Ghana e-Waste Project

NATIONAL STRATEGY

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1.0 INTRODUCTION

The demand for electric and electronic equipment (EEE) in Ghana grows by the day with a corresponding high rate of WEEE generation estimated at 171,000 tons in 2009. Almost all EEE in Ghana are imported mainly from Europe, North America and Asia. The bulk of the EEE imports are, however, second hand or used, since most Ghanaians are unable to afford brand new EEE.

The used EEE imports and retail trade is therefore a booming business. The rather high rate of WEEE generation is due mainly to the large imports of second hand EEE; about 20% of which have a short life span of less than two years. Another 10 to 20% of this import is also virtually non-functional on arrival. This has spurred a very active, brisk and expanding informal industry around waste electric and electronic equipment (WEEE) 'recycling'. Unfortunately, no facility exists in Ghana for managing the disposal of the WEEE in an environmentally sound manner, in spite of the existing large stocks and the ever-increasing generation, leading to an uncontrollable emergence of WEEE scrap yards/dump sites. Due to the relatively new and informal nature of the industry, proper recycling facilities, management systems and industry standards do not exist, neither are there any national regulations that define, restrict or prohibit hazardous WEEE recycling and setting up.

The environmental and health menace of WEEE 'recycling' activities can be attributed to the lack of an appropriate framework to regulate importation, and the proper management of disposal. In the face of unregulated and unrestricted import regime for second hand EEE, any consignment of WEEE could enter the country under the guise of second hand EEE without detection, at the present. The Basel Convention on trans-boundary movement of hazardous wastes and their disposal establishes a framework of control on the movements of waste from developed to developing countries, and offers a platform for tackling the threat of 'WEEE-dumping'.

The Ghana E-waste Strategy is the outcome of studies conducted under Components 1, 2 and 3 of the Secretariat of the Basel Convention (SBC) E-waste Africa Project and the Ghana – Netherlands Cooperation. The strategy covers the following elements:

- Policy and Legislation
  - ✓ Domestication of Chemicals and Waste Related Conventions in national Law
  - ✓ Technical Committee on Waste Shipment Prevention (TCWSP)
  - ✓ Adoption of European Union (EU) WEEE Guidelines
  - ✓ Extended Producer Responsibility
  - ✓ Mandatory Registration of E-waste Recycling Companies
  - ✓ Intensive Education and Awareness Creation Campaigns
- Business and Financing
- Technology and Skills

- Monitoring and Control
- Marketing, Awareness and Education

2.0 SCOPE AND OBJECTIVES

The emergence of the digital age has underscored the important role that EEE play in a nation's socio-economic development, including education, health delivery and communications as well as global connectivity. In 2003 Ghana formulated its policy on Information and Communications Technology (ICT) for accelerated development, with the understanding for instance, that Ghana's accelerated development would not be possible without an ICT-driven development agenda.

Ghana imports most of its EEE. The level of demand has led to an influx of EEE into the country, most of which are second-hand, because most people are unable to acquire brand new ones. Considerable proportions of these imports are old, near or at end-of-life which are sooner or later consigned as WEEE for disposal. This has led to ever increasing large stocks of EEE and WEEE in Ghana. The results of the study (under Component 2), for instance estimated the existing stored base of WEEE to be about 30% of the installed base of EEE. The amount of stored (W)EEE is as given in the table below.

Table 1: Installed and Stored Base of (W)EEE (2009)

	Private	Corporate	Institutional	Total
Installed EEE	923'000	36'000	25'000	984'000
WEEE stored	277'000	11'000	7'000	295'000

The Table 2 shows the WEEE that flows directly from storage to the collection and recycling system.

Table 2: Flows of WEEE to Recycling (tons/year, 2009)

	Private	Corporate	Institutional	Total
Direct to Recycling	63'000	3'700	2'600	69'300
Storage to Recycling	28'000	3'300	700	32'000
All WEEE to Recycling	91'000	7'000	3'300	101'300

In spite of the ever-increasing high rate of generation of WEEE, no facility or programme exists in Ghana for managing the disposal in an environmentally sound manner, nor are there any policies to regulate importation of used EEE. The Ghana ICT policy for instance, makes no mention of concerns of used EEE importation and the menace of WEEE handling on health and the environment. It is also silent about the business opportunities for collection and the required national capacity to recycle as well as for proper disposal of the WEEE. Under the circumstance, EEE-scrap yards/dump sites are emerging uncontrollably and dangerously in many places in Accra-Tema.

The objectives of the national strategy are therefore to:

- Establish an institutional framework for collaboration in controlling importation of used EEE;
- Account for and maintain accurate records on the importation of both new and used EEE;
- Create awareness on the dangers of the current handling processes, the new hand-in/take back system and on recycling centers at all levels of governance and the public;
- Develop a policy on general importation and management of (W)EEE and on hazardous substances;
- Adopt a business model (acceptable to the WEEE-Scrap Dealers Association) for ease of ownership by the Association eventually;
- Develop a legal framework for EEE importation, introduce EEE levies and mandatory licensing, and EEE management fund;
- Apply the EEE management fund for the control and sound management of WEEE;
- Establish a formal and efficient WEEE recycling industry, nation-wide;
- Strengthen the capacity of the WEEE-Scrap Dealers' Association and the training of the membership in safe and efficient handling and good business practices;
- Establish regional associations to ensure national integration in the WEEE recycling industry;
- Develop an enforcement mechanism centered around the Environmental Protection Agency's (EPA) Compliance and Enforcement Network (CEN)

3.0 FRAMEWORK

The WEEE sector provides some 12,000 jobs and supports tens of thousands of families. The sector has become a popular and ready source of employment and a point of entry for economic migrants, usually with no education and employable skills drifting mainly from the northern parts Ghana. The industry keeps expanding attracting other nationals including Nigerians, Togolese, Indians and Chinese into the business. Unfortunately, even children are also attracted and commonly found scavenging at WEEE recycling sites.

There are problems with the imports of used EEE and the retail business, the dismantling of WEEE and the informal dumping and burning, including the hazardous components of the WEEE. There is the need to re-organize and/or streamline the current practices into formal processes and proper procedures. The massflow chart below identifies the various 'Hot Spots' of the processes which need intervention.

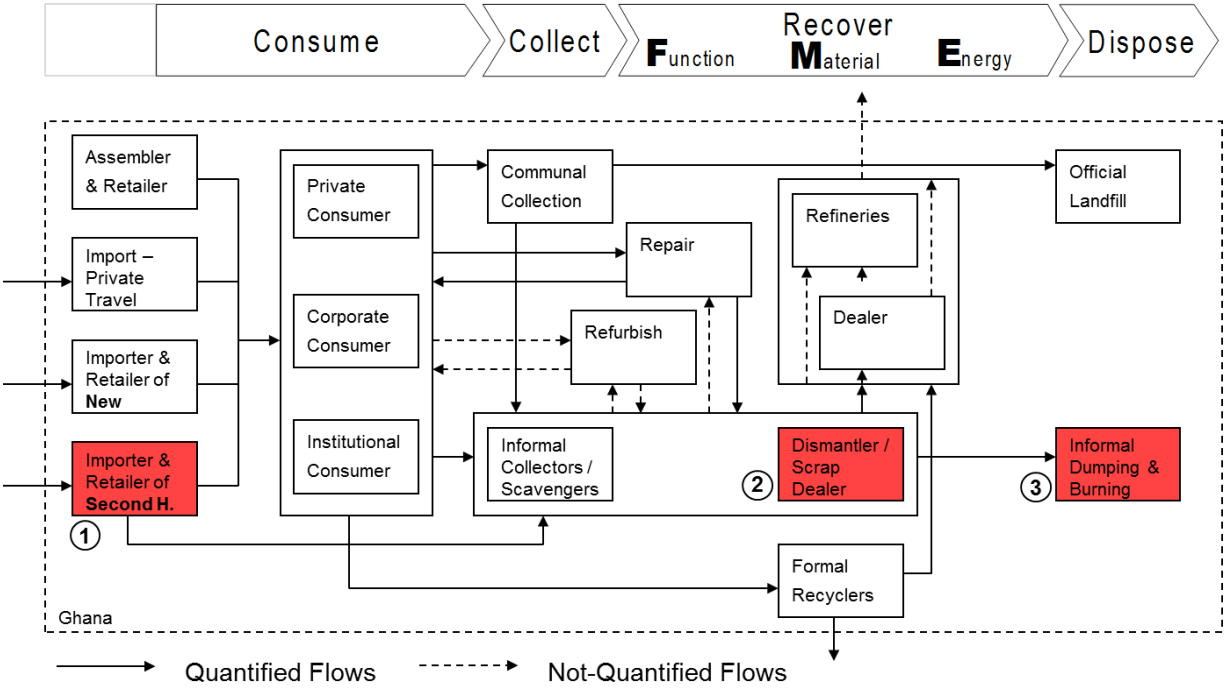

Figure 1: Massflow Chart indicating Hot Spots

There are three 'Hot Spots' which as shown in the mass flow chart (figure 1) are:

- Importers and Retailers of Second Hand EEE;
- Dismantlers/Scrap Dealers; and
- Informal Dumping and Burning

3.1 Importers and Retailers of Second Hand EEE

There are importers of second hand EEE involved a very booming business. The problems with the imports are the following:

- About 15 percent of the imported EEE were non-functional, and added to the internally generated WEEE.
- About 20-30 percent of the imported EEE has to be repaired or refurbished to get them functioning. It can be assumed that these devices on average have a shorter lifespan compared to equipment arriving in working condition
- Some of the imported EEE were not in working condition or outdated, but kept in storage and used as spare parts for refurbishing other defective ones.

3.2 Dismantlers/Scrap Dealers

There are a large number of people involved in dismantling WEEE in mostly informal and unregulated settings. The main problem with this process is that the dismantlers use crude methods and including the following:

- The methods used for dismantling are harmful to the environment and to the health of the workers and people living nearby e.g. the open cable (copper wire) burning.
- The hazardous fractions and other components from WEEE are untreated and openly dumped and occasionally burnt to reduce volume of the waste pile up.
- Some valuable fractions are taken out of the WEEE, while the hazardous fractions are left untreated – cherry picking.
- The cherry picking gives a value to WEEE. Money is paid to the consumers by the scavengers for each piece of WEEE released to or picked by the scavengers.

3.3 Informal Dumping and Burning

All the remaining fractions after extracting the valuable components are dumped and/or burnt on the areas nearby. The dumping and open burning of hazardous fraction has negative effects on the environment and health of the WEEE handlers/workers and other people, who live in, work in or visit the neighborhoods of such sites.

In order to ensure proper procedures within the whole (W)EEE management systems, some interventions are needed. The intervention mechanisms for the Ghana (W)EEE strategy cover the following key elements:

- Policy and legislation;
- Business and financing;
- Technology and skills;
- Monitoring and control; and
- Marketing, awareness and education

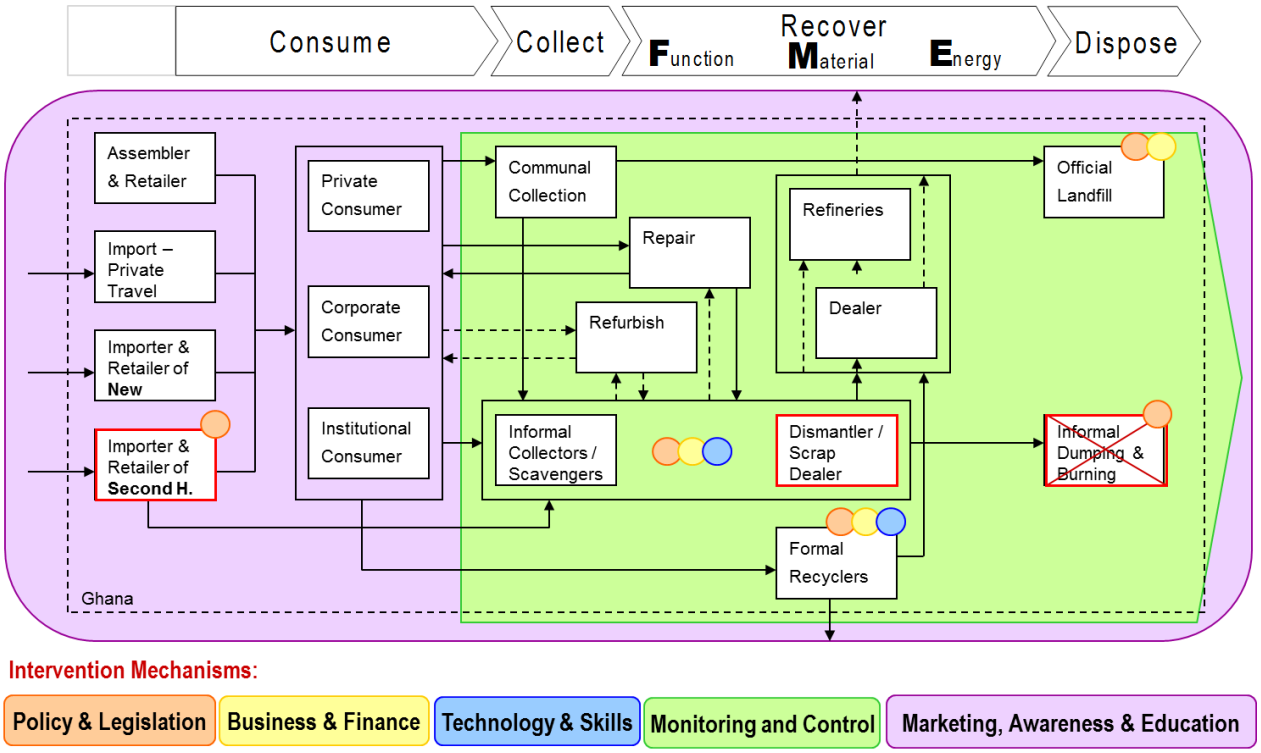

Figure 2: Massflow Chart indicating intervention mechanisms

4.0 STRATEGY

4.1 Policy and Legislation

The 1992 Constitution; the National Environmental Policy and the various national laws that have a bearing on the environment provide the basis that can enable the country control and manage WEEE. The Ghana Environmental Policy is for instance, currently under review, and the review should set a clear link relating to the importation of equipment such as electrical and electronic equipment (especially second hand) into the country. This must lead to the establishment of specific regulations to control the importation and likely emissions of hazardous substances from uncontrolled combustion activities, including burning of WEEE in the country. The role of and the relationship between EPA and the Waste Management Departments of the District, Municipal and Metropolitan Assemblies is crucial in this regard.

The following actions are recommended:

- Designate the Technical Committee on Waste Shipment Prevention (TCWSP) as the coordinating body for control and management of WEEE in Ghana. TCWSP could be made a sub-committee of EPA's Compliance and Enforcement Network (CEN).
- Institute mandatory registration and licensing of scrap dealers and refurbishers to facilitate training and control of their operations.
- Publish directives requiring the general public to hand in end-of-life EEE to licensed dealers only.
- Develop improved legislation to control illegal importation of used EEE (e.g. the hazardous waste control and management Regulations under the EPA Act).
- Adopt a testing system and certification system of second hand items in the country of origin to control importation of WEEE.
- Prior approval to be required before importation of selected categories of second hand EEE
- Adopt age limits for various categories of second hand EEE (TVs, computers, microwaves, etc.)
- Adopt quotas for various categories of second hand EEE so as to protect local industries.

4.1.1 Domestication of Chemicals and Waste Related Conventions in National Law

The Cabinet Memorandum submitted by EPA to the Ministry of Environment, Science and technical has been favourably considered and accepted by Cabinet. Once approved the EPA will work with the drafting Section of the Attorney General's Department to develop Regulations under the EPA Act to domesticate relevant provisions of the chemicals and waste related Conventions (Basel, Rotterdam and Stockholm). This will put in place a suitable legal framework to ensure the control of transboundary movements of WEEE and also ensure their environmentally sound disposal in Ghana.

4.1.2 Technical Committee on Waste Shipment Prevention (TCWSP)

There is an existing in Ghana an informal Technical Committee for Waste Shipment Prevention (TCWSP). This Committee is hosted by the Ghana Ports and Harbours Authority (GPHA) and chaired by the EPA-Ghana. It comprises representatives of: GPHA, EPA, Standards Board, Customs, Green Advocacy-Ghana, while others are to be co-opted (National Security, etc.) The Committee has the following objectives:

- To coordinate programmes on control of import of waste into Ghana;
- To raise public awareness on the environmentally sound management of used and end-of-life electrical and electronic equipment;
- To identify capacity building needs (infrastructure, equipment, training of personnel) for WEEE Control and management;
- To develop draft national guidelines to control import of waste into Ghana and build capacity to implement the guidelines;
- To conduct an assessment of the country situation of WEEE and develop strategies for re-use, repair, refurbishment and recycling; and
- To support local, national and international initiatives to divert end-of-life electrical and electronic equipment from dumping towards sustainable re-use and recycling operations to protect human health and the environment.

There is the need for official recognition of the TCWSP possibly as a sub-committee of the EPA Compliance and Enforcement Network (CEN).

4.1.3 Adoption of EU WEEE Guidelines

The Committee has adapted the EU WEEE guidelines - to be subjected to stakeholder review and then Gazetting by Honourable Minister for implementation, pending formal Regulations on WEEE. The main aspect is adopting a testing and certification system of second hand items in the country of origin to control importation of WEEE. The aim is to ensure that used electrical and electronic equipment exported to Ghana should be in working conditions.

4.1.4 Extended Producer Responsibility

Private companies (computer manufacturers, Nokia, Phillips electronics, etc.) should consider establishing take-back schemes in Ghana or support private/public partnership projects to set up collection systems for end-of-life electrical and electronic equipment for environmentally sound disposal. The details of such arrangements could be worked out through consultations with the major manufacturers of electrical and electronic equipment (e.g. Ericsson, Nokia, Dell Computers, etc.).

4.1.5 Mandatory Registration of E-Waste Recycling Companies

The EPA should institute mandatory registration and licensing of WEEE recycling companies - including the informal operators (scrap dealers and refurbishers), to facilitate training and control of their operations. This could be enforced using the Ghana Environmental Assessment Regulations, 1999 (LI 1652). Industry should be encouraged to obtain E-Stewardship certification. Other complementary control measures could include the following:

- Publish directives requiring general public to hand in end-of-life electrical and electronic equipment to licensed dealers only.
- Prior approval to be required before importation of selected categories of secondhand goods.
- Adopt age limits for various categories of second hand goods (computers, etc.) and adopt quotas for various categories of second hand goods so as to protect local industries.

4.1.6 Intensive Education and Awareness Creation Campaigns

- Continue to investigate the environmental and health impacts of current e-waste practices.
- Hold sensitization programmes for policy-makers (Parliamentary Select Committee on Environment and Science, Committee on Subsidiary Legislation, etc.), to promote the promulgation of legislation on control and management of e-waste and other hazardous waste.

- Design and implement public awareness/information campaigns.
- Design and implement information and training programmes for informal e-waste operators on environmentally sound collection, transportation, storage and dismantling of e-wastes.

4.2 Business and Financing

- Hold consultations with major manufacturers and local dealers of electrical and electronic equipment on implementation of Extended Producer Responsibility in Ghana
- Establish e-waste fund to finance e-waste programme. Adopt economic instruments including imposition of fees on new and used electrical and electronic equipment to be put into the e-waste management fund.
- Include e-waste in EPA's component of the Natural Resources and Environmental Governance (NREG) Programme
- Institute mandatory registration and licensing of scrap dealers to facilitate access to credit (Economic development investment fund (EDIF), Business Sector Advocacy Challenge" Fund (BUSAC), Bank loans, etc.).
- Train informal e-waste operators in alternative income generating activities.

4.3 Technology and Skills

- Design and build a demonstration plant/information centre to promote improved e-waste dismantling and refurbishment
- Promote the fabrication and sale of items from scrap and e-wastes; e.g. fabrication of wheel barrows, watering cans, etc. from metal plates obtained from refrigerators and deep freezers
- Develop facility for the temporary storage of hazardous components of e-waste (e.g. cathode ray tubes (CRTs), etc.) and other hazardous wastes and make arrangements for final disposal in an environmentally sound manner. Develop section of an existing waste disposal site to receive some of the hazardous components of e-waste and other hazardous wastes.
- Establish collection centres (to be managed by interested/qualified members of the scrap dealers/refurbishers associations) to be located at various vantage points in the country using Accra-Tema as a pilot.

- Recycling sites, Re-use practices, and auditing recycling activities should be encouraged within communities
- There should be professional development as training them on aspects related to better risk management and less hazardous mode of operation, would contribute significantly towards mitigating negative impacts on environment and human health.

4.4 Monitoring and Control

- Children should be prohibited from working in the scrap industry and dealers who engage the services of children should be prosecuted.
- The children should be encouraged to go to school, in other words they should aspire to further their education than working at the scrap yard.
- The provision of skips to help cart rubbish generated on the site. This will also prevent burning
- Provision of adequate social amenities at the site of operations of the scrap workers

4.5 Marketing, Awareness and Education

- Hold consultations with associations of scrap dealers and refurbishers on draft e-waste management strategy and prepare budget for interventions.
- Continue to investigate the environmental and health impacts of current WEEE practices.
- Hold sensitization programme for policy-makers (Parliamentary Select Committee on Environment and Science, Committee on Subsidiary Legislation etc.), to promote the promulgation of legislation on control and management of e-waste and other hazardous waste.
- Design and implement public awareness/information campaigns
- Design and implement information and training programmes for informal e-waste operators on environmentally sound collection, transportation, storage and dismantling e-wastes. Use a train-the-trainer approach to ensure that many informal operators benefit from the training.
- Use the print and electronic media to increase awareness on the e-waste challenge

5.0 GENERAL RECOMMENDATIONS

- Informal dump sites operating in the major cities must be abolished or considered for re-designation and change of status to formal recycling centers (where necessary).

- Formal recycling must be encouraged. Since such operators engage in environmentally friendly practices, a lot more of the WEEE should be channeled to them instead of to the informal dismantlers.

- There should be a close check on the activities of importers of second hand EEE to ensure that they meet the set standards for imports.

- Communal collection can be enhanced to ensure that the WEEE is sent to the refineries directly or to the approved recycling centres, instead of the present practice of sending to the informal dumpsites.

- The present mode of recycling/dismantling which happens at Agbogbloshie for instance, must be scrapped totally to be replaced by the receiving/recycling centres to be established.

- The current activities of scavengers cannot be abolished but rather, modalities should be initiated to ensure that they get fair prices for their toil and are certified.

6.0 ROADMAP AND OUTLOOK

The road map for the national (W)EEE strategy cover the following areas:

- Policy and Legislation
- Business and Financing
- Technology and Skills
- Monitoring and Control
- Marketing, Education and Awareness

The timeframes for the implementation span from short to medium term goals (up to 2013).

Phase	Action/Goal	Timeframe	Responsibility
Policy and Legislation			
Short - term	• Mobilize financial resources	March 2011	EPA, GreenAd
	• Draft policy (SEA)	June 2011	EPA, MEST, MoTI, GreenAd
	• Draft legislation preparation	August 2011	AG's Dept., GreenAd, EPA,
	• Gazette second hand Import (W)EEE Guidelines	June 2011	EPA, MEST
Business and Financing			
Short - term	• Adapt acceptable business model	Feb 2011	EPA, GreenAd, Scrap Dealers Association
	• Institutionalize extended producer responsibility	March 2011 – August 2011	EPA, MEST,
Medium - term	• Form regional WEEE Scrap Dealers Associations (refurbishes, recycler, collectors)	June 2012 – March 2013	GreenAd, EPA, Scrap Dealers Association, MoTI
	• Set up WEEE Management (including recycling) Fund	April 2012	EPA, MEST, CEPS, MoFE
	• Levy on Imports of new and used EEE	April 2012	CEPS, MEST, EPA, MoFE
Technology and Skills			
Medium - term	• Construct/establish dismantling and recycling centres	Feb, 2011 – Oct 2011	EPA, GreenAd, Scrap Dealers Association
Short - term	• Install dismantling equipment	Nov 2011	EPA, GreenAd
Medium - term	• Establish Collection Centres	Jan 2012 – Aug 2013	EPA, AMA, TMA, GreenAd
	• Training and capacity building on hazardous components (e.g. CRTs)	Oct 2011 – Dec 2012	EPA, RPI, GSB, GreenAd
	• Management of Plastic Components(including other inert parts)	Nov 2011 – Dec 2013	EPA, GreenAd

Monitoring and Control			
Medium - term	• Licensing of EEE-scrap dealers, handlers, collectors (including importers/traders)	Jan 2012 – Dec 2013	EPA, MEST, CEPS, GPHA
	• CEPS to capture importers of Used EEE by providing special codes	Oct 2011 – Dec 2013	CEPS, EPA, GreenAd
	• Impose age limits on used EEE imported into Ghana	Jan 2012	GSB, EPA, CEPS, GPHA
	• Institute mandatory testing of used EEE	Mar 2012	EPA, CEPS, GPHA
Marketing, Education and Awareness			
Short – Medium term	• Awareness creation in schools	Aug 2011 – Oct 2013	Green Ad, EPA, GES/MoE
	• Public notices on available collection points and recycling centres	Feb 2012 – Oct 2012	EPA, MoI, MEST, GreenAd
	• Message Development and TV documentaries	Dec 2011 – June 2012	EPA, GreenAd
	• Billboards, Banners, Posters, Flyers, T Shirts, Caps	Feb 2012 – June 2013	EPA, GreenAd
	• Advertisements on take back scheme	Jan 2012 – June 2012	EPA, GreenAd,

EPA- Environmental Protection Agency Ghana
GreenAd - Green Advocacy Ghana
MEST - Ministry of Environment, Science and Technology
MoTI - Ministry of Trade and Industry
AG's Dept. - Attorney General's Department
CEPS - Customs, Excise and Preventive Service
MoFEP -Ministry of Finance and Economic Planning
AMA - Accra Metropolitan Assembly
TMA - Tema Metropolitan Assembly
RPI - Radiation Protection Institute
GSB - Ghana Standards Board
GES - Ghana Education Service
MoE - Ministry of Education

Features of the strategy that is designed to ensure sustainability of the interventions:

- As part of the strategy, the capacity of the WEEE Scrap dealers association will be strengthened and the members trained to ensure that in the very least, they will operate differently giving a lot of consideration to the environment around them.
- A business model that will be most applicable to the circumstances of the local industry, with the full support of the association will be introduced in its operations. This is to ensure that the model is owned by the association as a whole and thus make them custodians of the project. The associations will play a key role in management and over time greater responsibility in management will be ceded to the associations as a deliberate succession arrangement.

- There will be a policy instrument that gives overall national direction among others on WEEE management and trade. Licensing for all categories of WEEE handlers as well as regulating the industry.
- EPA's enforcement role through Compliance and Enforcement Network (CEN) derived from the legislation to be enacted.
- Awareness creation among the populace will ensure that people will have a lot more interest in the activities of the scrap industry. There will not be the same level of apathy thus serving as a watch dog.
- Through the establishment of the collection/receiving centres, it will become convenient for the general public to give away their WEEE knowing that it will be handled safely and by trained people.
- The establishment of a management fund and payment of an import levy will provide sustainability for the future even beyond the duration of the SBC E-waste Project.

Annex

Guidelines

SUMMARY

At its maiden meeting held in Tema, the Technical Committee on Waste Shipment Prevention (TCWSP) of Ghana selected a 5-member subcommittee to try to define e-waste and look into the existing EU guidelines to produce a draft waste shipment guidelines for consideration by the main committee. These draft guidelines represent the committee's views on the subject of electrical and electronic waste shipment into Ghana. The guidelines will hopefully form the basis for the main committee's discussions to produce draft national guidelines for ministerial or cabinet attention.

The basis of these guidelines are derived from the Ghana Waste List (Ref Chapter 8) classifying e-waste containing some components as 'hazardous'. It is expected that the shipments of WEEE will be regulated by the Ghana Waste List, Ozone Depleting Substances Regulations, Guidelines for the Transportation of Hazardous Goods, 2005 and these guidelines. In certain circumstances, the shipments of waste can be subject to additional regulatory controls under provisions of international conventions or other national legislation for example the prohibition on dumping and disposal.

It is hoped that when adopted and eventually gazetted, it will be legally binding with respect to the country Ghana. The binding interpretation of gazette policy guidelines will be the exclusive competence of the Ghanaian Court of Justice. The guidelines apply from 15th November 2010 and will be repealed when regulations relating to the subject are passed by parliament.

Definitions

The following definitions were proposed for adoption:

(a) E-Waste

E-waste is defined as *obsolete*, end-of-life, discarded or intended/required to be discarded appliances using electrical energy.

It entails Waste Electrical and Electronic Equipment (WEEE) which includes computers and computer peripherals, consumer electronics, fridges, phones/batteries, ULAB, televisions, VCRs, DVD Players, stereo equipment, radios, speakers, microwave ovens, mast transmitters (comprehensive list) (in working or non-working condition) which have been disposed of or intended to be disposed of by users.

E-waste contains both valuable as well as harmful materials which require special handling and recycling methods

(b) Distinction Between Second-hand EEE and E-waste

Second hand EEE is when ownership of EEE changes from the first user to another. Second hand EEE becomes WEEE when it becomes *obsolete*, gets to end-of-life, is discarded or intended/required to be discarded. To make this distinction, it is necessary to examine the history of an item on case by case basis. However, there are some characteristics of second hand EEE that are likely to indicate whether it is E-waste or not.

(c) Used EEE and 'Second hand EEE'

'Used EEE' same as 'Second-hand EEE'

1.0 Introduction

These guidelines on second hand electrical and electronic equipment provide information for:

- Persons arranging shipments of Waste Electrical and Electronic Equipment (WEEE) into and out of Ghana;
- Holders of Electrical and Electronic Equipment (EEE) arranging transboundary transport of these equipment who wish to avoid compliance with the Basel, Rotterdam and Bamako Conventions and dump the waste in Ghana;
- Authorities responsible for the inspection, control and enforcement of waste shipment.

The control procedures that apply depend, in the first instance, on whether the material in question is waste as defined in the Ghana Waste List, in these guidelines, in any national legislation or national interpretation. If the competent authorities of dispatch and of destination cannot agree on the classification as regards the distinction between waste and non-waste, the subject matter should be treated as if it were waste.

2.0 Distinction between EEE and WEEE

EEE becomes WEEE if its holder discards it, or intends to or is required to discard it. To make this judgment, it is necessary to examine the history of an item on a case by case basis. However, there are characteristics of electrical and electronic equipment that are likely to indicate whether it is waste or not.

Where the claim is made that second-hand EEE is not WEEE, the following should be provided:

- A copy of the invoice and contract relating to the sale and/or transfer of ownership of the EEE which states that the equipment is for direct re-use and fully functional;
- Evidence of evaluation/testing in the form of copy of the records (certificate of testing – proof of functional capability) on every item within the consignment and a protocol containing all record information (see below);
- A declaration made by the holder who arranges the shipment or transport of the EEE that none of the material within the consignment is waste as guided by e-waste definition in these guidelines and the Ghana Waste List, and

- Sufficient packaging to protect it from damage during transportation, loading and unloading.

Where the above criteria are met, EEE would not normally be considered waste if it is:

- fully functioning and is not destined for recovery or disposal operations and is directly reused for the purpose for which it was originally intended or presented for sale or exported for the purpose of being put back to direct reuse or sold to end consumers for such reuse,

EEE would normally be considered waste (see example in Appendix 1) if:

- the product is not complete - essential parts are missing;
- it shows physical damage that impairs its functionality or safety, as defined in relevant Ghana standards;
- the packaging for protecting it from damage during transport and loading and unloading operations is insufficient;
- the appearance is generally worn or damaged, thus reducing the marketability of the item(s);
- the item(s) has among its constituent part(s) anything that is required to be discarded or is prohibited under any national legislation, policy or directives;
- the EEE is destined for disposal or recycling instead of re-use;
- it is old or out-dated;
- it is destined for cannibalization (to gain spare parts).

Prior to any shipment or transboundary transport of EEE, the holder should provide information to the relevant state authorities (e.g. CEPS, EPA, GPHA, Police) to prove that the above criteria for EEE are met (Ref. 2.0). Failure to meet these criteria would generally indicate to the relevant authorities that the material is WEEE and a precautionary approach to environmental protection would be taken in these circumstances.

The following are the recommended steps that importers in second-hand EEE should take to demonstrate that the items being shipped are used EEE rather than WEEE:

The test report that should be conducted by the relevant testing authorities of the exporting country depends on the kind of EEE test procedures on (second-hand) electrical and electronic equipment. Functionality should be tested and hazardous substances should be evaluated.

For most of the second hand EEE a functionality test of the key functions is sufficient.

a) Test Report

Results of evaluation and test by relevant testing authorities of the exporting countries should be recorded and a record (certificate of testing, displaying/stating functional capability) should be placed on each tested EEE.

The record should be fixed securely but not permanently on either the EEE itself (if not packed) or on the packaging so it can be read without unpacking the equipment.

The record should contain the following information:

1. Name of item (Name of the equipment and number of category in any waste list);
2. Identification Number of the item (type no.);
3. Year of Production (if available);
4. Name and address of the company responsible for evidence of functionality;
5. Result of tests (e.g. naming defective parts and defect or indication of full functionality);
6. Kind of tests performed.

The protocol of testing, test results evaluation should accompany the shipment or consignment.

b) Packaging

Insufficient packaging for protecting items from damage during transportation, loading and unloading operations is an indication that the item(s) may be waste. In general, the observation of poor packaging should lead enforcement agencies/authorities to make further enquiries regarding the item(s) being transported.

3.0 Shipments of WEEE destined for disposal

- **Transport within Ghana**

All such transport of waste within Ghana is subject to the guidelines for the transportation of hazardous materials (goods).

- **Exports from Ghana**

All exports from Ghana destined for disposal, re-use and recycling should be guided by provisions of the Basel and Bamako Conventions. The controls that will also apply will depend on the classification of the waste as 'hazardous' and 'non-hazardous' from the Ghana Waste List.

- **Imports into Ghana**

WEEE imports into Ghana (destined for dumping, disposal, recycling and cannibalization) are prohibited irrespective of whether the country of origin is or is not a party to the Basel and Bamako Conventions.

- **Transport/Shipments within the ECOWAS**

Shipments within ECOWAS shall be subject to the notification procedure referred to in the Bamako and Basel Conventions. The applicable controls shall be determined by the classification of the WEEE in question in the relevant Ghana Waste List (GWL) and guidelines for the transportation of hazardous materials (goods). A precautionary approach shall be taken to the classification of WEEE. If it is not clear that the WEEE in question is not listed in the GWL, the EPA should be notified.

4.0 Controls

- Inspections are undertaken by state authorities (e.g. CEPS, EPA, GPHA, GSB, Police) at facilities and during the transport. Importers of second hand-EEE should ensure that the equipment is accompanied by proof of adequate testing, and that it is appropriately packaged.
- For practical reasons of control, every shipment of second hand EEE should be accompanied by a

a. CMR document,

b. proof of the evaluation/testing in the form of a copy of the records and a protocol containing all testing and recording information (see Appendix 1) on every item of the shipment; and a

c. declaration of the responsible person (on whom liability falls).

- In the absence of appropriate documentation and packaging, the regulatory authorities should presume that the material is WEEE and,
- In the absence of documentation in accordance with requirements of the Basel and Bamako conventions, presume that the shipment is illegal. In these circumstances the relevant competent authorities will be informed and the shipment will be dealt with in accordance with provisions in this guidelines. In such instances, those responsible for the shipment will have to repatriate the waste to the country of origin at their own expense and in addition, be liable to a criminal sanction.
- In the case of personal effects, the cost of disposal will be borne by the owner of the goods and in addition, face a fine/sanction equivalent to the value of the goods or products.
- In the case of state detention of the goods for further tests, all the related costs will be borne by the importer/owner.

Appendix I: An example of when EEE would normally be considered waste

Second-hand EEE may be defined as waste if they have any of the following:

1. **A defect that materially affects its functionality. For example it does not:**
    a. power up;
    b. perform BIOS or internal set-up routines or self-checks fail;
    c. have a functioning motherboard;
    d. communicate with the host;
    e. print/scan/copy a test page or the page is not identifiable or readable or is blurred or lined;
    f. read, write or record/burn.
2. **A physical damage that impairs its functionality or safety, as defined in relevant standards. Physical damage includes inter alia:**
    a. a screen that has physical damage, such as burn marks, or is broken, cracked, heavily scratched or marked, or that materially distorts image quality;
    b. a signal (input) cable has been cut off or cannot be easily replaced without recourse to opening the case;
    c. a faulty Hard Disk Drive or a faulty RAM or a faulty Video Card; or
    d. batteries containing lead, mercury or cadmium or batteries containing hazardous liquid cathodes that are unable to be charged or to hold power.
3. **An insufficient packaging to protect it from damage during transportation, loading and unloading operations**

Box 1 Categories relating to WEEE in the Waste Shipment

- Electrical assemblies consisting only of metals or alloys
- Electronic scrap (e.g. printed circuit boards, electronic components, wire, etc.) and reclaimed electronic components suitable for base and precious metal recovery
- Mercury waste and residues[♦)]
- Lead acid batteries, whole or crushed
- Used batteries or accumulators, whole or crushed, other than lead acid batteries, and waste and scrap arising from the production of batteries and accumulators, not otherwise specified or included

- Glass waste from cathode ray tubes and other activated glass
- Chlorofluorocarbons
- Wastes, substances and articles containing, consisting of or contaminated with polychlorinated biphenyl (PCB) and/or polychlorinated terphenyl (PCT) and/or poly-brominated biphenyl (PBB), including any other polybrominated analogues of these compounds, at a concentration level of 50mg/kg or more
- Asbestos (dust and fibres)

Waste not listed

- WEEE, or parts of WEEE not listed elsewhere

- Parts of WEEE, listed in Annex II but contaminated by other materials to an extent which (a) increases the risk associated with the waste sufficiently to render it appropriate for inclusion in the amber or red lists, or (b) prevents the recovery of the waste in an environmentally sound manner

♦) This listing includes wastes in the form of ash, residue, slag, dross, skimming, scaling, dust, powder, sludge and cake, unless a material is expressly listed elsewhere