



Urgent Need to Prepare Developing Countries for Surge in E-Wastes

**Rocketing sales of cell phones, gadgets, appliances
in China, India, elsewhere forecast**

**Proper e-waste collection, recycling key to recovering valuable materials,
protecting health, building new green economy**

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Bali, 22 February 2010 – Sales of electronic products in countries like China and India and across continents such as Africa and Latin America are set to rise sharply in the next 10 years.

And, unless action is stepped up to properly collect and recycle materials, many developing countries face the spectre of hazardous e-waste mountains with serious consequences for the environment and public health, according to UN experts in a landmark report released today by UNEP.

Issued at a meeting of Basel Convention and other world chemical authorities prior to UNEP's Governing Council meeting in Bali, Indonesia, the report, "Recycling – from E-Waste to Resources," used data from 11 representative developing countries to estimate current and future e-waste generation – which includes old and dilapidated desk and laptop computers, printers, mobile phones, pagers, digital photo and music devices, refrigerators, toys and televisions.

In South Africa and China for example, the report predicts that by 2020 e-waste from old computers will have jumped by 200 to 400 percent from 2007 levels, and by 500% in India

By that same year in China, e-waste from discarded mobile phones will be about 7 times higher than 2007 levels and, in India, 18 times higher.

By 2020, e-waste from televisions will be 1.5 to 2 times higher in China and India while in India e-waste from discarded refrigerators will double or triple.

China already produces about 2.3 million tonnes (2010 estimate) domestically, second only to the United States with about 3 million tonnes. And, despite having banned e-waste imports, China remains a major e-waste dumping ground for developed countries.

Moreover, most e-waste in China is improperly handled, much of it incinerated by backyard recyclers to recover valuable metals like gold -- practices that release steady plumes of far-reaching toxic pollution and yield very low metal recovery rates compared to state-of-the-art industrial facilities.

"This report gives new urgency to establishing ambitious, formal and regulated processes for collecting and managing e-waste via the setting up of large, efficient facilities in China," says UN Under-Secretary-General Achim Steiner, Executive Director of UNEP. "China is not alone in facing a serious challenge. India, Brazil, Mexico and others may also face rising

environmental damage and health problems if e-waste recycling is left to the vagaries of the informal sector.

“In addition to curbing health problems, boosting developing country e-waste recycling rates can have the potential to generate decent employment, cut greenhouse gas emissions and recover a wide range of valuable metals including silver, gold, palladium, copper and indium -- by acting now and planning forward many countries can turn an e-challenge into an e-opportunity,” he added.

The report was issued at the Simultaneous Extraordinary Meetings of the Conferences of the Parties to the Basel, Rotterdam and Stockholm Conventions on enhancing their cooperation and coordination (ExCOP).

It was co-authored by the Swiss EMPA, Umicore and United Nations University (UNU), part of the global think tank StEP (Solving the E-waste Problem), which includes UNEP and Basel Convention Secretariat among its 50+ members. Hosted by UNU in Bonn, Germany, the think tank convenes experts from industry, government, international organizations, NGOs and science. A grant from the European Commission, Directorate-General for the Environment, funded the report's preparation.

The report cites a variety of sources to illustrate growth of the e-waste problem:

Global e-waste generation is growing by about 40 million tons a year

Manufacturing mobile phones and personal computers consumes 3 per cent of the gold and silver mined worldwide each year; 13 per cent of the palladium and 15 per cent of cobalt

Modern electronics contain up to 60 different elements -- many valuable, some hazardous, and some both

Carbon dioxide emissions from the mining and production of copper and precious and rare metals used in electrical and electronic equipment are estimated at over 23 million tonnes – 0.1 percent of global emissions (not including emissions linked to steel, nickel or aluminum, nor those linked to manufacturing the devices)

In the US, more than 150 million mobiles and pagers were sold in 2008, up from 90 million five years before

Globally, more than 1 billion mobile phones were sold in 2007, up from 896 million in 2006

Countries like Senegal and Uganda can expect e-waste flows from PCs alone to increase 4 to 8-fold by 2020.

Given the infrastructure expense and technology skills required to create proper facilities for efficient and environmentally sound metal recovery, the report suggests facilitating exports of critical e-scrap fractions like circuit boards or batteries from smaller countries to OECD-level, certified end-processors.

Says Konrad Osterwalder, UN Under-Secretary General and Rector of UNU: “One person's waste can be another's raw material. The challenge of dealing with e-waste represents an important step in the transition to a green economy. This report outlines smart new technologies and mechanisms which, combined with national and international policies, can

transform waste into assets, creating new businesses with decent green jobs. In the process, countries can help cut pollution linked with mining and manufacturing, and with the disposal of old devices.”

Country Situations

The report assesses current policies, skills, waste collection networks and informal recycling in 11 representative developing economies in Asia, Africa and the Americas:

- * China, India
- * South Africa, Uganda, Senegal, Kenya, Morocco
- * Brazil, Columbia, Mexico, Peru

It also outlines options for sustainable e-waste management in those countries.

The data includes equipment generated nationally but does not include waste imports, both legal and illegal, which are substantial in India, China and other emerging economies.

Broken down by type, the report estimates e-waste generation today as follows:

- * **China:** 500,000 tonnes from refrigerators, 1.3 million tonnes from TVs, 300,000 tonnes from personal computers
- * **India:** over 100,000 tonnes from refrigerators, 275,000 tonnes from TVs, 56,300 tonnes from personal computers, 4,700 tonnes from printers and 1,700 tonnes from mobile phones
- * **Colombia:** about 9,000 tonnes from refrigerators, over 18,000 tonnes from TVs, 6,500 tonnes from personal computers, 1,300 tonnes from printers, 1,200 tonnes from mobile phones
- * **Kenya:** 11,400 tonnes from refrigerators, 2,800 tonnes from TVs, 2,500 tonnes from personal computers, 500 tonnes from printers, 150 tonnes from mobile phones

The report also includes data on per capita sales of electrical and electronic goods. For example South Africa and Mexico lead in personal computer sales with the equivalent of 24 sold per 1,000 people. Brazil, Mexico and Senegal generate more e-waste per capita from personal computers than the other countries surveyed.

Way Forward

Developing vibrant national recycling schemes is complex and simply financing and transferring high tech equipment from developed countries is unlikely to work, according to the report.

It says China’s lack of a comprehensive e-waste collection network, combined with competition from the lower-cost informal sector, has held back state-of-the art e-waste recycling plants.

It also notes a successful pilot in Bangalore, India, to transform the operations of informal e-waste collection and management.

Brazil, Colombia, Mexico, Morocco and South Africa are cited as places with great potential to introduce state of the art e-waste recycling technologies because the informal e-waste sector is relatively small.

Kenya, Peru, Senegal and Uganda have relatively low e-waste volumes today but likely to grow. All four would benefit from capacity building in so-called pre-processing technologies such as manual dismantling of e-waste.

The report recommends countries establish e-waste management centers of excellence, building on existing organizations working in the area of recycling and waste management.

Existing bodies include those supported by the United Nations including the more than 40 National Cleaner Production Centers established by the UN Industrial and Development Organization and the regional centers established under the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.

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Basel Convention (www.basel.int)

Joining Mr. Steiner at the Bali news conference, Katharina Kummer, Executive Secretary of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, noted complementary actions by her organization.

In 2008, Parties to the Convention adopted guidelines on collecting and refurbishing used mobile phones and the recovery and recycling their components at end-of-life, developed under the 2003 Mobile Phone Partnership Initiative (MPPI).

In Africa, with funding from the European Commission, UK, Norway and the Dutch Recyclers Association, e-waste inventories and national management plans are being developed, alongside national pilot projects to establish collection, repair, refurbishment and recovery systems. Similar effort in the Asia Pacific region are in development with financial support from Japan.

Bali also hosted the launch two years ago of the Partnership for Action on Computing Equipment, of which StEP is a member. PACE is developing guidelines on refurbishing used computers and recycling end-of-life equipment. Some 35 developing countries and countries with economies in transition have expressed interest in pilot projects in development on the collection and environmentally sound management of e-waste in the informal sector.

United Nations University (www.unu.edu)

UNU is an autonomous organ of the UN General Assembly dedicated to generating and transferring knowledge and strengthening capacities relevant to global issues of human security, development, and welfare. The University operates through a worldwide network of research and training centres and programmes, coordinated by UNU Centre in Tokyo.

StEP (www.step-initiative.org)

Hosted by UNU in Germany, Solving the E-Waste Problem is a partnership of several UN organizations, prominent industry, government and international organizations, NGOs and the science sector. StEP initiates and facilitates sustainable e-waste handling through analysis, planning and pilot projects. Earlier this month, StEP and the Basel Convention's PACE organization, agreed to further strengthen cooperation and harmonization of global e-waste related activities.

EMPA (www.empa.ch)

EMPA is the research institute for material science and technology of the Swiss Federal Institute of Technology (ETH) domain. It is a pioneer in monitoring and controlling for e-waste management systems and setting recycling and disposal standards. Empa is also leading several e-waste related projects in Asia, Africa and Latin America. Additionally, it manages the online e-waste guide (www.ewasteguide.info), a comprehensive resource base on e-waste including a bibliography of literature, case studies, audio and video files and other information on e-waste.

Umicore (www.umicore.com)

Umicore is an international speciality materials group. Its business unit Umicore Precious Metals Refining offers eco-efficient recycling services for electronic scrap and other valuable metal bearing materials to a global customer base. In its state-of-the-art integrated metals smelter and refinery at Hoboken/Belgium precious metals as well as base and special metals are recovered and brought back to the market as pure metals.

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Contacts:

Nick Nuttall, UNEP Spokesperson/Head of Media, Nairobi, + 254-20-7623084; + 254-733-632755 (m); +41-79-596-5737 (m2), e-mail: nick.nuttall@unep.org

Moira O'Brien-Malone, UNEP Information Officer, Division of Technology, Industry and Economics (DTIE), Paris, + 33-1-4437-7612, moira.obrien-malone@unep.org

Jim Sniffen, UNEP Programme Officer, New York, +1-212-963-8094 or 8210info@nyo.unep.org

Terry Collins, +1-416-538-8712; +1-416-878-8712 (m); tc@tca.tc

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China

1) Proper e-waste dismantling -component recycling factory, China 1 - photo credit StEP-UNU

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2) Proper e-waste dismantling-component recycling factory, China 2 - photo credit StEP-EMPA

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3) Informal e-waste recycling, China 1, photo credit StEP-EMPA

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India

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South Africa

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