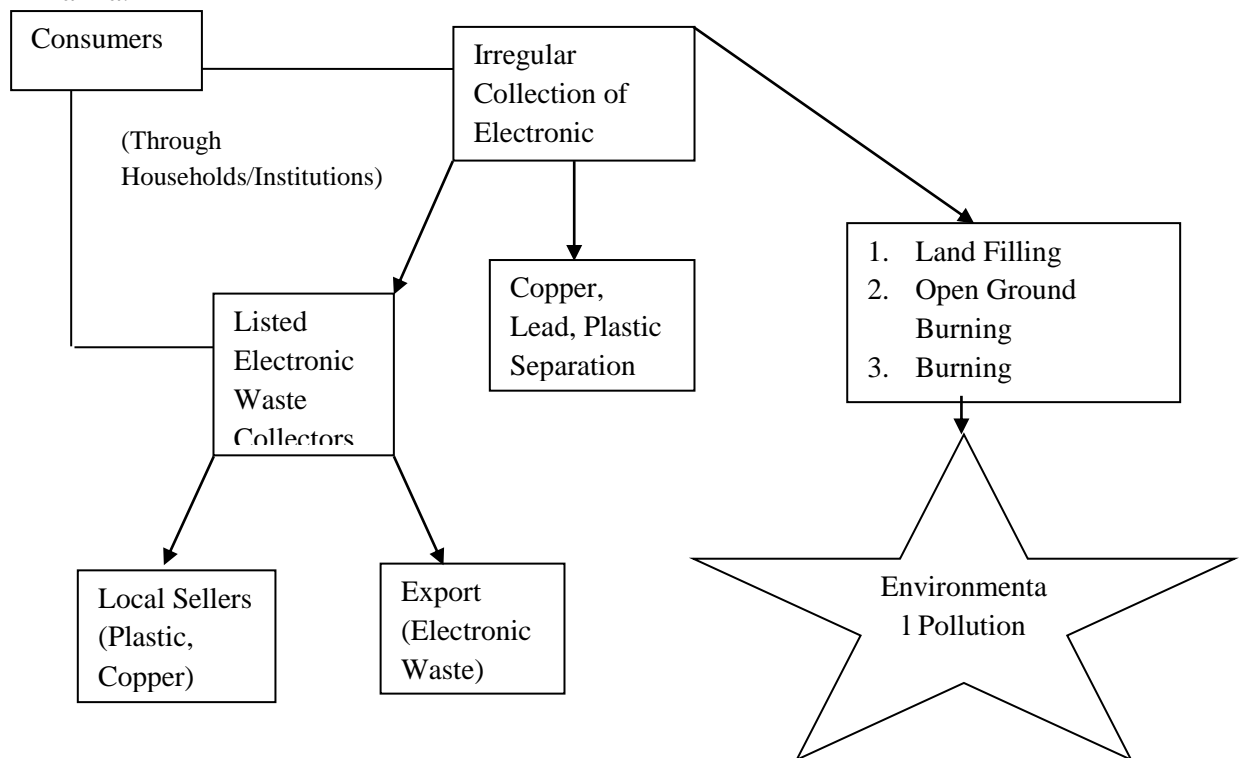
Import and Export Control. This institution controls the import of the electronic equipment and mobile phones specified in the Imports and Exports (Control) Act, No. 1 of 1969 in accordance with criteria specified thereon.

The Sri Lanka Standards Institution which determines the Standards applicable in the import and manufacture in this country the electronic and electrical equipment is also connected in this process and examines whether such goods conform to the relevant Standards.

The Telecommunications Regulatory Commission of Sri Lanka makes its contribution in the importation of Mobile Phones and permits the importation of mobile phones which comply with the specifications specified by the Commission. The Commission carried out the co-ordination work in connection with the handover of the communication equipment after use, to the authorized collectors.

2:4:3 Electronic Waste Collection Methodology

The following diagram shows the Electronic Waste Collection Methodology in Sri Lanka.



Even though the Electronic Waste Collection Methodology in Sri Lanka operates as depicted above, a quantity of electronic waste not collected due to different reasons is retained in the households and institutions.

2:4:4 Objectives of the Central Environmental Authority

The Objectives of the Central Environmental Authority as set out in the National Environment Act, No 47 of 1980 are as follows.

- (a) To regulate, maintain and control the types, constituents and effects of waste, discharge, emissions, deposits or other sources of pollution which are of danger or potential danger to the quality of the environment through the implementation of Environmental Protection License (EPL) scheme under the National Environment Act.
- (b) To protect natural resource base on the country by ensuring environmentally sound development interventions through systematically assessed environmental implications, using Environmental Impact Assessment (EIA) as a tool.
- (c) To make people conscious of the local, national and global environmental problems with a view to motivate and to harness public support and participation, particularly the participation of school children in protecting the environment.
- (d) To be the centre of information on environment related data and information providing its services to wider cliental needs.

2:5 Authority for Audit

This audit was carried out under my direction in pursuance of provisions in Article 154(1) of the Constitution of the Democratic Socialist Republic of Sri Lanka.

2:6 Selections of the Subject for Audit

The number of electronic and electrical equipment used in Sri Lanka is increasing daily and concurrently the quantity of electronic waste added to the environment is also increasing. As the proper management of the electronic waste is a nationally very important task, carrying out an evaluation to ascertain whether the legal background for the process has been well established and whether the State Institutions responsible have organized the activities in compliance with the prevailing legal provisions for the building of an unpolluted environment to the future generation was a timely task and in view of that reason this subject was selected for the audit.

2:7 Audit Approach

This was organized under the following activities.

- i. Study of the national and international laws, rules, regulations and covenants relating to the waste management.
- ii. Discussions with the officers of the Central Environmental Authority, the supervision of the Waste Management Programmes and examination of files and documents of the Authority.
- iii. Pay attention to the environmental problems arisen due to the failure to follow the waste management procedures.
- iv. Study of the methodologies of the countries which follow waste management procedures properly.
- v. Study of the working of the Central Environmental Authority responsible for examination and supervision whether action is taken in accordance with the regulations and requirements relevant to the waste management.
- vi. Study of the working of the private institutions (listed under the Central Environmental Authority) managing the electronic waste.

2:8 Audit Objective

Evaluation of the adverse impacts caused to the environment in the importation of electronic and electrical equipment to this country and elimination after use and the evaluation of the legal mechanism set in place therefor.

2:9 Scope of Audit

Electronic and electrical equipment are being used in every home, factory and Government and private institution and due to the elimination of such equipment after use, the generation of electronic waste take place ceaselessly. Even though this is a very wide area, the audit was carried out based on the following areas due to the limitations of staff, other resources and time available.

- i. The Electronic Waste Management Process implemented by the Waste Management Unit of the Central Environmental Authority.
- ii. The procedure in place for the importation of the electronic equipment and Mobile phones specified in the Imports and Exports (Control) Act.
- iii. The procedure adopted for the implementation of the processes of the approved private institutions collecting electronic waste under the prevailing laws.
- iv. The working of 16 institutions which had entered into Memorandums of Understanding with the Central Environmental Authority.

- v. The procedure implemented by the Sri Lanka Standards Institution in applying Standards 646, 984, 138, 948, 734 and 1000 in the importation of electronic equipment for which such Standards have been made compulsory.
- vi. The procedure for testing the quality of the imported electronic equipment for which quality standards have been made compulsory.
- vii. Basel Convention on minimization of generating hazardous waste containing poisonous, toxic, explosive, corrosive, flammable, chemical waste and hazardous waste containing biological characters and managing those in the environment friendly manner at the place of generation as well as providing assistance to underdeveloped countries the environment friendly manner the hazardous waste and other waste, control of cross-border transport of hazardous waste.

2:10 Limitation of Scope

Efforts were made in planning this audit for minimizing the limitations on the scope. The audit was carried out subject to the following limitations and the conclusion is based on the observations relating to the electronic and electrical equipment selected for the test check.

- i. In the case of imported articles, Air-conditioners , Cooking Appliances, Refrigerators, Photocopiers, Washing Machines, Computers, Mobile Phones, Video Recorder Cameras and Television Sets only were taken into consideration.
- ii. Even though the Private Sector handles the importation of the electronic and electrical equipment to Sri Lanka in its entirety, there was no access to their information.
- iii. Even though the information from the collectors of electronic waste was invited through the Central Environmental Authority the progress of supply of such information was not satisfactory.
- iv. The electronic and electrical equipment manufactures in this country were not taken into consideration. The electronic and electrical equipment imported and those disposed of prior the year 2010 were not taken into consideration.

3. Detailed Audit Findings, Observations, Recommendations and Comments of Institutions

3:1 Electronic Waste Management in Sri Lanka

3:1:1 National Policy on Electronic Waste Management

The following observations were made in this connection.

(a) Introduction of the National Policy

The Central Environmental Authority had formulated the National Policy on the Management of Electronic Waste in the year 2008. This Policy expected the achievement of the objectives such as the minimizations of the adverse impacts on the environment as well as the adverse impacts on the health of the general public arising from the irregular disposal of electronic waste, Inducement towards an Integrated Electronic Waste Management taking into consideration the different stages of the life cycles of the product (article) manufactured, taking courses of action for the prevention of disposal of electronic waste in different places, recovery of the maximum amount of resources and the preservation of the social responsibility relating to the sustainable manufacture and consumption of the electronic articles. The draft National Policy finalized and ready for introduction had been handed over to the Ministry of Mahaweli Development and Environment.

The Ministry of Mahaweli Development and Environment had also obtained the comments of the general public on the policy. Even though a period exceeding 8 years had elapsed after the finalization of the work by 07 July 2016, the date of audit, the Ministry had failed to introduce the final report on the National Policy.

(b) Non-inclusion of conditions needed to be included

It was observed that the Draft National Policy on Management of Hazardous Electronic Waste prepared by the Central Environmental Authority in the year 2008 and forwarded for the approval of the National Co-ordinating Committee of the Ministry of Mahaweli Development and Environment it did not include the condition that the manufacturer or the agents should carry out the disposal.

3:1:2 Limitations in the Law in force at present

Details are as follows.

(a) Limitations only for a few specified Articles

According to the National Environmental (Protection and Quality) Orders, No. 1 of 2008 “ No person shall generate, collect, transport, store, recover, recycle or dispose waste or establish any site or facility for the disposal of any waste specified in Schedule VIII, except under the authority of a licence issued by the Authority and in accordance with such standards and other criteria as may be specified by the Authority.

Even though a large number of articles such as computers, washing machines, electric fans, air-conditioners, mobile phones, electric ovens, rice cookers, photocopiers, Cassette players, etc., discarded are under the category of the electronic and electrical waste, it was observed that only the compact, broken and substandard fluorescent bulbs / lamps and discarded computers and accessories and discarded mobile phones are subject to the electronic waste management.

(b) Action on Equipment not covered by Environmental Orders

It was observed that in view of the Environmental (Protection and Quality) Orders, No. 1 of 2008 included only the discarded computers and the discarded mobile phones, the non-inclusion of the industries generating the other electronic waste, the Central Environmental Authority is unable to institute any legal proceedings against the generators who irregularly dispose of, transport and store such articles. Nevertheless, instances of irregular disposal of different kinds of electronic waste extraneous thereto were observed during the course of the audit.



(Stacking of electronic Waste - Mawanella - 06 September 2016)

- (c) Inadequacy of provisions in the National Environmental Act on the Electronic Waste Disposal.

The following matters were observed in this connection.

- i. Even though the generator of the electronic waste is responsible for the management of the waste, it is practically difficult to get the generator of waste for management of waste. Therefore the best system is to get the manufacturer of the articles with electronic waste for the management of his waste. The National Environmental Act has no provision to enact laws for the implementation of that methodology, and as such it is not practically possible to make compulsory the concept that the manufacturer should carry out the waste management.
- ii. As the electronic articles of high quality can be used over long periods, a longer time is taken in releasing them to the environment and makes a useful contribution to the Electronic Waste Management. However, in the importation of new and used articles, there is no adequate co-ordination between the Central Environmental Authority and the Department of Import and Export Control with regard to the durability of such articles.

3:1:3 Awareness regarding the Disposal of Electronic Waste

- (a) Methods to be followed.

An examination of the awareness programmes on the impact caused to the environment through the irregular disposal of electronic and electrical equipment discarded from use conducted by the Central Environmental Authority for the benefit of the general public revealed that the programmes targeting the Electronic Waste Management had not been conducted. Further, the use of mass media for making awareness among the general public on the methods of disposal of commonly used electronic and electrical articles had been at the minimal level. Nevertheless, it was observed that the other countries have taken a keen interest in the risks involved and follow appropriate disposal methodologies and take a keen interest in creating an awareness among the general public.

The procedure specified for clean up of a broken CFL bulb by the State of Illinois in the United State of America, extracted from the web site is reproduced below as an example.

“Open windows and turn off the central forced-air heating/air conditioning system for 15 minutes or more. On hard surfaces, carefully scoop up glass pieces and powder from the inside of the bulb using stiff paper or cardboard and place them in a sealed plastic bag. Use sticky tape to clean up any remaining small glass fragments and powder. Wipe the area clean with a damp paper towel and place towels in the plastic bag. Do not use a vacuum or broom to clean-up the broken bulb on hard surfaces.

Follow the same steps for clean-up for carpeting or a rug. If a vacuum is needed after all visible material are removed, vacuum the area where the bulb was broken and dispose of the vacuum bag or wipe the inside of the collection canister on the vacuum.

Clothing or other material that have been exposed to the mercury vapor from a broken CFL may be washed as well as the clothing worn when cleaning up the broken CFL. If shoes come into direct contact with the broken bulb, wipe them off with damp paper towels. Place the used towels in a sealable plastic bag for disposal.”

The other observations in this connection are as follows.

- (i) Even though the other countries in the world follow such methodologies due the hazardous nature of the chemicals in the CFL Bulb, whilst in Sri Lanka, at least an awareness of the existence of such hazard had not been made.
- (ii) The impact of mercury absorbed by the body is determined on the matters such as how it was absorbed, the period of exposure to mercury and the body reaction thereto. But it was observed that the general public had not been made aware of such matters.
- (iii) A factory recycling CFL bulbs according to the appropriate methodologies is situated at Homagama and it is considered as the only institutions in South Asia recycling CFL bulbs. It was revealed from the surveys conducted by us and from other reports that the general public as well as State and Private Sector Institutions who do not have an understanding about the situation, resort to the irregular methods such as burning, burying underground or removal with the other waste.

3:1:4 Equipment not Cleared by Importers

The electronic and electrical equipment imported to Sri Lanka are examined and released to the Importers by the Sri Lanka Customs. The following matters were observed during the course of an examination of the electronic and electrical equipment not cleared by the Importers.

- i. One lot of CFL bulbs was among the goods recommended on 05 July 2014 to be destroyed and the Public Health Inspector had certified that the relevant stock was destroyed according to the specified methodology. Nevertheless, it was stated that those had been transported (on 18 November 2014) to the Garbage Yard at Ranpokunagama, dumped into a pit, and burned them by pouring kerosene oil.
- ii. Stocks of 45 kilogrammes of satellite receivers, 7 kilogrammes of telephones and communication equipment had been handed over to the private institution on 21 July 2014 for removal within 3 months according to the recommendations of the Central Environmental Authority for an estimated sum of Rs.76,800. Even though that institution had planned to carry out that work at Mabole on 21 October 2014 it had been postponed for 20 November 2014 due to bad weather. But there was no evidence in support that it had been carried out.
- iii. The disposal of 65 items of TV Antenna Receivers Brand Video Com-distal DTH Service had been handed over on 14 September 2015 to a private institution for disposal. The selected institution had not commenced the work even by 08 March 2016 and a decision had been taken for the selection of another institution. But the information on action taken thereafter was not available.

3:1:5 Failure to take action to issue Licences to Generators

- (a) Obtaining Licences by Generators

According to Order 15 of the National Environmental (Protection and Quality) Orders, No. 1 of 2008, relevant to the Hazardous Waste Management identified by the Central Environmental Authority, the generators of electronic and electrical equipment should obtain licences for such work. Nevertheless, a large number of instances of engaging in generating activities without obtaining such licences were observed. The details are as follow.

- i. None of the institutions dealing in the importation of electronic and electrical equipment had obtained the licences.

- ii. The number of mobile phones imported by the importers from the year 2012 to the year 2015 had been 16,240,980 and none of those institutions had obtained the licences.
- iii. Herein, even the State Institutions using the electronic and electrical equipment in abundance had not obtained licences as generators. In this connection, the capacity of the State Banks using electronic equipment in abundance is given below. Even though each such Branch generates electronic waste, licences had not been obtained.

Institutions -----	Number of Branches -----
Bank of Ceylon	627
People's Bank	355
National Savings Bank	236
Ruhunu Development Bank	270
State Mortgage and Investment Bank	24
Lanka Puthra Development Bank	8
Sri Lanka Savings Bank	4
Central Bank of Sri Lanka	5
Housing Development Finance Corporation Bank of Sri Lanka	36

Similarly, the other non-banking institutions in the State Sector use the electronic and electrical equipment in abundance and those are also considered as generators of electronic waste. But those institutions as well had not obtained the licences prescribed for the purpose.

- iv. In terms of Section 31 of the National Environmental Act, the failure of the generator to obtain licences is a punishable offence. But, it was observed that the law is not enforced. The fine as prescribed in the Act passed in the year 1980 is Rs.10,000 and the Act is a 36 year old document by the year 2016 and at present, it is not an adequate fine.

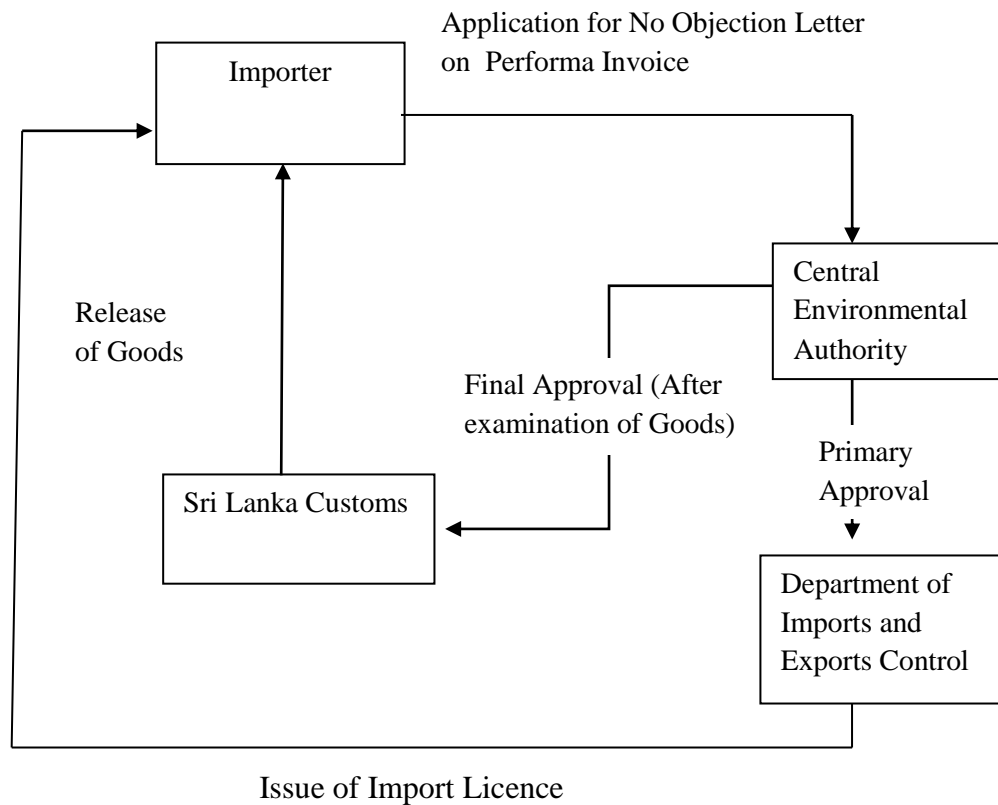
3:1:6 Basic Features relevant to Waste Management and their Functions

The following matters were revealed in this connection.

(a) Methodology applicable in the Importation of Equipment.

The informations on the number of individuals/ institutions importing unused (new) electronic equipment and the quantities imported should be reported to the Central Environmental Authority. Even though the Central Environmental Authority has a methodology for the control of the importation of the used electronic equipment imported into this country, it had not been successfully implemented.

After the arrival of the containers transporting the relevant electronic and electrical equipment at a Port in Sri Lanka, the officers of the Central Environmental Authority physically examine the equipment and issue the final certificate.



Even though the Central Environmental Authority had issued the No Objection Letter, the particulars required in support of the examination carried out had not been included in the files. The certificates for those goods had been issued and the Customs had released the goods.

The following deficiencies in the Form used at present for the examination of the containers were observed.

- i. The percentage of the items examined had not been included. Example : Out of 1,300 items only 8 had been examined.
- ii. The quantity examined only had been indicated. Their serial numbers and the specifications for identity purpose had not been indicated.
- iii. The officers who carried out the examination had not appended a certificate that the approval was obtained by submitting the Form to an Officer of higher rank.

(b) Limitation on the Impact of Electronic Articles

In addition to the Imports and Exports Control Laws and Rules applicable for the importation of goods, it was observed that only as importation of used goods is considered for the issue of the No Objection Letter by the Central Environment Authority. As such, it was observed that there was no such consideration for the importation of the unused goods.

For example the country of manufacture, the period of use, the raw materials used, etc., in respect of mobile phones, rice cookers, etc., differ from each other kinds of goods. There are instances of certain goods becoming a waste matter within one year.

In the importations of used electronic articles under the Imports and Exports Regulations, the control of the following kinds of articles is examined by different institutions and the other articles are imported without any approval whatsoever. Details appear below.

Category of Articles	Controlling Institution	Reasons for Control
Computers	Central Authority Environmental	Minimization of damage caused to environment
Washing Machines	Central Authority Environmental	Minimization of damage caused to environment
Mobile Phones	Telecommunication Regulatory Commission of Sri Lanka	National Defence
Printers and Photocopiers	Ministry of Defence	National Defence
Refrigerators	Ozone Unit of the Ministry of Mahaweli Development and Environment	Minimization of damage caused to environment.

(c) Importation of Quality Computers

The decisions taken by the Ministry of Mahaweli Development and Environmental to permit the import of used computers which are not older than 3 years from the date of manufacture in order to maintain the quality of used computers for the purpose of the Electronic Waste Management had been altered as Pentium IV and above by the National Co-ordinating Committee of the Ministry of Mahaweli Development and Environment, thus allowing for the importation of old computers. It was observed that it would be a reason for the quicker generation of electronic waste.

Further, No conditions (Example : such as not older than 3 years from the year of manufacture) had been attached to ensure that high quality washing machines are imported. It was also observed that the final approval for those are granted immediately after receipt of those goods without carrying out physical examinations. As such it was observed that the opportunity existed for the importation of low quality articles which could become electronic waste at a quicker pace.

(d) Importation of Environment Friendly Electronic Equipment

The electronic equipment imported to this country are subject to technological changes and the environmental impact arising from such changes as well has to be considered. It was observed that television sets with CRT Monitor with higher lead content having a greater impact on environment than the television sets with LED screen in use at present, are still being imported in large quantities. Details are given below.

HS Code	2010	2011	2012	2013	2014	2015	Total
-----	-----	-----	-----	-----	-----	-----	-----
Cathode Ray Tube (CRT)Kg	8528 514,551	6,820,231	309,974	156,721	45,585	48,419	7,875,581

(From information received from Sri Lanka Customs)

Further, in the case of the importation of used computers, those are permitted for release by the Customs after being examined by the Central Environmental Authority. Differences were observed in the comparison of the particulars of the computers so examined with the importation information of the Sri Lanka Customs. In this connection, the Central Environmental authority had the date of the year 2015 only. According to the data of the Sri Lanka Customs the imported used computers (HS Code 8471) had been 108,733 whereas

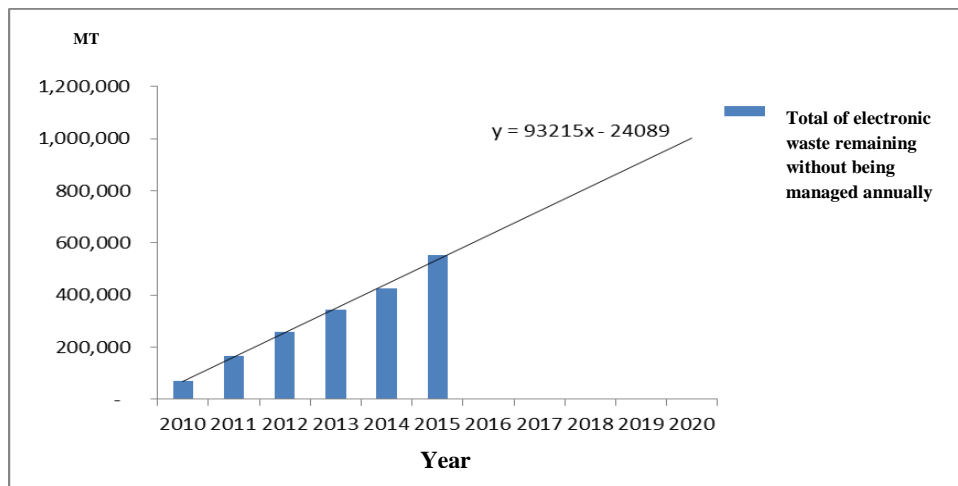
according to the data of the Central Environmental Authority, there were only 47,036 units. Accordingly a difference of 61,697 units existed in the number of units imported.

(e) Export of Waste for Disposal

According to the methodology available at present is the operation of the Electronic Waste Management by the issue of licences relevant to specified categories of articles to the collectors of waste. Even though such electronic waste is exported due to the inability to recycle them in this country, the quantity of exports as compared with the quantity of electronics articles imported into this country, is a much lesser quantity. Due to the lack of recycling facilities in this country it was observed that there is an increasing trend among the licenced collectors for collecting the waste from which valuable metals can be extracted and exported. In view of this reason there is room for waste of lesser value but hazardous being irregularly released to the environment.

(f) Increase in the Generation of Electronic Waste

The forecasted generation of the electronic waste by the year 2020 as compared with the electronic waste generated during the period from the year 2010 to the year 2015 is given in the following diagram.



Accordingly, the above diagram indicates the possibility of the generation of 1,000,000 metric tons approximately and added to the environment by the year 2020. As such, it was observed that the process of the Electronic Waste Management in operation is grossly inadequate.

(g) Creation of a Network of Electronic Waste Collection

An examination of the information obtained from the Central Environmental Authority with regard to the licences issued in terms of the Order 15 of the National Environmental (Protection and Quality) Orders, No. 1 of 2008 revealed that there were 12 collectors of electronic waste and 2 generators of electronic waste by 26 August 2016, the date of audit.

All registered licenced electronic waste collectors (except one institution) had established their business premises around Colombo. As those Collectors did not have networks spread out in the regions for the collection of electronic work, their collection operations were limited to the purchase of electronic waste auctioned by the Government and private institutions around Colombo. The absence of a methodology with them for the disposal of the large quantity of electronic waste generated in the regions was observed as a major deficiency.

(h) Role of the Central Environmental Authority

The waste management means the collection of the waste including the waste generation in small scale, storage, transport, recycling and disposal. Therefore, the parties responsible for the generation of electronic waste, the parties obtaining the waste for recycling and the recycling should finally ensure what happened to the waste by producing report of the data thereon. The Central Environmental Authority vested with the responsibility for the waste management for the protection of the environment does not have a database on any of the kinds of electronic waste whatsoever and as such it was observed that the management process is not being operated appropriately.

Recommendations

- i. Taking necessary speedy steps for the implementation of the draft National Policy on the Electronic Waste Management formulated by including the necessary amendments.
- ii. Even though the Central Environmental Authority has introduced only 02 items as electronic waste in accordance with Schedule VIII of the notification in the Gazette No. 1548/18 dated 01 February 2008, a large number of deferent kinds of electronic and electrical equipment are in use at present, at least the commonly used articles imported in large quantities based on information available with the Sri Lanka Customs should be brought under to Electronic Waste Management Process.

- iii. In the case of the need for obtaining licences by the generator of electronic waste, the word “Generator” should be defined specifically.
- iv. As the showroom is the pivotal point of contact of the consumer in the purchase of electronic and electrical equipment, the display notices showing the importance of the proper disposal of the waste and the methodology of disposal should be made compulsory thereby co-opting the consumer direct to the waste management process.
- v. Creating an awareness among the customers to contribute to the waste management through display of notices allowing discounts for the exchange of used electronic and electrical equipment when new purchases are made should be made compulsory. This can be done on entering into Memorandums of Understanding with such institutions.
- vi. The need for the conduct of the annual evaluation of the annual collection, the quantity exported and from whom those were collected by the licensees who are engaged in the collection and disposal of electronic waste.
- vii. The need for the Central Environmental Authority to maintain a data base on information on the articles with electronic waste from the manufacture up to the final disposal.
- viii. The need for the revision of the fine of Rs. 10,000 specified in the Act for imposition on the generator of waste who do not comply with the provisions in the Act, Regulations and Orders in order to suit the current conditions.
- ix. The need for taking action to implement the concept of “Manufacturer should dispose of” by conveying the message to the Collectors of Waste through the importers of electronic and electrical equipment.
- x. The need for extending the condition of “No Objection Letter” to television sets, electric irons, blenders, etc., which are abundantly used in Sri Lanka, in addition to the computers and washing machines covered at present.
- xi. The physical examination of the containers should be done according to a properly prepared format prior to the issue of the No Objection Letter. A substantial quantity of the relevant items should be examined

and the articles examined should be recorded in the format. At the conclusion of the physical examination, the letter should be issued to the Sri Lanka Customs only after the format is certified by a Senior Officer.

- xii. The Central Environmental Authority should ensure the issue of compliance certificates for all imported goods. If such permission is granted by classifying the goods according to the possible period of use (Example : such as 2,5 years, etc.) it will be possible to reduce the electronic waste entering the environment to a certain extent. (This methodology is adopted at present for computers and that system should be adopted for the other articles as well).
- xiii. The Central Environmental Authority should maintain an effective data base linked to the Sri Lanka Customs and the Department of Import and Export Control and take action for the clear identification of the parties responsible for the electronic and electrical articles as a practical solution for the problems shown above as observations.
- xiv. Even though the quantities of electronic waste exported can be obtained under the HS Codes of the Sri Lanka Customs, it is difficult to obtain them from time to time under each importer. As such, a direct connection relating to those articles should be maintained between the Central Environmental Authority and the Sri Lanka Customs.

Comments of the Ministry of Mahaweli Development and Environment

Response to paragraph 3.1.1 (a) and (b)

- i. “Agree with the matters pointed out
- ii. In this connection, the matters are under the discussion level in the National Coordinating Committee on the Basel, Rotterdam, Minamata, Stockholm conventions (Note 4.1 of the minutes of the Basel Co-ordination Meeting held on 16 August 2017)
- iii. According to a decision of the Cabinet Of Ministers (No.16/2236/704/061 dated 11 October 2016) for the formulation of a methodology and mechanism for the environment friendly disposal of electronic waste in order for the proper implementation of this policy, a programme on the “ Implementation of the Comprehensive Responsibility of the Manufacturer / Trader/Consumers for the Electronic Waste Management in Sri Lanka” is being formulated at

present with the participation of all stakeholders (including the private sector)

- iv. The relevant Policy will be released concurrently with the implementation of the above methodology and mechanism.”

Response to paragraph 3:1:6 (b)

- i. “Agree with the matters pointed out
- ii. The approval in this connection was granted only on this approval of the National Technology Committee on the Basel, Rotterdam, Minamata and Stockholm Conventions.
- iii. According to the decision of the Cabinet of Ministers relating to the “ Implementation of the Comprehensive Responsibility of the Manufacturer/Trader/Consumer for the Electronics Waste Management in Sri Lanka.” These items of equipment are subjected to discussion with the parties Related to the above programme implemented, It is proposed to incorporate all electronic and electrical equipment relating to this proposed methodology, that is the mobile phones, computers, Television sets, washing machines, refrigerators.

A system for the manufacture and the traders of the above articles to collect them will be formulated.”

Comments of the Central Environmental Authority

Not responded in connection with paragraphs 3.1.2, 3.1.3, 3.1.4 and 3.1.5, 3.1.6 (b),(c),(d), (e),(f),(g) and (h)

Response to paragraph 3.1.6

- (a) “In the case of importation of used computers, the methodology in operation at present is the release of those by the Sri Lanka Customs and the Department of Import and Export Control based on the recommendations of the Central Environmental Authority. In the importation, the Central Environmental Authority does not intervene in direct regulatory process, whereas the direct regulatory institutions are the Sri Lanka Customs and the Department of Import and Export Control. The Central Environmental Authority intervene only in connection with the institutions referred to the Central Environmental Authority by those two institutions.

Nevertheless, the Department of Import and Export Control has already taken a policy decision with regard to the importation of used computers.”

3:2 Legal Background on Electronic Waste

3:2:1 National Environmental Orders

According to the National Environmental (Protection and Quality) Orders No. 1 of 2008, the electronic waste collectors should obtain licences relating to Electronic Waste Management from the Central Environmental Authority. There were 12 collection institutions which had obtained licences. It was observed that 06 institutions out of those, subjected to a physical examination had not taken action in compliance with the following Sections of those Orders.

- (a) Section 31
A notice depicting a visual sign of design in Sinhala, Tamil and English should be exhibited at the Waste Collection Sites.
- (b) Section 32
A copy of the licence should be kept with the Driver of the vehicle transporting waste.
- (c) Section 33
 - (i) It should be ensured that the employees are trained adequately in the handling of the waste and half yearly reports of steps taken for training should be forwarded to the Authority.
 - (ii) Should have a regularly updated urgent action plan approved by the Authority.
 - (iii) Should protect all employees from the adverse impacts of waste by way of protection garments and other pre-protection system.
 - (iv) Should ensure the availability of urgent and adequate medical facilities for the employees and the public at all times including urgent situations.



(Unprotected Maintenance of Collecting Centres for Electronic Waste)

(d) Section 35

Every person collecting waste, according to the circumstances, should on or before 31 July and 31 January of each year, inform the Authority, the quantity of waste generated in the preceding period of 6 months, their characteristics, particulars of preparation and the changes in the chemical usages together with the estimated quantity of waste that could be collected in the ensuing year.

3:2:2 Sri Lanka Standards Institution

The Sri Lanka Standards Institution had introduced the Standards on 123 articles that should be complied with in the importation of articles for the protection of the consumers in the use of such articles in accordance with the request of the Controller of Imports and Exports. But it was observed that except for the following electronic equipment in the category of electronic articles and the mobile phones under the control of the Telecommunications Regulatory Commission of Sri Lanka, the quality and durability of the other items are not considered.

- i. Electric fan and regulators
- ii. Ballasts for tubular fluorescent lamps
- iii. Primary cells and batteries
- iv. LED and Starter batteries
- v. Electric immersion water heater for boiling water
- vi. Electric hotplate
- vii. Electric kettle
- viii. Circuit breakers for overload protection for household and similar installations (MOB)
- ix. Residual current operation circuit breaker with integral overload protection for hand – held and similar uses (RCBO)
- x. Switches for hand – held and similar fixed electric installations.
- xi. Glow starters for tabular fluorescent lamps

Accordingly any of the equipment whatsoever such as computers, television sets, refrigerators, etc., which are being used abundantly are examined. As such it was observed that such articles imported to Sri Lanka are added for consumption in this country without standards of those articles being examined.

Comments of the Sri Lanka Standards Institution

“The following 12 accessories covered by import examination had not been included in the electronic equipment / accessories included in the Audit Report.

- i. The Residual Current Circuit Breakers (RCCB) used as protection for the household and similar installation.
- ii. Insulated bayonet lamp handle
- iii. Household electric plugs of 5 amperes and 15 amperes
- iv. 13 ampere plugs with fuse and fused
- v. Tungsten filament lamps for household and similar general lighting purposes.
- vi. Conductors for electrical yokes and cables
- vii. PVC insulated cables with copper conductor for power and lighting
- viii. PVC insulated flexible electric wire used for the household, office and normal environment equipment
- ix. Electric wire with and without PVC insulated armour
- x. Automatic ballast lamps normal illumination (CFL)
- xi. Cables for motor vehicles
- xii. Cable trunking

Further, the following articles are being considered making for compulsory import examination.

- (a) LED Lamps
- (b) Electric Irons
- (c) Rice Cookers

Nevertheless, the identification articles for import examination is done continuously based on the need, and as a result, the Imports Examination Process commenced in the year 1988 with only 11 items of articles has been expanded at present to 123 articles.

The identification of articles for the import examination is undertaken based on reasons such as the extent of the importance of the examination to the consumers and the local businesses, the availability of the National Standards formulated for the purpose and the availability of examination systems and laboratory facilities for the examination of articles.

In addition to these, articles for import examinations have been identified in response to requests made by Government institutions and by other stakeholders who show a special interest of the standards of imported articles and included in the tests.

Accordingly it is expected to carry out the feasibility studies on the above matter on the articles referred to by you and make arrangements for carrying out the respective import examinations.”

3:2:3 Consumer Affairs Authority

(a) Protection of the Right to Live in the Healthy Environment

The Consumer Affairs Authority is the institution established in Sri Lanka for the protection of the rights of the consumer and the creation of fair trading competition. The right to live in a healthy environment is a right of the consumers. Therefore it is the role of the Consumer Affairs Authority to protect the consumer from the adverse impacts caused due to the lack of quality in the electronic and electrical articles imported into Sri Lanka. Nevertheless, it was observed that as the Consumer Affairs Authority does not exercise any control over the quality and durability of the electronic and electrical equipment used in this country, that the protection that should be ensured to the consumers is deprived of.

(b) Consumer Complaints on Articles

The Consumer Affairs Authority had received 273 complaints regarding 7 electronic and electrical equipment and it was observed that most of the complaints related to the problems on their quality. In addition to the above, 141 raids had been conducted in the year 2015 on 3 categories of articles for which SLS Logo is made compulsory.

The receipt of such complaints is a factor that confirms the reduction of the period of durability of the articles. As such, it was observed that there is a possibility of premature removal of those electronic and electrical equipment and thus becoming an electronic waste.

Comments of the Consumer Affairs Authority

(a) “Protection of the Right to Live in a Healthy Environment

The Authority has issued an Order to the Importers / Manufacturers/ Traders that at least a guarantee period of 6 months should be given in respect of all electrical and electronic goods/ equipment/ accessories with effect from the

date of sale of the relevant goods or from the date of the purchaser acquires the possession of the goods as a preliminary step in the regulating process of the electronic and electrical equipment. In instances of breach of this Order, action in terms of provisions in the Act is to institute legal action, thus taking the preliminary action for regulating the electronic and electrical equipment market.

Further, an Order that the consumer should be supplied with a Guarantee Certificate with the terms and conditions thereof printed in Sinhala, Tamil and English Language has been issued.

Similarly, the complaints on these equipment made by traders/ consumers are also investigated by the Authority and in the case of low quality electronic and electrical equipment, the Authority takes action against the importers/ manufacturers of such equipment.

Further, the Authority expects to take necessary steps together with the Sri Lanka Standards Institution, the Telecommunication Regulatory Commission and the Sustainable Energy Authority, in connection with the quality of the electronic and electrical equipment”.

(b) “Consumer Complaints on Articles

The durability and the quality of the electronic and electrical equipment are affected by the quality of the electricity supplied for their operation. There were instances of damage caused to articles due to the supply of high voltage current among the complaints received by the Authority.

The matters pointed out by the audit are considered as matters of national importance and those have been noted for paying special attention.”

3:2:4 Telecommunication Regulatory Commission of Sri Lanka

The attention of the Telecommunication Regulatory Commission of Sri Lanka should be paid for the minimization of the health problems created to the users of the imported mobile phones and the improvement of their quality. The following observations were made in this connection.

(a) Importation Mobile Phones

The particulars of the number of the mobile phones imported under the approval of the Telecommunication, Regulatory Commission of Sri Lanka and the number of mobile phones in the 5 preceding years had been as follows.

Year	Number of Mobile Phones Imported on Approval
-----	-----
2012	3,858,422
2013	3,061,825
2014	4,493,505
2015	4,827,228
2016 (Up to June)	2,718,220

Total	18,959,200
	=====

According to the information made available to Audit by the Telecommunication Regulatory Authority of Sri Lanka, the number of consumers using mobile phones as at 31 July 2016 had been 24,717,673. The following observations are made in this connection.

- i. A methodology for examination whether the mobile phones imported under the approval granted by the foreign examiners are compatible with the approved specifications, is not available.
- ii. Even though the Telecommunications Regulatory Commission of Sri Lanka permits the importation of mobile phones to this country on the approval granted by the foreign Examiners, the Telecommunications Regulatory Commission of Sri Lanka Act does not contain the regulatory provisions relevant to standards that should be maintained by those laboratories. In view of the probable lesser reliability of the reports given by those laboratories, the risk of substandard mobile phones being imported exists.
- iii. The number of mobile phones imported from the year 2012 up to June 2016 had been 18,959,200 and the number of mobile phone subscribers as of July 2016 had been 24,717,673. The number of mobile phone in use had exceeded the number of mobile phones imported during a period of 4 ½ years by 5.8 million. As this increase is due to the mobile phones imported to this country without the approval of the Telecommunications Regulatory Commission of Sri Lanka, it was observed that a methodology for the supervision of such mobile phones imported without the approval is not in operation.

(b) Inadequacy of Provisions in the Act

According to the data available, 4,100,000 mobile phones approximately are imported annually, those become electronic waste sooner. due to the shorter effective life. Further, the Telecommunications Regulatory Commission of

Sri Lanka Act does not contain a methodology for the management of the electronic waste discarded by the institutions supplying the mobile phone facilities, whilst the methodology implemented in this connection by the Central Environmental Authority is not adequate. As the waste generation from the mobile phone is added in large scale to the environment the awareness of the consumer of the adverse impacts thereof should be at a higher level. In view of the non-implementation of a proper plan or methodology for the disposal of such waste, it was observed that the possibility of dangerous environmental problems emerging in the exists.

Comments of the Telecommunication Regulatory Commission of Sri Lanka

- “(i), (ii) Action is being taken for the establishment of a laboratory for this purpose in the future.
- (ii) The popularity of the use of mobile phones with Dual Sims can be considered as a reason for the difference.
- (iii) The Commission conducted a special supervision for the methodologies on the proper disposal of electronic waste and that Report was forwarded the World Telecommunications Association.
- (iv) The methodologies of appropriate disposal of electronic waste was discussed by inviting the Chief Executive Officers of all Telephone Companies in Sri Lanka and it was decided at the discussions to keep receptacles for disposal of waste at all Telephone Consumer Service Centres and for the preparation of programmes for making an awareness among the consumers.

* A National Telecommunications and Information Technology Waste Eradication Week was declared from 24 to 30 October 2016 and several programmes such as the following were implemented.

- To connect all users of mobile phones for making the public aware through a short message.
- The Telephone Companies conducted programmes on the collection of electronic waste at the Consumer Services Centres and collected such waste and sent those to the Waste Collection Centres of the Central Environmental Authority.
- An Electronic Waste Collection Centre was set up and maintained at the premises of the Telecommunications Regulatory Commission.”

3:3 General Observations on Electronic Waste Management

3:3:1 Obtaining Licences for Handling Electronic Waste

According to Order No. 16(a) of the National Environmental (Protection and Quality) Orders, No. 1 of 2008, in making an applications for a licences to handle hazardous waste, a valid insurance certificates or another form of financial security should be forwarded therewith. Nevertheless, according to the files maintained for the licenced Collection of Electronic Waste did not contain the information whether such insurance cover was obtained at the registration. It was observed that the Central Environmental Authority had issued the licences without considering whether such insurance cover had been produced. None of the institutions out of the 5 Licenced Waste Collection Institutions subjected to physical examination had obtained the relevant insurance cover.

3:3:2 Independence of Electronic Waste Collection Institutions

It was observed during the course of the physical examination of the Electronic Waste Collection Institutions that the Waste at those institutions had been collected in containers without separating them in an orderly manner. As those are not subjected to supervision even by the Sri Lanka Customs in most instances, due to those being waste, waste with valuable metals such as copper prohibited for export from Sri Lanka could be disposed of through export. As such the attention to be paid in that connection is apparently inadequate.

3:3:3 Employee Turnover

The Heads of the Licensed Waste Collecting Institutions stated that the major problem connected with the Electronic Waste Management is the dearth of employees. The available employees show a preference to obtain daily wages as they are reluctant to remain in permanent employment. As such daily attendance was observed as irregular. Even though an attractive salary is offered, the turnover is very high due to reasons such as the less social recognition for such employment as the strenuous work involved. In view of these reasons it has not been able to carry out the Electronic Waste Management efficiently.

3:3:4 Recycling of Cathode Ray Tube Equipment

Even though Schedule VIII of the National Environmental (Protection and Quality) Orders, No. 1 of 2008 does not contain provisions for obtaining licences for the collection of discarded television sets, licences under Order 15 had been issued for

that purpose to 2 institutions. The following observations were made in that connection.

(a) Disposal Process of Cathode Ray Tube Equipment

The Central Environmental Authority had granted the permission to a private licenced institution collecting electronic waste for the export as waste, the Cathode Ray Tube equipment discarded from use and converted to waste in Sri Lanka.

The equipment of Cathode Ray Tube technology contain large quantities of heavy metal. For example, a television set of 21 inches contain 2.5 kilogrammes of lead. The expenditure involved in the export of those for recycling amounts to about Rs. 400 per unit. As such the collectors of equipment remove the plastic and circuits in the television sets and the computer monitors of that category which can be sold easily and export/sell them. Such equipment which have a greater adverse impact on the environment are being further imported to Sri Lanka and the particulars of import of those in the preceding years had been as follows.

Imported Cathode Ray Tube Equipment (Kg)

Year	Used	New	Total
-----	-----	-----	-----
			Kg.
2010	514,551	8,446,844	8,961,396
2011	6,800,331	14,281,326	21,081,657
2012	309,974	12,784,554	13,094,529
2013	156,721	12,440,176	12,596,897
2014	45,585	12,562,439	12,608,024
2015	48,419	17,797,518	17,845,937

(b) Cathode Ray Tube Equipment Exported

It was observed during the course of the physical examination of the activities of the Licenced Institutions for recycling of Cathodic Ray Tube Equipment in Sri Lanka, that large number of Cathode Ray Tube equipment, of which the plastics and circuits had been stripped off had been stored in the premises without being exported. Thus it was possible to identify that the inability to export the stripped off waste without causing any damage to the environment was identified as a further problem.



(CRT Equipment kept in Storage)

(c) Harmful Parts of Cathode Ray Tube Equipment

The Central Environmental Authority had issued a licence to a private institution for the export of CRTIWOMT equipment to Netherlands under Code No. 854091 during the period from 23 February 2016 to 11 January 2017, and the actual quantity exported during that period had been 6 metric tons approximately. It was observed that the licensee had removed the circuits with financial value and kept the highly harmful CRT equipment in a disorderly manner.

3:3:5 Concept of “Sri Lanka Devoid of Electronic Waste”.

The Central Environmental Authority had entered into Memorandums of Understanding under the theme “Sri Lanka Devoid of Electronic Waste” on 26 May 2014 for a period of 2 years with 3 Listed Institutions Collecting Waste, 3 Telecommunication Institutions, 5 Institutions Marketing Electronic and Electrical Equipment, One Finance Institutions, one Health Institution and 3 other Institutions. The following observations are made in this connection.

- i. Even though the agreement period of 2 years of 16 institutions referred to above had expired on 25 May 2016, none of those institutions had made applications for entering into agreements again even by 27 September 2016 whilst the Central Environmental Authority as well had not paid any attention in that connection.
- ii. According to the Memorandums of Understanding entered into between the two parties, the Central Environmental Authority should have carried out a review of the progress of the Electronic Waste Management of the institutions annually, and except the Listed Institutions collecting Electronic Waste, the review of the other institutions had not been carried out during those 2 years.
- iii. It was observed that most of the Institutions which had entered into the Memorandums of Understanding had implemented the above programme as a programmes for the discharge of the Corporate Social Responsibility and for

the use of the emblem of the Central Environmental Authority for their publicity purposes in the market.

- iv. As the Central Environmental Authority did not have the legal provision for taking legal action in terms of the agreements it could not take action against the institutions which do not enter into Memorandum of Understanding.

3:3:6 Local Recycling of Electronic Waste

The recycling of electronic waste in this country itself had been awarded by the Central Environmental Authority to a private institution. According to the Study Report submitted in that connection, plans had been made for the investment of money and commence the operations in November 2016 with the expectation of extraction of metals such as gold, silver, platinum, palladium and copper by recycling of the electronic waste generated in this country. Even though it was expected to recycle one metric ton of electronic waste per day, despite the collection of electronic waste by that institution during the years 2013 to 2016, those had neither been recycled nor exported. Attention had not been paid to this matter in the annual renewal of its license.

(a) Recycling of Electric Lamps

A private institution had, as a licensee for the management of discarded, used, compact, broken and substandard fluorescent electric lamps, set up the facilities for recycling with the capacity for separating mercury and other hazardous waste and its annual capacity is 182,000,000 electric lamps.

The institution had recycled 2,813,795 electric lamps during 3 years from the year 2013 to the year 2015.

The particulars of the fluorescent electric lamps imported to this country annually and the fluorescent electric lamps recycled by this institutions are given below.

Year	Quantity Imported	Quantity recycled by the Institution
2010	18,075,563	--
2011	21,518,973	--
2012	16,382,313	--
2013	17,291,648	917,382
2014	16,777,844	1,056,978
2015	16,064,876	839,435
	106,111,217	2,813,795

(b) Institutions not Carrying out Recycling

Even though the other institutions importing fluorescent electric lamps to this country had not obtained licences for the management of waste, the above institution has the capacity of recycling the electric lamps of the other institutions. The Central Environmental Authority had not taken legal action against the institutions which do not manage the electronic waste.

Recommendation

- i. E-wis Peripherals Company importing Lex Mark Toner to Sri Lanka as the Agent for the Toner, exports the used Toner under the Corporate Social Responsibility Concept following the Responsibility of the Generator. That company practically implemented the Responsibility of the Generator Concept and as such cause the other such institutions as well to implement that concept.
- ii. Create a protective environment appropriate for the sector to safeguard the employees of waste collection institutions.
- iii. The electronic waste discarded from the Government and the Private Institutions are disposed of through auction and in that process, the unusable and the reusable articles are disposed of simultaneously. Those should be separated as “Validity period expired” and “Validity period not expired”. In that process, the validity period expired articles should be given to the licenced waste collecting Institutions. The validity period unexpired articles should be sent to institutions such as the Information and Communications Technology Agency for the reuse of those items.
- iv. If the electronic waste discarded from the Government Institutions can be further reused, those waste should be clearly identified and auctioned. Instead of recommending for destruction of the other waste, action should be taken for the issue of circular instructions to handover such waste to the licensed institutions managing such waste. A list of such licenced institutions should be issued to all Government Institutions along with that circular.
- v. The destruction of electronic waste should not be recommended in the conduct of Boards of Survey in the Government Institutions. Arrangements should be made for the collection of such waste at the Provincial or District or other convenient level for the centralized

collection of such waste. The Local Authorities can be co-opted for this purpose. Such waste should be handed over to the licensed collecting institutions and also to the Technical Training Institutions for use on training purposes and production of reusable articles.

- vi. Action should be initiated for making necessary amendments to the relevant Financial Regulations and the revisions to the Formats in use for the Boards of Survey.
- vii. Increase the number of Drop off Events and Places to ensure efficient collection of electronic waste in areas outside the Colombo District.
- viii. In place of the general hierarchy, a separate hierarchy should be created for solid waste, hazardous waste, electronic waste and hospital waste.
- ix. School syllabus to include a section on electronic waste management.
- x. Even though the Central Environmental Authority has recognized the Waste generated from the computers and the mobile phones as hazardous waste and formulated the methodologies to be followed in generation, storage and transport of those, and included that in the National Environmental (Protection and Quality) Orders, No. 1 of 2008, it is not in proper operation. As such the increase of the number of supervision inspections carried out by the Central Environmental Authority and upgrading the process in the renewal of licences or in the investigations of complaints received in order to make the electronic waste collectors to abide by the methodologies appropriately.
- xi. In the issue and renewal of the licences to the collectors of electronic waste it is necessary to obtain a valid insurance over in terms of Section 16 and 15(a) of the National Environmental (Protection and Quality) Orders, No. 1 of 2008 from all applicants for licences and for renewal of licences.
- xii. Exercising control over the sources of generation of waste through the introduction of changes in the inputs and technology used in the manufacturing process and the use of the best manufacturing practices.
- xiii. Promote the Zero Waste Concept, that is the use of one kind of waste as an input for another manufacturing process.

- xiv. Grant of licences for the Collection of Waste to the regional institutions under the sub-contract system, if necessary facilities are available for the build-up of the capacity for regionally generated waste.
- xv. In the import of more popular consumer article, the Standards applicable for their quality should be enforced.
- xvi. Inducing the importation of electronic equipment with longer effective life.
- xvii. Refuse permits for importers of fluorescent electric bulbs who do not recycle the waste.

Comments of the Institute

Not responded in connection with paragraphs 3.3.1, 3.3.4, 3.3.5, 3.3.6

4. Conclusion

- i. The Central Environmental Authority is the principal institution charged with the responsibility for the conduct of the Electronic Waste Management in Sri Lanka and the inadequacy of the laws, rules etc., in force at present has resulted in a setback in the performance of its functions relating thereto. Therefore, it is concluded that strengthening of the existing legal frame work is an urgent necessity.
- ii. The consumer awareness can be pointed out as one of the foremost aspect of the Electronic Waste Management process and it is concluded that taking expeditious steps in that connection is essential as the courses of action taken thereon up to date have not been effective.
The urgency of introducing the concept of the manufacturer himself to be responsible for its management is emphasized.
- iii. The introduction of provisions for allowing the importation of only the durable and quality electronic and electrical equipment is concluded as an essential matter.

H.M.Gamini Wijesinghe

Auditor General

19 December 2017