

GLOBAL INFORMATION SOCIETY WATCH 2010

Focus on ICTs and environmental sustainability



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Foundation for Media Alternatives (FMA)

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Introduction

The Philippines has always been a global success story when it comes to mobile telephony. It is a developing country with a significantly high mobile diffusion rate: mobile subscriptions have now reached 80% of the population.² As the main communications tool for citizens across all social classes, mobiles are also helping drive the country's steadily increasing number of internet users, from just 2% of the population in 2000, to more than 27% in 2010.³ These realities have obviously fuelled a steady demand for information and communications technology (ICT) gadgets and equipment manufactured and assembled in or imported into the country.

But there is a worrisome underside to this. Consumption of electronic products and services are therefore increasing at an unprecedented rate, with the amount of accumulated obsolete equipment – electronic waste (e-waste) – growing over time. It may reach crisis proportions if systemic policy gaps, low public awareness and weak institutional capacities are not effectively addressed soon.

This report describes the emerging e-waste problem in the Philippines, with a focus on ICT waste. It summarises whatever statistics exist, and describes the country's present e-waste "ecosystem". It outlines the national policy and regulatory context, and lists some initiatives that address aspects of the problem. An initial action agenda for confronting the problem of e-waste is also presented.

The impending crisis

Generating e-waste

The unprecedented consumption of electronic products that eventually become obsolete drives the growing problem of internally generated e-waste. In addition to this, e-waste is also generated via the importing of second-hand and scrap electronics. E-waste-specific data are scant, but some indicative statistics can be cited.

ICT use: PC and mobile telephony use in the Philippines has increased tremendously. From just 34,000 mobile subscriptions in 1991, mobile subscribers have reached almost 79 million in 2010; almost four in five Filipinos own a mobile phone. Computer and internet access has also been steadily growing. Household PC ownership

was only pegged at 5.9% in 2006,⁴ but is steadily rising. Based on available census data and new statistical analysis, the increasing number of PCs in the country (both household and business) has also been estimated in Table 1.⁵ The ubiquity of PCs in schools and workplaces, plus cheap internet cafés in urban areas, drive PC use and internet penetration. Recent studies place internet use at about 27%, ranking the country within the top 20 global internet populations.⁶

*ICT trade:*⁷ Electrical and electronic equipment is one of the country's largest imports, constituting more than 40% of total imports. Total ICT imports reached PHP 57.7 billion (USD 1.2 billion) and total import volume hit 70.8 million kg in 2006. Total wholesale trade in ICT equipment increased from PHP 14.5 billion (USD 302 million) in 2005 to PHP 17.4 billion (USD 362 million) in 2006. Total ICT manufacturing output averaged PHP 750 billion (USD 1.56 billion) for the same period. Market analysts project Philippine computer hardware spending for 2010 to reach USD 1.6 billion, rising to USD 2.5 billion by 2014.⁸

Import clearances for "recyclable EEEs" (i.e. second-hand electrical and electronic equipment, but also eventual electronic scrap) continue to be issued by government, and are rising over time. A total of 191 clearances were issued from the year 2000 (19 issued) to 2007 (30 issued, highest in the period). In 2007 alone these clearances represented 98,823 metric tonnes imported into the country, mostly from Korea and Japan.⁹

The declining prices of PCs, notebooks and mobiles are further driving the adoption of technology, and non-stop technological development leading to quick product turnover fast-tracks the obsolescence of these devices.

1. Alegre is executive director of the FMA. Borcena is president of the Greenresearch Environmental Research Group. Research support from Randy Tuano and Daryl Ruiz.
2. Iglesias, M. (2010) Mobile users push up RP's Internet penetration, *Malaya*, 9 June. www.malaya.com.ph/06092010/busi9.htm
3. internetworkstats.com/stats3.htm

4. National Statistics Office (2006) *2006 Family Income and Expenditure Survey*, public use file.

5. Villavert, R., Peralta, G. L. and Ramos, S. (2009) Estimation of Obsolete Computers in the Philippines, presentation at the 2009 Workshop of the Asian Network for Prevention of Illegal Transboundary Movement of Hazardous Waste, Kuala Lumpur, Malaysia, 20-22 January. www.env.go.jp/en/recycle/asian_net/reports/sixthyearwork/Session_III/04PhilippinesS3.pdf

6. Royal Pingdom (2010) The top 20 countries on the Internet, and what the future might bring. royal.pingdom.com/2010/07/27/top-20-countries-on-the-internet

7. Figures from National Statistics Office (2005 and 2006) *Annual Survey of Philippine Business and Industry and Foreign Trade Statistics*, public use files.

8. Philippine Information Technology Report Q1 2010. www.companiesandmarkets.com/Summary-Market-Report/philippines-information-technology-report-q1-2010-264539.asp

9. Sanez, G. G. (2009) Update on Enforcement Activities of the Basel Convention: Philippines and Situation in Environmental Concerns related to Recycling Activities: Philippines, presentations at the 2009 Workshop of the Asian Network for Prevention of Illegal Transboundary Movement of Hazardous Waste, Kuala Lumpur, Malaysia, 20-22 January. www.env.go.jp/en/recycle/asian_net/activitiesreport.html

Table 1. PC stock in the Philippines

	2000	2001	2002	2003	2004	2005	2006
Household	468,380	571,232	674,084	776,936	928,696	1,080,455	1,232,215
Business	2,269,563	2,225,966	2,268,911	2,308,084	2,382,658	2,415,630	2,443,001
Total	2,737,943	2,797,198	2,942,995	3,085,020	3,311,354	3,496,085	3,675,216

Calculating e-waste quantities

There have been recent efforts to calculate the volume of ICT waste in the country, specifically in the area of PCs. PC sales data from 2000 to 2010 were tracked and the totals were estimated at 2,078,695 units. PC obsolescence was then calculated using end-of-life models and analysis. Without going into details of the statistical model, the following are the estimates of an academic team from the University of the Philippines.¹⁰

The number of obsolete PCs generated from 2003 to 2010 was calculated at 1,360,739 units. Of this total, only 444,501 (33%) are estimated to have been recycled, while 191,438 (14%) were thought to be landfilled (amounting to 6,000 tonnes). The rest are probably stored. By end-2008, the estimated 131,534 units stored were thought to be still waiting to be recycled or landfilled (or taken back by manufacturers).

Filipino culture is averse to a quick disposal of obsolete e-products, with many preferring to keep them for possible future use or resale. However, the country's collection and recycling ecosystems are underdeveloped and do not provide options that end-users can rely on. In addition, overall consumer awareness of recycling options is low.

Disposing of e-waste

The fate of much of the country's e-waste is not fully known. Some studies have mapped the e-waste disposal flow and pollution pattern in the country.¹¹

Some local manufacturers (e.g. those in export zones or industrial parks where centralised waste facilities exist) have more formal disposal procedures, and some hazardous wastes from these sites are sent to licensed waste treatment facilities. However, the common e-waste disposal scenario for small/medium-scale enterprises (a vast majority of the country's economic sector) is of it being mixed with other solid waste, and probably landfilled. Here it is processed by the informal recycling sector: dumpsite waste pickers, itinerant waste pickers, small buyers/vendors, and junk shops.¹²

At the household level, owners of mobile phones and PCs typically turn over usable old products to relatives or friends when opting to buy a newer model or different brand; they also may sell these to second-hand shops. Unusable units are mostly stored in homes, but some find their way to the odd recycler.

Waste pickers typically collect and sell their wares to junk shops. In turn, these are then sold to formal recyclers for dismantling, and recovery of metals, plastics and glass. Junk shops may resort to burning to extract specific metals (e.g. copper). Some of the recovered materials are passed on to the electronics industry for reuse, or to other industries, domestic or abroad.¹³

The government admits that recycling of such e-waste is by and large a backyard industry that is largely informal, not covered by proper environmental permits and clearances, and lacking business permits.¹⁴

Environmental, safety and health issues

The increasing number of discarded technologies corresponds to an increasing percentage of hazardous materials which compounds the disposal and pollution problem, and can further result in damage to occupational safety, community health, and the environment. Greenpeace reported that since a large portion of discarded devices end up in landfills or with backyard recyclers, informal labourers and waste pickers, depressed communities and their environment get exposed to toxic heavy metals such as lead, cadmium, mercury, chromium, halogenated substances including brominated flame retardants, and polyvinyl chloride (PVC).¹⁵

The process of recovering gold in some backyard operations has also led to the draining of acid wash into septic tanks or open canals, causing pollution of nearby water sources including groundwater; this compromises not only community health, but also the biodiversity in nearby areas.¹⁶ There are also cases where the incineration of e-waste has led to community complaints of very bad odours emanating from industrial waste processing plants.¹⁷

10 Villavert et al. (2009) op.cit. The statistical model was adapted from an earlier work which calculated e-waste volume of white goods: Peralta, G. L. and Fontanos, P. M (2006) E-waste Issues and Measures in the Philippines, *Journal of Material Cycles and Waste Management*, 8, p. 34-39.

11 Greenpeace Southeast Asia (2005) *Toxic Tech: Pulling the Plug on Dirty Electronics in Southeast Asia*, p. 12. www.greenpeace.org/raw/content/seasia/en/press/reports/toxitech_in_sea.pdf

12 Ibid.

13 Ibid., p. 13.

14 Sanez, G. G. (2009) Situation in Environmental Concerns related to Recycling Activities: Philippines, op. cit.

15 Greenpeace Southeast Asia (2005) *Toxic Tech: Looming E-waste Problems for Thailand and Philippines*, 28 September. www.greenpeace.org/seasia/en/news/toxic_threat_in_th_rp

16 Greenpeace Southeast Asia (2005) *Toxic Tech: Pulling the Plug...*, op. cit., p. 13.

17 Ibid., p. 15.

Policy and regulatory context

Instruments and institutions

The Philippines has no comprehensive policy framework to deal with e-waste. The fact that its environmental protection agency, the Department of Environment and Natural Resources (DENR),¹⁸ has no official definition of e-waste attests to this. Similarly, the Commission on Information and Communications Technology (CICT)¹⁹ – the government agency overseeing ICT policy – has not included e-waste management in the country's ICT plans and roadmaps despite civil society recommendations as early as 2006.²⁰

The overall framework for managing all solid waste in the country is RA 9003 (Ecological Solid Waste Management Act 2000),²¹ where e-waste could be classified as “special waste”. Given the presence of toxic substances in e-waste, its closest definition is under “hazardous wastes” as defined in RA 6969 (Toxic Substances and Hazardous and Nuclear Wastes Control Act 1990) and its implementing rules and regulations, DAO1992-29.²² RA 6969 regulates the handling, storage and disposal of hazardous materials, and also provides for the registration of hazardous e-waste generators, as well as importers, recyclers and facilities. Although this law has neither a clear provision for the management of e-waste nor a definition, at least it recognises that e-waste has toxic components. Other related policy instruments that may have a bearing on e-waste exist as well.²³

The absence of a clear policy framework – reflecting a lack of political will – is a major reason for government's poor institutional capacity to deal with the mounting problem of e-waste. Though a few companies have begun their own take-back schemes, this has had limited effects since they are purely voluntary.²⁴ To date, no executive or legislative instrument codifies and enforces commitments towards extended producer responsibility (EPR).

Over the years there were efforts to incorporate e-waste concerns into new policy instruments.²⁵ The National Solid Waste Management Commission (NSWMC),²⁶ for example, drafted an administrative order (AO) in 2004 pushing for

EPR, but it was seen as lacking teeth, and did not prosper.²⁷ DENR's Environmental Management Bureau also tried to draft an AO on e-waste, but this was bogged down within the bureaucracy, and also has not been issued. A similar bill on e-waste was filed in the 14th Congress in 2007 but was never acted upon up to its adjournment in June 2010.²⁸

There may be a fresh opportunity to push these policy issues with the newly installed administration of President Benigno Aquino III. One of this report's co-authors specifically raised e-waste in a dialogue with the newly appointed DENR Secretary Ramon Paje, who acknowledged the policy gap and the need for the NSWMC to produce a draft e-waste policy framework that the newly installed Congress could enact, and that his agency could implement.²⁹

International commitments

The Philippines is a signatory to some multilateral environmental agreements, most importantly the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.³⁰ However, the Basel Convention has a “recycling loophole” which can lead to the dumping of toxic wastes in the guise of second-hand goods.³¹ The Philippines has not yet ratified the Basel Ban Amendment, which amends the Convention, and bans all exports of hazardous wastes from developed countries to all other countries for any reason.³²

While failing to ratify the Basel Ban Amendment, the Philippine Senate however ratified the controversial Japan-Philippine Economic Partnership Agreement (JPEPA) in 2008. JPEPA allows the importation of Japanese chemical, hospital and municipal wastes into the Philippines, bolstered by a zero tariff provision that seemed to serve as an incentive to engage in toxic waste trade.³³ At the onset of the anti-JPEPA campaign, the *Philippine Daily Inquirer's* editorial observed: “Going by the treaty, it seems that the Philippines is now positioning itself as a global waste dump.”³⁴ The Basel Action Network warned: “The waste trade liberalization provisions of JPEPA... can alter the national and global legal landscape and abilities to implement the Basel Convention and its decisions.”³⁵

18 www.denr.gov.ph

19 www.cict.gov.ph

20 See for example Foundation for Media Alternatives (2006) *Civil Society Comments on the 2006-2010 Philippine Strategic Roadmap*, preliminary draft submitted to the CICT, 23 October. Typescript.

21 www.chanrobles.com/repulicactno9003.htm

22 RA 6969: www.chanrobles.com/ra6969.htm; implementing rules and regulations: www.denr.gov.ph/policy/1992/ENV_DAO_92-29.pdf. Subsequent Administrative Orders DAO 1997-28 and DAO 2004-36 further try to fill perceived operational gaps.

23 These include other environmental laws (e.g. Clean Air and Clean Water Acts), and also efforts by specific agencies such as the Bureau of Customs to define its role viz. RA 6969 (i.e. transshipment of goods).

24 Greenpeace Southeast Asia (2005) *Toxic Tech: Pulling the Plug...*, op. cit., p. 19.

25 Carisma, B. (2009) Drivers of and Barriers to E-waste Management in the Philippines, IIEEE Thesis for the Master of Science in Environmental Sciences, Policy and Management, Lund University and others, p. 27.

26 The NSWMC is an inter-agency and multi-sectoral body created by RA 9003 to oversee policies and plans in solid waste management.

27 Greenpeace criticised the draft's lack of substance and absence of important provisions such as the “polluter pays” principle enshrined in the Philippine Agenda 21 and many environmental laws. Greenpeace Southeast Asia (2005) *Toxic Tech: Pulling the Plug...*, op. cit., p. 20.

28 The May 2010 elections resulted in a new 15th Congress being elected; all previous bills not enacted – including the e-waste bill – would have to be refiled and go through the legislative mill from scratch.

29 Greenresearch (2010) Summary Process Documentation of Green Convergence Meeting with DENR Sec. Ramon Paje, Quezon City, 19 July.

30 Others to which the Philippines is a signatory are the Montreal Protocol on Substances that Deplete the Ozone Layer and the Stockholm Convention on Persistent Organic Pollutants.

31 Gutierrez, R. (2007) *Divining Intent: A Look at Japan's Waste Trade Policy and its JPEPA Implication*, report prepared for the Basel Action Network and the Magkaisa Junk JPEPA Coalition.

32 Basel Action Network (2006) *JPEPA as a Step to Japan's Greater Plan to Liberalize Hazardous Waste Trade in Asia*, BAN, Quezon City, p. 14.

33 For further critique of JPEPA, please see: junkjpepa.blogspot.com

34 *Philippine Daily Inquirer* (2006) Toxic Incidents, editorial, 1 December. services.inquirer.net/print/print.php?article_id=35733

35 Basel Action Network (2006) *JPEPA as a Step...*, op. cit., p. 18.

Action steps

To be fair to government and non-governmental stakeholders, there have been various efforts over the past years to address aspects of the problem, even amidst policy and institutional gaps. Space limitations prevent us from comprehensively listing the various sectoral and multi-stakeholder initiatives and assessing their impact. But below is a glimpse of some that could be relevant in evolving an action agenda:

- Some companies now attempt to lessen the toxic components during production. For example, Samsung, Sony, Sony Ericsson and Nokia have committed to remove toxic flame retardants and PVC plastic from some of their devices.³⁶ Others are implementing EPR via take-back schemes, notably Nokia and Hewlett-Packard.³⁷
- The Philippine Business for the Environment network's 400 members participate in a pioneering Industrial Waste Exchange Program (IWEP).³⁸
- "Recyclables fairs" and "waste markets" are regularly set up in major shopping malls, with drop-off bins for people's unused electronic devices.
- The iSchools Project of the CICT has embarked on PC maintenance, recycling and e-waste management training for state universities and colleges.³⁹
- Awareness and advocacy campaigns continue. For example, Greenpeace pushing EPR adoption and encouraging "green cyberactivism"; environmental organisations sustaining the highly visible and strategic anti-JPEPA campaign; media companies and celebrities conducting recycling awareness campaigns such as *Bantay Baterya* (Battery Watch).

Such laudable initiatives must be expanded to form part of a comprehensive e-waste action plan,⁴⁰ which should include:

- Development, adoption and implementation – and monitoring/evaluation – of a comprehensive e-waste policy framework and implementation plan. Such systems and processes must involve all stakeholders. The framework must include strong EPR principles and programmes for companies, and a more effective recycling and materials recovery programme that offers incentives and convenience for end-users.

- The Philippines should immediately ratify the Basel Ban Amendment and suspend the implementation of JPEPA subject to a comprehensive multi-stakeholder review, particularly of its provisions on the trade of toxic e-waste.⁴¹ Environmental safeguards (especially regarding toxic waste trade) should be integrated into all trade agreements.
- Continuing research and regular data gathering. In partnership with academia and research institutions, studies on e-waste issues (e.g. actual volume of domestic generation of e-waste, and amounts of e-waste entering the country from abroad) must be undertaken. Baseline data must be generated, and analytical and mathematical models adopted to trace current waste pathways and predict future trajectories of e-waste generation and disposal.
- Public information and education. Increased public awareness about the looming e-waste crisis, its negative effects, and a menu of proper responses is essential. Schools, media organisations and NGOs must lead creative information campaigns adapted to Filipino socio-cultural practices, translated into different local languages, via all possible channels.
- Institutional adjustment within DENR, CICT and others. Aside from initiating inter-agency coordination, DENR must set up internal structures that focus specifically on e-waste, as a distinct area from general solid waste. Institutional baseline assessments of all concerned government agencies – their capacities and infrastructures to control, monitor and regulate e-waste – is essential. CICT should designate a commissioner who can coordinate a focused e-waste effort with ICT stakeholders. Funding and internal capacity building is needed to build a cadre of personnel adequately trained in e-waste issues.

In all of these, collaborative partnerships among key stakeholders (scientists, environmental groups, educators, the informal sector, media, industry players, policy makers, and concerned government agencies) must be promoted for a critical common understanding of the e-waste problem to emerge, and to foster a shared commitment to strategic participatory action. ■

36 See Greenpeace (2005) Pulling the Plug on Dirty Electronics, 23 May. www.greenpeace.org/international/en/news/features/pulling-the-plug-on-dirty-elec

37 Greenpeace Southeast Asia (2005) *Toxic Tech: Pulling the Plug...*, op. cit., p. 19.

38 IWEP builds linkages among various industries, facilitating exchange of industrial waste for reuse and recycling. Carisma (2009) op. cit., p. 31.

39 Dalangin-Fernandez, L. (2010) Recycle old computers for public schools, *Inquirer.net*, 24 June. newsinfo.inquirer.net/breakingnews/infotech/view/20100624-277314/Recycle-old-computers-for-public-schools

40 Summary of points culled from existing research (notably Carisma [2009]), NGO advocacy documents, as well as the authors' own recommendations.

41 Philippine NGOs are calling for a comprehensive review of JPEPA with civil society representation; the treaty's revocation is also being proposed as an eventual option. Philippine-based UN Civil Society Assembly (UNCESA) recommendation during the Tri-Sectoral Conference on the Medium-Term Philippine Development Plan 2011-2016, 3 August 2010, Quezon City.

GLOBAL INFORMATION SOCIETY WATCH 2010 investigates the impact that information and communications technologies (ICTs) have on the environment – both good and bad.

Written from a civil society perspective, **GISWatch 2010** covers some 50 countries and six regions, with the key issues of ICTs and environmental sustainability, including climate change response and electronic waste (e-waste), explored in seven expert thematic reports. It also contains an institutional overview and a consideration of green indicators, as well as a mapping section offering a comparative analysis of “green” media spheres on the web.

While supporting the positive role that technology can play in sustaining the environment, many of these reports challenge the perception that ICTs will automatically be a panacea for critical issues such as climate change – and argue that for technology to really benefit everyone, consumption and production patterns have to change. In order to build a sustainable future, it cannot be “business as usual”.

GISWatch 2010 is a rallying cry to electronics producers and consumers, policy makers and development organisations to pay urgent attention to the sustainability of the environment. It spells out the impact that the production, consumption and disposal of computers, mobile phones and other technology are having on the earth’s natural resources, on political conflict and social rights, and the massive global carbon footprint produced.

GISWatch 2010 is the fourth in a series of yearly reports critically covering the state of the information society from the perspectives of civil society organisations across the world.

GISWatch is a joint initiative of the Association for Progressive Communications (APC) and the Humanist Institute for Cooperation with Developing Countries (Hivos).

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