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Sustainable Management of E-Wastes from the ICT Sector in the Small Island Developing States in the Caribbean – A Regional Approach to Reducing Impacts.

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Introduction

- This Assessment of Used and End-of-Life Electrical and Electronic Equipment (WEEE) for the Caribbean Small Island Development States (SIDS) was conducted in two pilot countries – Trinidad and Tobago over the period 2013 to 2015.
- Funding for these pilot assessments of WEEE was provided by the Programme of Action on Computing Equipment Working Group (PACE WG) of the Basel Convention.

Introduction

- Electrical and electronic equipment (EEE) is one of the fastest growing manufacturing activities that continue to expand exponentially, while the lifespan of these said equipment becomes shorter and shorter.
- This current development and growing demand for consumer goods has increased the consumption of EEE and the production of waste electrical and electronic equipment (WEEE) thus making e-waste one of the fastest growing waste streams.
- One of the main challenges faced is quantifying the amount of e-waste being generated regionally due to the lack of a uniform measurement system for WEEE.

Introduction

- Approximately 42 Mt (million metric tonnes) of e-waste was generated globally in 2014 of this, 6 Mt was ICT related.
- The e-waste stream is estimated to grow at an annual rate of 5% globally and can grow by as much as 500 % in the next decade in some countries.
- Generally large and small household appliances, IT and telecommunication equipment and consumer electronics account for 90 % of e-waste generated.

Definition

- There is no standard global definition for e-waste.
- WEEE has been listed as a hazardous waste source under the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.

Definition

- Under the Convention, e-waste has been described as ‘waste electrical and electronic assemblies or scrap containing components such as accumulators and other batteries, mercury-switches, glass from cathode-ray tubes and other activated glass and PCB-capacitors, or contaminated with Annex I constituents (e.g. cadmium, mercury, lead, polychlorinated biphenyl) to an extent that they possess any of the characteristics contained in Annex III (e.g. explosive, flammable solids, poisonous, toxic)’

Project Context

- E-waste management practices currently employed by SIDS and other developing countries are mostly associated with environmental pollution and human health risks.
- These practices include landfilling/dumping and burning, which have their associated dangers such as the release of greenhouse gases and toxins in the case of the latter, and leaching of hazardous components when wastes are dumped into uncovered and unlined landfills.

Project Context

- While many solid waste components such as plastics, paper, metal and glass have the potential to be recycled, this is a much less popular means of management than landfilling in SIDS.
- Open burning is a common practice in many of the SIDS and the landfills as it is considered the most viable option of disposal currently available to the island due to high technological costs and in spite of the known potential environmental and health effects.

Project Background

- Much of the e-waste processing that is done in the Caribbean SIDS is performed by the informal sector. This type of “backyard” recycling, in particular the recovery of gold, copper and other precious metals, is mostly associated with extreme forms of pollution in and around disassembly and incineration sites, and severe risks to the health of workers and neighbouring communities.
- However in SIDS, attempts to formalize the informal sector have not yet been made and the formal recycling sector remains small. The latter is attributed, from an investor’s perspective, to low availability of recyclable materials, limited and remote markets for recycled products, and inadequate infrastructural, financial and/or technical capacity to facilitate these activities.

Project Background

- Proper recycling and recovery activities can reduce input costs since the need for raw materials in the manufacture of electronics can potentially be lowered. This of course also represents an additional business opportunity for local and foreign investors, especially in the recovery of precious metals as there is the opportunity to partake in the lucrative e-waste transboundary trade industry.

Project Context

- In the context of the Caribbean we face numerous challenges in safely managing WEEE. These include:
 - Weak Laws and Legislative Structures
 - Constrains to Human, Institutional and Infrastructural capacity
 - Lack of Knowledge
 - No Responsible Extended Producer Responsibility Take Back Schemes
 - No in country Recycling Capacity
 - Primary reliance on Landfills for disposal of all waste.

Project Objectives

- The specific objectives of this work are as follows:
 - To collect, collate and evaluate available secondary data and information pertaining to the generation and flows of EEE and WEEE in the Republic of Suriname and the Republic of Trinidad and Tobago;
 - To collect and evaluate primary data and information from key stakeholders in the management of WEEE nationally;
 - To estimate the generation of WEEE in both countries and assess the status of WEEE management, including existing shortfalls in current management practices taking place locally;
 - To devise recommended actions to be implemented in the short to medium term in order to achieve the ESM of WEEE in both countries.

Project Methodology

- The work performed under this project sought to collect and analyse existing data and information on EEE and WEEE, including feedback obtained from relevant stakeholders involved in the management of EEE throughout its life cycle.
- Given the fact that neither pilot country is a producer of EEE, the focus of this assessment was mainly on the segments of the life cycle from the importation and consumption of EEE until the end of their useful lives when waste management practices are to be applied.

Project Methodology

- Under this project, the European Union (EU) Framework Directive was used as the main reference for the definition of WEEE, given the fact that there is no generally accepted definition for the term 'e-waste' nor is there any national definition for WEEE in Suriname.
- The Directive refers to electrical or electronic equipment which is waste, that is “any substance or object which the holder disposes of or is required to dispose of pursuant to the provisions of national law in force, as well as all components, sub-assemblies and consumables, which are part of the product at the time of discarding”.

Project Methodology

- The following categories of WEEE as outlined under the Directive were applied to the study:
 1. Automatic dispensers etc.
 2. Consumer equipment
 3. Electrical and electronic tools
 4. IT and telecommunications equipment
 5. Large household appliances
 6. Lighting equipment
 7. Medical devices
 8. Monitoring and control instruments
 9. Toys, leisure and sports equipment

Data and Information Collection

- Two main methods employed
 - Primary Collection of data in the field, through face-to-face consultations with Key Stakeholders, review of compiled and/or published data, collection of new data through direct stakeholder surveys and online data searches
 - Secondary Collection by interpretation of related data sets obtained through trade data of imports of EEE and exports of WEEE, plus review of sales of EEE in country.

Commonalities Between Countries

- ❖ The trade statistics shows that the quantity of imports for the different categories outweigh their export counterparts for the 5-year period 2007-2011.
- ❖ The major categories of EEE imports are large household appliances (LHHA), electrical and electronic tools, consumer equipment, and IT and Telecommunication equipment in that order.
- ❖ The major export categories were LHHA followed by computer equipment then electrical and electronic tools.

Commonalities Between Countries

- ❖ The main stages and processes within a product's lifecycle include:
 - ❖ Import by distributors, retailers and private entities;
 - ❖ The sale of these items (with the exclusion of the private households), consumption and storage until they lose their functional usage, becoming used EEE (UEEE) and ultimately WEEE;
 - ❖ The stage at which this used EEE (UEEE) is then converted to WEEE;

Commonalities Between Countries

- ❖ UEEE/WEEE is then addressed through the options of landfilling, either through MSW collection or otherwise, open dumping and burning, and collection for resale on the scrap market, either directly by scrap dealers or indirectly by salvagers for resale to scrap dealers.
- ❖ Scrap dealers as well as informal salvagers are also processing UEEE/WEEE for sale on the international markets or to foreign entities purchasing scrap.

Commonalities Between Countries

- The present knowledge and understanding of the impacts of WEEE and improper management are extremely limited among all of the stakeholders engaged throughout the life cycle of EEE.
- Therefore, it is imperative that any future actions to enhance the ESM of WEEE in the region must be based on a well-developed awareness and public education campaign.

Promoting Education and Awareness

- ❖ Elements of an Education and Awareness Programme could include:
 - ❖ Flyers distributed in communities and commercial centres
 - ❖ Ads on the radio and television and online
 - ❖ School competitions and co-curriculum courses.
 - ❖ Community Competitions and other social activities

Promoting a Strong Legislative Structure

- ❖ Legislation specific to the management of WEEE is a critical priority in order to support the development of ESM of WEEE in the region.
- ❖ Should be integrated in the context of broader waste or environmental management legislation for each country.
- ❖ Appropriate regulations and standards to support the monitoring of and improvement in existing collection and storage practices as well as in the EOL treatment of EEE.
- ❖ Strengthening regional Standards Bureaus to facilitate the development of standards to support the life cycle management of EEE and the ESM of WEEE.

Promoting ESM Strategies for the Management of WEEE

- ❖ Collection and Storage
- ❖ The Role of the ICT Sector and Promotion of Take-back Systems
- ❖ Opportunities for Advanced WEEE Treatment and Private Sector Investment

Regional Strategy and a Way Forward

- ❖ Creation of a National WEEE Management Coordinating Body
 - ❖ Public Sector
 - ❖ Private Sector
 - ❖ University
 - ❖ Civil Society
- ❖ Establishment of stronger laws to discourage illegal dumping or out of country disposal.
- ❖ Creation of Economic and non-economic incentives for private sector investment in WEEE dismantling and some recycling
- ❖ Education and Awareness