



education

Department:
Education
PROVINCE OF KWAZULU-NATAL

**Management
of the
Acquisition
And
De-Commissioning
Of
Electronic Equipment
Policy**

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1 ABBREVIATIONS AND DEFINITIONS

CRT	cathode ray tube
EPR	extended producer responsibility
eWASA	e-Waste Association of South Africa
e-waste	electronic waste (obsolete and/or unserviceable electronic equipment)
ICT	Information and Communication Technologies
IT	Information Technology
LCD	liquid crystal display
PC	personal computer
RAM	Random access memory
Recycle	break up/dismantle/strip/disassemble unusable computer equipment so that the components and materials of value are separated and recovered
REDISA	Recycling and Economic Development Initiative of South Africa
Reduce	buying machines with a longer productive life, thus reducing the number of assets purchased
Refurbish	extending the productive life of computer equipment by replacing broken parts and then redeploying or redistributing them to other appropriate users
Reuse	actively redeploy functioning equipment that can still be used by someone other than the initial user
ROM	Read only memory
USASA	Universal Services and Access Agency of South Africa
WEEE	waste electrical and electronic equipment

2 INTRODUCTION

The KwaZulu-Natal Department of Education is the largest consumer of information technology (IT) resources for administrative functions, and information and communication technologies (ICT) for the management and support of curriculum via e-Learning. Expenditure on these items contributes to the largest spend of the department's operational budget and has therefore to be managed prudently to get maximum benefit. The acquisition and use of electronic equipment which include cathode ray tube (CRT) display monitors, ink and toner cartridges, Lithium ion battery packs etc. contribute immensely to high levels of waste electrical and electronic equipment (WEEE) and electronic waste (e-waste). Because of the hazardous nature of some chemicals found in both WEEE and e-waste, these materials should never be burnt in incinerators or 'waste-to-energy' facilities, or dumped in landfill sites, as this ultimately pollutes water supplies, damages the soil; and can cause serious illnesses attributed to certain cancers. It therefore becomes critical that WEEE and e-waste are disposed off in the environmentally friendliest of ways.

3 BACKGROUND

A typical CRT computer display monitor may contain more than 6% lead by weight (see www.ewasa.org). Among other critical substances it may contain are small amounts of mercury and chromium. Nonetheless, as much as it can be toxic, WEEE and e-waste could be a valuable source of secondary raw material. However, rapid technology change, low initial cost and even planned obsolescence have resulted in a fast growing pollution problem around the globe. The following toxic substances are typically found in computers and other electronic equipment:

- 3.1. **Arsenic** is a poisonous metallic element which could lead to various diseases of the skin and decreased nerve conduction velocity that could cause lung cancer.
- 3.2. **Barium** is a metallic element found in fluorescent lamps that forms a poisonous oxide when in contact with air. Short-term exposure to barium could lead to brain swelling, muscle weakness, damage to the heart, liver and spleen.
- 3.3. **Beryllium** has been classified as a human carcinogen since exposure to it can cause lung cancer.
- 3.4. **Brominated flame retardants (BFR's)**. The three main types of BFR's used in electronic and electrical equipment are Polybrominated Biphenyl (PBB), Polybrominated Diphenyl Ether (PBDE) and Tetrabromobiphenol-A (TBBPA). Combustion of halogenated case material and printed circuit boards at low temperatures releases toxic emissions including dioxins which can lead to severe hormonal disorders.
- 3.5. **Cadmium** components may have serious impacts on the kidneys. It is absorbed through respiration and taken up with food.

- 3.6. **Chloro-fluoro-hydrocarbons (CFC's)** are compounds composed of carbon, fluorine, chlorine and sometimes hydrogen. It accumulated in the stratosphere and have a deleterious effect on the ozone layer
- 3.7. **Chromium** and its oxides are widely used because of its high conductivity and anti-corrosive properties. Chromium VI is easily absorbed in the human body and can produce various toxic effects within cells.
- 3.8. **Lead** is the fifth most widely used metal after iron, aluminium, copper and zinc. It is commonly used in the electrical and electronics industry as solder, lead-acid batteries, electronic components, cable sheeting, in the glass of CRT's etc. Short term exposure to high levels of lead can cause vomiting, diarrhoea, convulsions, coma or even death.
- 3.9. **Mercury** is one of the most toxic, yet widely used metals in the production of electrical and electronic applications and could cause brain and liver damage if inhaled or ingested..
- 3.10. **Polychlorinated Biphenyls (PCB's)** are a class of organic components used in a variety of applications, including electrical fluids for capacitors and transformers and could cause cancer in animals and other serious health defects.
- 3.11. **Polyvinyl Chloride (PVC)** is the most widely used plastic and is classified as hazardous because it contains up to 56% chlorine which when burned produces large quantities of hydrogen chloride gas that could lead to respiratory problems when inhaled
- 3.12. **Selenium.** Exposure to high concentrations of selenium causes seleneosis characterized by hair loss, nail brittleness and neurological abnormalities

The Information Technology Directorate has done an audit to assess the WEEE and e-waste generated within the KwaZulu-Natal Department of Education. . It was found that large quantities of obsolete electronic equipment, namely CRT computer monitors, personal computers (PCs), printers, landline telephone receivers, cellular telephone handsets, photocopiers and facsimile machines, are stored throughout the department's offices (head, district, circuit and schools). Stored quantities will range from a few dozen up to 15 000 pieces. PCs are generally replaced after 3 to 5 years. Printers, photocopiers, phones and facsimile machines are generally used for longer and are replaced after 5 to 7 years. Cellular telephones phones are replaced very quickly after 1 to 2 years.

The turnover of electronic equipment is very high and the volume of stored obsolete electronic equipment increases rapidly. The *ad hoc* storage of obsolete electronic equipment has resulted in reduced usable office accommodation as offices are littered with obsolete equipment, parking spaces reduced and high rental costs paid for storage of decommissioned electronic equipment. Also, officials are not aware that the disposal of obsolete electronic

equipment at common landfill sites is illegal as the equipment might contain hazardous substances that could harm the environment; particularly residents living near dump sites. It is in that spirit that this policy has been drawn up.

4 INTERPRETATION AND POLICY OBJECTIVES

The purpose of the policy is to

- 3.13. manage the disposal of electronic equipment when it reaches the end of its useful life or is replaced by the latest technology equipment. Essentially this policy addresses computer hardware, software and associated peripherals;
- 3.14. regularise the receipt of donated second hand electronic equipment from non-governmental organisations (NGOs), transfer from other government departments (local, provincial and national), corporate South Africa and other benefactors; and
- 3.15. maximize the productive life of the electronic equipment where possible and ensure that its eventual disposal is not harmful to the environment.

5 LEGAL FRAMEWORK

- 5.1. Public Finance Management Act, 1999 (Act No. 1 of 1999)
- 5.2. Treasury Regulations
- 5.3. Supply Chain Management Principles (SCM)
- 5.4. Electronic Communications Act 2005 (Act No. 36 of 2005)
- 5.5. Section 58 of the Telecommunications Act (1996)
- 5.6. KwaZulu-Natal Department of Education Asset Management Policy
- 5.7. KwaZulu-Natal Provincial Treasury Practice Note 006
- 5.8. Asset Management Improvement Plan (AMIP)
- 5.9. Section 37(5) of the South African Schools Act (1996)
- 5.10. KwaZulu-Natal Department of Education Asset Disposal Policy
- 5.11. Provincial IT Security Policy
- 5.12. Security Policy for the KwaZulu-Natal Department of Education

6 SCOPE OF APPLICATION

This policy is applicable to the entire KwaZulu-Natal Department of Education in respect of the management of the life cycle of electronic equipment. The policy founded on the principle of extended producer responsibility (EPR) and product environment profile (PEP) which extends the responsibility of the equipment manufacturer to various parts of the product's life cycle. This includes, *inter alia*, the take-back, recovery and final disposal of

the product after decommissioning. This applies to all electronic equipment used in both the administrative and educational environments of the KwaZulu-Natal Department of Education.

7 APPOINTMENT OF AN ASSET DISPOSAL COMMITTEE

The Accounting Officer (or her/his delegated official) shall appoint an Asset Disposal Committee made up of at least four members. The main function of the committee will be to make recommendations regarding the disposal of assets. The membership of the Asset Disposal Committee shall be constituted as follows:

- 7.1. Chairperson of the IT Steering Committee
- 7.2. Manager Logistics, Assets and Disposals (Chairperson for Head Office)
- 7.3. An official from Demand and Acquisition Section
- 7.4. An official from Financial Services
- 7.5. An official from Information Technology Services
- 7.6. Representatives of Asset Management from Head Office

The official from Logistics, Assets and Disposals will serve as the Secretariat.

At a school, the constitution of the Asset Disposal Committee will be constituted in terms of the South African Schools Act (SASA); and the prescripts of the Norms and Standards for School Funding

8. ROLES AND RESPONSIBILITIES OF THE ASSET DISPOSAL COMMITTEE

- 8.1. Report on surpluses, deficiencies, redundant, damaged or unserviceable assets
- 8.2. Determine the causes of the above abnormal situations
- 8.3. Determine whether Loss Control procedures have been followed in respect of loss, damages, error, negligence, fraud and theft.
- 8.4. Determine the disposal method of the electronic equipment.
- 8.5. Call upon an officer to provide a statement where it is deemed necessary to arrive at an appropriate decision.
- 8.6. When the Accounting Officer has approved the recommendations of the Asset Disposal Committee, prescribed e-waste procedures will be followed.
- 8.7. Asset Management shall keep all records of the activities of the Asset Disposal Committee in a secured environment.

9. THE LIFE CYCLE MANAGEMENT PROCESSES

- 9.1. 'Reduce' means purchasing equipment with a longer productive life, thus reducing the number of assets purchased. This may mean buying equipment that is more expensive on the basis that the total value of all

purchases will be reduced. It also means taking steps to actively reduce the long-term impact of the item (and its packaging) on the environment.

9.2. Other considerations that should be made at the time of purchase are:

9.2.1. Have harmful materials (e.g. some flame retardants) been used during manufacture?

9.2.2. Is the packaging material easily recyclable?

9.2.3. Can the equipment easily be repaired and refurbished to extend its productive life?

9.2.4. Is the use of the equipment energy efficient?

9.2.5. What costs are associated with disposal? This should include consideration of external costs that do not directly (financially) impact the KwaZulu-Natal Department of Education, but which do impact the environment and may lead to other departments (Solid Waste, Public Health) incurring real costs instead.

9.2.6. Does the manufacturer and/or supplier support or participate in any kind of take-back or recycling program?

9.3. **'Reuse'** means to actively redeploy functioning equipment that can still be used by someone other than the initial user.

9.4. **'Refurbish'** means extending the productive life of computers by replacing broken parts and then redeploying or redistributing them to other appropriate users.

9.5. **'Recycle'** means to break up ('dismantle', 'strip', 'disassemble') unusable electronic equipment so that:

9.5.1. the components and materials of value are separated and recovered;

9.5.2. dangerous materials are properly and safely removed and separated (and also resold if possible);

9.5.3. remaining materials of no economic value are disposed off, as safely as possible, with as little potential harm (long term impact) to people or the environment.

10. ACQUISITION OF IT AND ICT RESOURCES

In the main there are two processes through which the KwaZulu-Natal Department of Education acquires electronic equipment and they are discussed below.

10.1 Procurement of new electronic equipment

The South African government subscribes to international protocols on the protection of the environment through the use of green and environmentally friendly processes during the production and packaging of consumer goods. Electronic equipment purchased by the KwaZulu-Natal should have been produced and packaged using environmentally friendly processes. When bidding for business with the KwaZulu-Natal Department of Education, suppliers of electronic equipment must be able to declare this information. A guide will need to be drawn up against which these responses can be scored. This score has to be taken into account in awarding tenders. During the adjudication of quotations and/or bids, suppliers who are members of organisations like the Electronic Waste Association of South Africa (e-WASA) should be given preference; and also:

- 10.1.1. electronic equipment manufactured by non-South African companies must abide by the relevant directives;
- 10.1.2. all electronic equipment that cannot be redeployed should be 'written off' as an asset of the department and passed on to an accredited electronic equipment disposal/refurbishment institution/organisation;
- 10.1.3. the electronic equipment refurbishment entity will assess the decommissioned and/or written off equipment;
- 10.1.4. the decommissioned and/or written off electronic equipment that can be refurbished will enter the entity's refurbishment process;
- 10.1.5. the resulting refurbished machines will be used in the various social and/or educational development programmes of government or sold, at cost recovery, to recoup decommissioning and/or refurbishment costs;
- 10.1.6. all working electronic equipment distributed by the accredited electronic equipment refurbishment entity shall be accepted back by the same entity, for recycling at the end of its productive life;
- 10.1.7. electronic equipment that is assessed as being not suitable for refurbishment (or whose parts cannot be stripped and used for the refurbishment of other machines) will enter the accredited entity's a disposal process. Electronic equipment will be dismantled and the component parts separated. This task could either be done by the accredited refurbishment entity itself, or contracted out at the accredited entities own cost. The separated components are handled in one of two ways:
 - 10.1.7.1. those containing hazardous materials will be disposed of safely (this may incur some expenses). This will be done by public tender, issued on a periodic (time and/or quantity) basis; and

10.1.7.2. those which are of value (plastics, metals) will be auctioned off.

10.2 Receipt of transferred and donated used electronic equipment

The KwaZulu-Natal Department of Education occasionally receives offers to transfer and donations of decommissioned electronic equipment (computers) from other government departments (local provincial and national); foundations in the corporate sector; non-governmental organisations (NGOs); charitable organisations etc. Before the department can accept, and take delivery of the donated electronic equipment, the following process needs to be followed:

10.2.1. the donor to supply the KwaZulu-Natal Department of Education with a technical report in respect of each piece of electronic equipment detailing:

10.2.1.1. confirmation that the hard drive was sanitised i.e. ALL confidential information and viruses were removed;

10.2.1.2. the specification on the processing unit which includes make and model of the processing chip, processing speed, capacity of the hard drive, number of USB ports (and standard), power supply, RAM size (and available dim slots for upgrading),

10.2.1.3. the state of each donated piece of electronic equipment i.e. working or not working; and

10.2.1.4. warranties (if any) still carried by each donated piece of electronic equipment.

10.2.2. the donor should provide valid and legal software licenses in respect of both operating systems and applications;

10.2.3. the donor shall bear the costs of transport, delivery, installation and commissioning of donated equipment if the recipient of the donation is a school; and

10.2.4. the donated electronic equipment is accepted on the **reduce-reuse-refurbish-recycle** life management process and hence the donor, or their appointed agent, shall accept the donated equipment, at the end of its productive life, for disposal and/or recycling.

11. THE ASSET DISPOSAL MANAGEMENT PROCESS

11.1 Physical verification of all assets

Physical verification of assets will be conducted biannually. It will be reflected in the Department's Operations and Maintenance Plan. During the regular physical verification of assets, Asset Management will assess the physical condition of all assets and verify their existence and location. A schedule of all assets that are

identified as disposable is drawn and attached to the physical verification report. These assets are placed together in a secured and suitable warehouse for further inspection.

11.2 Physical Inspection of disposable assets

This level of inspection must happen within seven days of the completion of physical verification. The objective is to confirm information on disposable assets gathered during physical verification and to separate assets that can still be refurbished or upgraded from those that must be disposed.

Asset Management will therefore compare the status of each disposable asset as per date on the physical verification report with data on the Asset Expiry report from Hardcat. IT Services will, upon a formal request by Asset Management, prepare a technical report on the Labour Saving Devices (IT related equipment) whose useful lives are finished. This report will be attached to the Asset Disposal Committee report, i.e. stamped form E92A, for submission to the Accounting Officer.

11.3 Meeting of the Asset Disposal Committee

Asset Management will ensure that the meeting of the Asset Disposal Committee happens within 14 days of the completion of the physical inspection of disposable assets and the availability of a technical report(s) in the case of IT related equipment. The meeting will finalise and formalise the recommendations as per roles and responsibilities of the committee.

11.4 Submission of recommendations to the Accounting Officer

The Assets Manager submits to the Accounting Officer a request for the approval of the disposal within 7 days of the sitting of the Asset Disposal Committee. Section 38(1) of the PFMA prescribes that only the Accounting Officer is authorised to approve the disposal of assets or a delegated official who is appointed in writing by the Accounting Officer

11.5 De-recognising of assets from the Asset Management Records

Assets will be de-recognised from the Asset Register within 2 days of the receipt of the approval of the disposal. This process entails the completion of the Asset Disposal form and updating the Asset Register. Individual location Asset Registers will be updated accordingly within 2 working days of the decommissioning of the asset for disposal of the asset.

11.6 Notice of the disposal of assets

A detailed departmental circular will be sent to all levels of the Department informing them of the disposal of assets. This will happen within 2 days of the approval of the circular.

11.7 Awarding of assets

All equipment that cannot be redeployed should be 'written off' as an asset of the department and passed to an accredited computer refurbishment entity.

11.7.1. The computer refurbishment entity will assess all of the written off equipment; the equipment that can be refurbished will be passed through the centre's refurbishment process. The resulting machines will be used in the various donation programs of the corporation or sold at a reasonable price to cover refurbishment costs.

11.7.2. All working equipment distributed by the accredited computer refurbishment centre will be accepted back for recycling at the end of its useful life.

11.7.3. Equipment that is assessed as being not suitable for refurbishment (or whose parts cannot be stripped and used for the refurbishment of other machines) will move through a disposal process:

11.7.4. Equipment will be dismantled and the component parts separated. This task could either be done by the accredited refurbishment entity itself, or contracted out.

11.7.5. The separated components are handled in one of two ways:

11.7.5.1. Those containing hazardous materials will be disposed of safely (this may incur some expenses). This will be done by public tender, issued on a periodic (time and/or quantity) basis.

11.7.5.2. Those which are of value (plastics, metals) will be auctioned off.

12. FINANCIAL IMPLICATIONS

In respect of storage and transportation costs, memoranda of understanding and/or agreement will be negotiated between the KwaZulu-Natal Department of Education and the approved agency. The costs for refurbishment and disposal will be incurred by the agency.

13. POLICY REVIEW

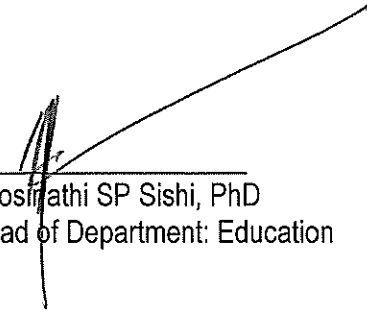
The policy shall be reviewed annually or before its anniversary should a need arise.

APPROVAL BY HEAD OF DEPARTMENT

Approved/~~Approved with amendments~~

Comments: _____

Approved



Nkosinathi SP Sishi, PhD
Head of Department: Education

2013 / 08 / 19
Date