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*Jaco Huisman, Federico Magalini and Ruediger Kuehr of UNU and other spokespersons are available for advance phone interviews. The full report is available for media preview at [www.badongo.com/file/5082200](http://www.badongo.com/file/5082200)*

## ***Great Potential to Improve Collection, Recycling of Europe's Electronic Waste, Says UN Report***

***Low Collection Rates and Consumer Awareness, Rising Need to Harmonize Regulations,  
Says United Nations University Report for European Commission***

Only about 25% of Europe's medium sized household appliances and 40% of larger appliances are collected for salvage and recycling, leaving "substantial room for improvement," according to a study for the European Commission by a United Nations University-led consortium. Small appliances, with a few exceptions, are close to zero percent collection.

"The study suggests possible long-term collection rate targets of around 60% for small appliances like MP3 players and hairdryers, as well as for medium sized audio equipment, microwaves and TV's and 75% for large appliances like refrigerators and washing machines. If implemented, these targets would lead to a reported European harvest of roughly 5.3 million tonnes of e-waste by 2011, up from 2.2 million tonnes today," says study manager Ruediger Kuehr of UNU's office in Bonn, Germany.

The study predicts that across the EU27 (see [http://europa.eu/abc/european\\_countries/index\\_en.htm](http://europa.eu/abc/european_countries/index_en.htm)) e-waste will rise 2.5 to 2.7% per year - from 10.3 million tonnes generated in 2005 (about one-quarter of the world's total) to roughly 12.3 million tonnes per year by 2020.

The EU Directive on WEEE (Waste Electric and Electronic Equipment) prescribes a collection rate of 4 kg per capita. However, the study points up large differences in collection

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rates today between EU member states. And while the 4 kg target can be met easily by wealthier member states, it represents a very challenging target for new members, the study says.

Today's low collection rates result in part from low public awareness and represent a major cause of concern, according to Steve Ogilvie of AEA Technology, who calculated the amounts of EEE arising as waste.

"There are clear benefits to the environment to collect and treat all forms of e-waste," says the lead study author Jaco Huisman of UNU. "However, salvaging and recycling different types of e-waste benefits the environment to different degrees in terms of reducing toxic pollution, conserving natural resources, reducing energy consumption and preventing emissions that cause global warming and ozone layer depletion. We therefore recommend differentiated collection targets for different e-waste categories.

"For instance, the top environmental priority is to gain control over the chlorofluorocarbons (CFCs) in old refrigerators," says Dr. Huisman, who also conducted the environmental evaluation for the study. "By increasing the reported EU27 collection rate from the 27% achieved in 2005 to the suggested 75% by 2011, a major reduction of chemicals destroying the ozone layer would be achieved but also, because CFCs are a powerful greenhouse gas, it would save the equivalent of roughly 34 million tonnes of CO<sub>2</sub> from entering the atmosphere."

Improving e-waste collection is also key to preventing toxic pollution. An estimated 4.3 tonnes of mercury was contained in the estimated 660 million energy saving light bulbs sold in the EU27 in 2006, with approximately 2.8 tonnes more contained in LCD panels. "Consumers need to help control this toxic danger by getting discarded waste to qualified recyclers for proper treatment," says Dr. Huisman.

The study says e-waste firms and other stakeholders see a clear need for consistency across the EU in legislative requirements for registering, reporting and other activities, and greater stakeholder awareness of specific responsibilities. A large number of small and medium-sized enterprises were unaware of their legal obligations.

"Our study shows a total financial burden across EU27 of registering and reporting activities of around EUR 40 million, using a baseline assumption of eight hours needed per report," says Federico Magalini of UNU, responsible for the economic evaluation. However, the financial concern is less of an issue than the hassle for companies active in all EU member states of having to file at least 72 different reports.

"Take back and treatment costs are expected to rise from roughly EUR 0.76 billion in 2005 to EUR 3.0 billion in 2020, with costs varying per category of e-waste," says Dr. Magalini. "For

large household appliances like washing machines or electric stoves, the main cost is transportation. For cooling and freezing appliances, treatment creates the major cost.”

"The rising value of salvaged components has made recycling more economically attractive," he adds.

Generally speaking, the largest environmental improvement and highest cost-efficiency can be realised by moving from an e-waste product-oriented approach to a more meaningful, differentiated e-waste category-oriented approach, says Dr. Huisman.

Other important conditions for success identified in the study:

1. Better enforcement of the key provisions at EU and national levels of all organisational and operational parts of the recycling chain, with emphasis on stopping illegal waste shipments;
2. Splitting the basic legal framework and key responsibilities from operational standards;
3. Simplification and harmonisation of regulations throughout the EU27;
4. Fostering consumer awareness to stimulate greater levels of e-waste collection;
5. Removing the artificial and complicating split between B2B and B2C products and between new and historic waste for both simplification and environmental reasons;

“Electronic products have a great positive impact on our lives,” says UN Under-Secretary-General Konrad Osterwalder, Rector of UNU. “However, their increasing availability and affordability means that they also present a growing environmental problem, one we all personally need to address. The old saying – reduce, reuse, recycle – applies particularly well to electronic waste.”

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### ***Background***

The European Commission contracted the UNU to contribute to the 2008 review of Directive 2002/96/EC on WEEE. This project was implemented by the Bonn-based European Focal Point of UNU’s Zero Emissions Forum, hosted by UNU’s Institute for Environment and Human Security. Partners were AEA Technology (United Kingdom), Gaiker (Spain), the Regional Environment Centre for Central and Eastern Europe (Hungary) and the Technical University Delft (Netherlands).

Conducted from September 2006 until August 2007, the goal was to evaluate options for refinement of the Directive. Major steps of this work were:

1. Evaluate the implementation of the Directive by EU Member States, with particular attention to the societal aspects of environmental, economic and social impacts of the WEEE Directive;
2. Provide legislative and non-legislative options to improve environmental effectiveness, cost efficiency and simplification of the WEEE Directive.

The UNU study involved a series of questionnaires as well as more than 180 interviews with stakeholders involved in electronics take-back and recycling, combined with an extensive review of pre-existing data to create a highly complete picture of the situation in Europe.

A large database with over 350 literature sources has been created, together with a fully updated environmental and economic assessment model that describes the 64 most relevant substances, their detailed fate over the recycling chain, the 31 most relevant recycling, recovery and final waste disposal processes, 15 different environmental indicators and the main costs of recycling from collection to final destinations.

### **United Nations University**

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*UNU co-founded the Solving the E-Waste Problem (StEP) Initiative ([www.step-initiative.org](http://www.step-initiative.org)) and functions as its secretariat host. StEP is an applied science based, multi-stakeholder initiative working on holistic global e-waste solutions.*