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to International
Chemicals Management**

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**Implementation of the Strategic Approach to International
Chemicals Management: emerging policy issues**

Submission by the Waste Environment Cooperation Centre on electronic waste

Note by the Secretariat

The Secretariat has the honour to circulate, in the annex to the present note, a submission on electronic waste by the non-governmental organization Waste Environment Cooperation Centre, for the information of the Conference. It is presented, as received by the Secretariat, without formal editing.

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[*]   SAICM/ICCM.2/1

Annex

THE ENVIRONMENTALLY SOUND MANAGEMENT (ESM) OF USED AND END-OF-LIFE ELECTRONICS

Shaping the future
Sharing responsibility

1 MAY 2009

The protection of the environment, in its widest sense, requires corporations, governments and the civil society to work together to improve environmental performance and avoid the deterioration of the life-support systems. The rapid growth of electronic waste around the world, as a result of growing consumption and disposal, represents a serious threat to the global environment. But, the sound and safe management of obsolete electronics has the potential to contribute to reducing green house gases, protecting biodiversity and promoting a shift from waste to resources that supports energy efficiency, natural resources conservation and the livelihood of people.

Obsolete electronics are an accessible source of materials that can be reused, refurbished or recycled worldwide and for which adequate technologies currently exist. They represent a significant source of material resources that are being exploited widely. But their unsound management can affect human health and cause harm to the environment. Growing waste volumes, especially old electronics, calls for diverting such waste away from landfill and to increase reuse, recycling and recovery. Progress in reducing environmental footprint is inherently dependant on the ability to reduce waste quantities and hazardousness and avoiding harmful components in products.

Used and end-of-life electronics: a global challenge

Obsolete electronic volumes are on the rise around the world. According to the European Environmental Agency research, e-waste volumes are rising roughly three times faster than other forms of municipal waste. The agency calculates that total will soon reach approximately 40 million metric tons—"enough to fill a line of dump trucks halfway around the world." In a similar vein, the US EPA estimates that only 12.5%, or 330,000 pounds, of the 2.63 million tons of e-waste disposed of in the US in 2005 was recovered for recycling. The other 87.5% wound up in landfills or was incinerated, posing environmental and human health risks as well as wasting a lot of increasingly costly, potentially recoverable metals and other materials.

The global consumption consultation of electric and electronic products and services have risen exponentially over the last 2 years. Manufacturing bases have shifted from Europe and North America to Asia. Most significant to the growing volumes of e-waste is that the constant innovation and upgrading of electronic and electrical products. Across electronic products, new upgrades

enter the market every 6 months, while across electric white goods, goods, new models arrive every 18 months.

Current situation

The globalization of trade, the quest for prolonging the life of consumers goods and equipment and the springing up of new economic actors have had the effect of making significantly more complex the way obsolete electronics should be managed to protect human health and the environment. It is posing new challenges to governmental policies and market forces. The increased flow of potentially hazardous materials across borders calls for more certainty, transparency, predictability and traceability in what moves, where it moves, how it moves and for what purpose.

Increasingly, consumers are giving away their obsolete electronics, especially personal computers, monitors, printers, mobile phones and games for recycling, repair, remanufacturing or refurbishment. With the proliferation of new electronic products, obsolete consumer electronic equipment levels are expected to increase significantly. The combination of the increase in production, market growth and use of consumer and non-consumer (eg. governments, public authorities, industry, military) electronics makes the handling of used and end-of-life electronics a monumental environmental challenge for every country in the world.

A series of practical difficulties

Companies involved in pro-active collection for product take-back and recycling programmes around the world are faced with a number of obstacles, especially when it comes to trading obsolete electronics.
Some of these obstacles are:
  - ➢ differences in domestic legislations and in the way national authorities apply international environmental rules and procedures;
  - ➢ absence of an internationally recognized process for ensuring that a shipment of non-hazardous obsolete electronics is directed to recycling facilities that are compliant with the basic principles of ESM;
  - ➢ national hazardous waste regulations and permits could hinder obsolete non-hazardous electronics in-country take-back and recycling schemes;
  - ➢ some countries do not currently have suitable electronics recycling capacity or may have a limited recycling industry capability.

A complex set of issues

The complexity of rules and procedures applied worldwide, the diversity of options to manage obsolete electronics (for example: landfills; incinerators; smelters, cement kilns; recyclers of non-metallics; metal works; refurbishers) and the uncertainties regarding the fate of a significant portion of used or end-of-life equipment intermingle creating difficulties for designing solutions acceptable to all concerned stakeholders.

Even where strong legislation is in place, like in the EU, one witnesses an increase in illegal traffic in obsolete electronics. The lack of clarity prevailing regarding operations like repair, refurbishment or remanufacturing has its negative collateral damages through the improper export of materials subject to these operations to countries that cannot deal with them in a safe and sound way.

Despite major improvements in the way obsolete electronics are collected and handled, there are still ongoing problems that need to be solved. They concern, in particular, the economics of the recycling of electronics, the establishment of effective and efficient take-back systems and the proper monitoring of trade in used equipment. The current trend leads to a number of undesirable effects. Product take-back schemes and recycling programmes may suffer from the lack of national capacity to recycle electronics in a sound way. Large quantities of used and end-of-life

electronics are exported or imported on the fringe of international rules and procedures, sometimes illegally.

The international flows of electronic materials is having increasingly harmful effects on the social conditions of a number of importing countries by accelerating migration to urban areas and affecting the health of the labour force.

Gaps in the international architecture

In order to promote recycling and reuse, the G8 countries have launched the 3R initiative aimed at building a sound material-cycle society. It calls for reducing barrier to trade to facilitate the international flow of recyclables and recycled materials, for reusing and recycling end-of-life electronics. In addition to sound waste treatment and recycling, this initiative places high priority on resource productivity and waste reduction. Such approach requires the building of international safeguards to ensure that pollution is not displaced to another country or that illegal shipments in hazardous electronic waste are difficult to control.

Governments are experiencing difficulties in the implementation of the Basel Convention. Such difficulties may emanate from divergence in or lack of common understanding regarding definitions, classification or characterization, difficulties in enforcement or lack of or inadequate capacity to manage obsolete electronics properly. The European Environment Agency published a report in March 2009 on Waste without borders in the EU. This report analyses the issue of the growing trend in illegal export of used and end-of-life electrical and electronic equipment from the EU. The United States government Accountability Office issued a report in August 2008 stressing that EPA needs to better control harmful U.S. export through stronger enforcement and more comprehensive regulation. The report focused on exported obsolete electronics.
The distinction between hazardous and non-hazardous obsolete electronics remains an issue. The former is regulated internationally through the Basel Convention and sisters regional treaties. Some individual countries and integrated group of countries have banned export of hazardous waste, including end-of-life electronics, for any purpose.

A global market for waste materials has emerged driven by the need to transform waste into resources. However, today, it is difficult to dissociate export and import of non-hazardous electronic equipment and parts from the non-hazardous ones.

Improved control of transboundary movements of hazardous obsolete electronics would require the integration of such materials in the Harmonized System (HS) of the World Customs Organization and their identification in a clear manner in such System. For the time being, used or end-of-life electronic goods or equipment are not identified clearly or separately in the HS.

Overall, there are missing links to improve environmental performance in the management of used and end-of-life electronics worldwide. There is a need to improve transparency, certainty, predictability and traceability in the flow of obsolete electronics that are moved across borders for the purpose of being recycled or recovered and for such electronics that have been repaired, refurbished or remanufactured and are being exported for reuse. Of equal importance is the need to ensure that recycling and other operations like re-manufacturing, repair or refurbishment are conducted in an environmental and social responsible way domestically.

A basic dilemma

The globalization of trade, the quest for prolonging the life of consumers goods and equipment and the springing up of new economic actors have had the effect of complexifing significantly the way obsolete electronics should be managed to protect human health and the environment.
A decade ago large manufacturers of personal computers or mobile phones were able to follow the fate of end-of-life products through the establishment of companies' recycling schemes. However,

with the development of a new category of economic actors, especially small-and medium-sized enterprises, engaged in reuse, re-manufacturing, repair or refurbishment of obsolete electronics, recycling has lost ground as an efficient industrial operation.

Also, some have argued that recycling computers, for instance, could result in an expensive system with relatively small environmental benefit (Computers and the Environment: Understanding and Managing Their impacts, edited by Ruediger & Eric Williams, United Nations University, Kluwer Academic Publishers, October 2003). Refurbishment, re-manufacturing or repair is growing to the detriment of recycling. Some say that such activities are more environmentally-friendly than recycling. Also, they tends to prolong the longevity of used electronics.

Recycling is favored by manufacturers as an operation that enable them to better follow the fate of their products, while with refurbishment, for instance, they loose sight of what they have manufactured. Reuse seems to be preferred by many while legislations, in many countries, tend to favor recycling.

The dilemma is as follows:

> Extending the usable life of obsolete electronics is very effective for reducing all types of burden, is environmentally sound and profitable (new emerging multitude of small- to medium-sized economic actors).
> Recycling is expensive and can be polluting but provides additional assurances that old electronics will be disposed of properly and not be exported illegally.

In both cases, however, sound and safe operations should be guaranteed through domestic and international rules and procedures and the implementation of high safety and environmental standards. This, unfortunately, is not the case globally. There are major discrepancies between countries, within regions and among regions.

Thinking ahead

One of the key challenges facing a collaborative work plan to properly handle used and end-of-life electronics is the diversity of roles and perceptions among stakeholders. As such, any effort to bring about concrete and workable solutions on a global scale must invest heavily in bridging diverse stakeholder perspectives through a common, fact-based and objective approach.

While addressing the above questions, it may be useful to look at the broader picture of innovations, energy efficiency and the development, transfer and access of best practices and advanced technologies as means to progress towards improving the management of obsolete electronics and protecting human health and the environment. As a further win-win approach consideration of how to enhance the greening of jobs in the recycling and waste sectors as well as in the sectors engaged in repair, refurbishment or remanufacturing would be recommendable.

In a longer term perspective, new ways of producing and consuming would be essential to reduce both company and people footprint on the environment. It would entail a new thinking where goods and products could have an extended longevity for use or reuse and their recyclability improved.

Any decision taken at the design stage would determine the life-cycle of the product. Therefore, when designing a product it would be critical to engage an evaluation of its environmental footprint during its manufacturing, transport, storage, use, reuse, recycling and the final disposal of what cannot be recovered or recycled.

Standard-setting initiatives

Many sectoral initiatives have been taken by industry to develop standards and certification schemes for recycling, recyclables or recycled goods, some based on the OECD Core Performance Elements and ISO 14001 or EMAS. (see as examples www.bir.org, www.isri.org). An NGO-led standard for electronics recycling is now been developed and refined (www.e-stewards.org). It is an initiative of the Basel Action Network and the Electronics TakeBack Coalition joined by electronics recyclers, smelters and other industry partners in the United States and Canada. One objective is to translate these standards into an independent certification program. Many governments have developed good practice standards for recycling (eg.: US EPA's R2, Canadian CCME principles for electronics product stewardship).

Taking into account that counties around the world are at different stages of socio-economic development and industrial infrastructural capacity, it may be reasonable to design a global program that could be carried out in stages and provide gradual improvement in environmental performance.

Every country is familiar with the implementation of ISO standards. Consequently, it may be appropriate to consider developing and testing specific and dedicated ISO-type standards for recycling, re-manufacturing , refurbishment and repair of electronics that would set a global level-playing field towards achieving environmentally sound management of used and end-of-life electronics, especially computers and parts. In order to improve the situation globally, it would be important to focus on the different economic operators that deal with used or end-of-life electronics, in particular the recyclers, smelters, cement kiln operators, re-manufacturers, refurbishers, repair shops and collectors.

This would represent a global first step. As a next stage, it would be useful to design certification schemes based on newly-developed ISO-type standards. Once there is a functioning and tested standard-setting program (minimal base) at the global level, other initiatives could be taken to build on it to further improve environmental performance. While this process will unfold, those operators that have the capacity could already join existing system that are designed to achieve high environmental and social standards.

Such gradual process would enable a variety of economic operators worldwide to join in and contribute to building a formal minimal global base upon which to progress towards achieving higher environmental, health, safety and social standards.

In order to bring added-value to existing programs or planned initiatives . the Basel Convention PACE program, StEP, OECD Core Performance Elements, the 3R Knowledge Hub in the Asia-Pacific Region, UNESCO digital divide program), it is important to ensure communication and cooperation among the concerned stakeholders. This is quite a challenge in view of the enormous amount of work ongoing or starting around the world. It is also critical to get experts and economic operators from developing and emerging countries involved in the process at an early stage.

WE 2C has initiated consultations with public and private stakeholders to explore the adequacy, feasibility and usefulness of developing ISO-type standards for recycling, refurbishment, remanufacturing and repair of obsolete electronics that could help in creating a global level-playing field and could form the base upon which to design certification schemes for these operations.

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