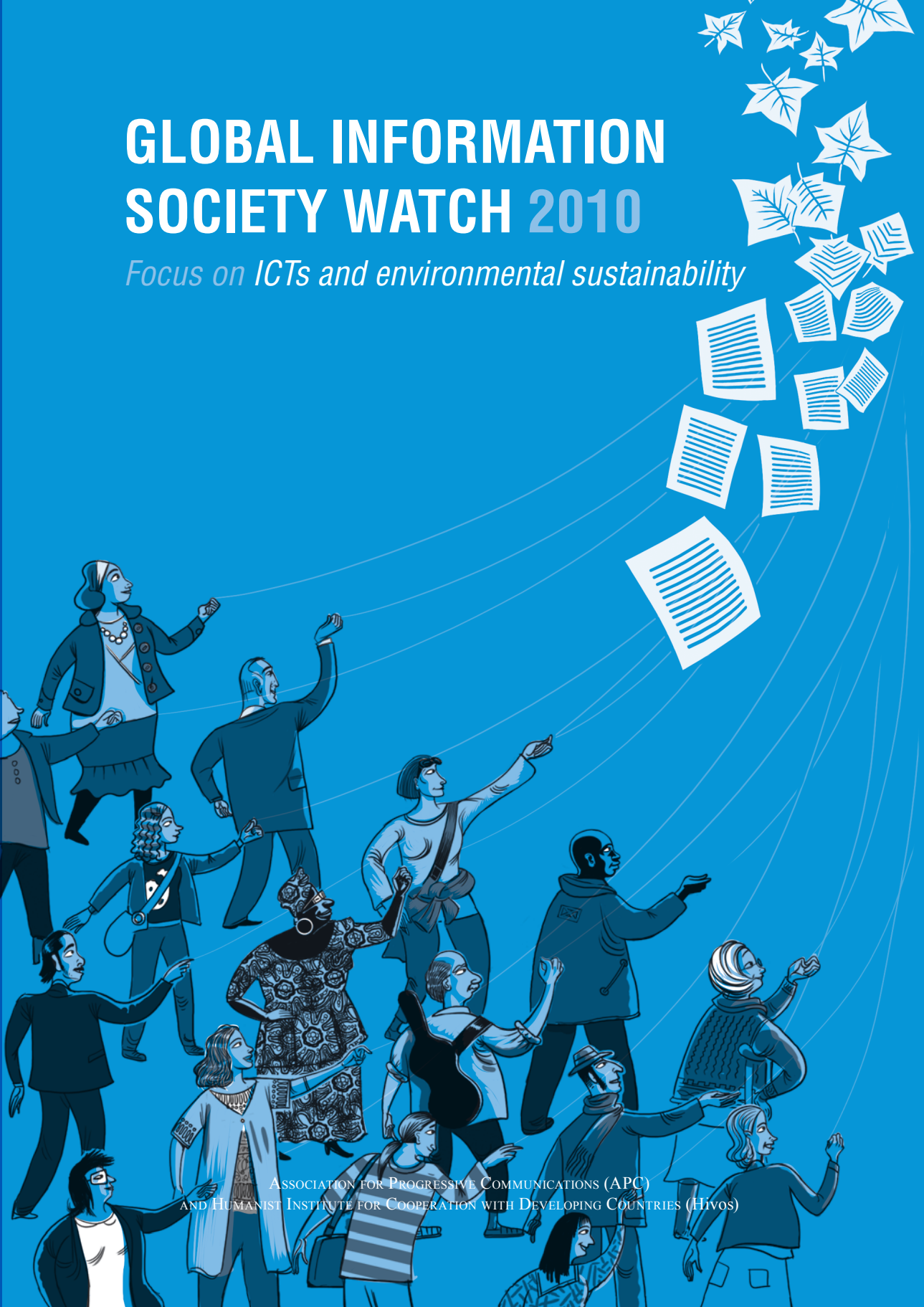
GLOBAL INFORMATION SOCIETY WATCH 2010

Focus on ICTs and environmental sustainability



Association for Progressive Communications (APC)
and Humanist Institute for Cooperation with Developing Countries (Hivos)

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Introduction

The urgent need to deal with climate change challenges from various perspectives inevitably leads us to look at information and communications technologies (ICTs) from an environmental standpoint. Review of the carbon footprint caused by ICTs, employing these useful tools in climate change adaptation and mitigation, as well as consideration of the serious pollution affecting the health of workers in the production and recycling of hardware and other electronic items, should create processes where national environmental and digital agendas can be juxtaposed. Mexico is still a long way away from comparing the two. They are very separate processes without any crossover.

Policy context

Mexico has yet to consolidate its digital agenda. While there are records of several attempts in both the current and previous administrations, government agencies still need to define strategic plans to deal with opportunities in this sector related to health, education, labour, social development and the environment. The most recent attempt, in early 2010, was known as the National Strategy to Promote Information and Knowledge-based Societies,[1] containing three "coordinating" points. The first refers to broadening access by mobilising 200,000 to 300,000 students through the use of 20,000 "camps" in marginal areas. The second consists of facilitating access based on the e-Mexico Platform; and the third seeks to universalise connectivity through the creation of social programming networks to promote an information superhighway. Various departments and federal agencies participate in this strategy.

Moreover, during the current legislative session the Special Commission on Digital Access[2] was created, which seeks to "promote an inclusive and equitable information and knowledge-based society in the country and to promote within their areas of expertise any viable projects that can reduce the digital divide." Both initiatives are potentially important for the country. However, they do not consider ICTs as strategic components in the plans for climate change adaptation and mitigation.

The country's climate change plans are defined in different points in the environmental agenda. Responsibility for designing public policies and cross-cutting strategies of mitigation and adaptation at a national level lies with the Interdepartmental Climate Change Commission (CICC), created in 2005. As a result of several joint efforts, the National Climate Change Strategy (ENACC) and the National Climate Change Programme (PECC) were developed, which seek to establish short- and medium-term objectives for mitigation and adaptation, as well as commitments with measurable outcomes that are relevant to sectors such as agriculture, tourism and water management – but not for the ICT sector.

Mexico has signed various agreements related to the production, use and management of ICTs. For example, it has endorsed the 1992 Basel Convention on cross-border shipments of hazardous wastes and their disposal, and the 1989 Montreal Protocol on substances that deplete the ozone layer. It has also signed and ratified the 1992 United Nations Framework Convention on Climate Change and the Kyoto Protocol of 1997.

Mexico as a greenhouse gas producer

Mexico contributes 1.5% of all greenhouse gases (GHG) worldwide.[3] It is the second largest GHG producer in Latin America and the Caribbean, exceeded only by Brazil. It emits 715 million tonnes of CO_2 annually, mostly derived from deforestation and the electrical energy sector.

Mexican officials have already publicly stated the need to voluntarily reduce emissions by 50% by the year 2050 based on 2000 levels: "Mexico would be willing to promote global emissions limits… if ways of guaranteeing that those limits, essential to halting climate change, are discussed, and do not translate into freezes on economic growth or improvement in quality of life for inhabitants of developing countries."[4]

Beyond the shadow of a doubt, emissions reduction measures are indispensable. It is imperative to look at current manufacturing and consumption processes, which produce alarming amounts of GHGs. Several studies tell of the need for drastic action to reduce their effects. For example, Andrés Barreda[5] points this out when he talks about waste in Mexico City, including electronic waste (e-waste). "The first estimates made with official data, which are provisional and not very solid, indicate that GHGs generated by final disposal of urban solid waste in the Metropolitan Valle de México Area (MVMA) totalled 6.783 billion tonnes

1 Secretaría de Comunicaciones y Transportes (SCT) (2010) *Agenda Digital eMéxico, 2010-2012: Estrategia nacional para el impulso de la sociedad de la información y de conocimiento.*

2 LXI Legislatura (2010) *De la comisión especial de acceso digital, proyecto de plan de trabajo correspondiente al primer año de ejercicio de la LXI Legislatura.*

3 Martínez, J. (2010) México, sin preparación ante cambio climático, *El Universal*, 20 May. www.eluniversal.com.mx/notas/682060.html

4 Poder Ejecutivo Federal (2009) *Programa Especial de Cambio Climático 2009-2012*, Comisión Intersecretarial de Cambio Climático.

5 Barreda, A. (2009) *Evaluación de los impactos de los residuos sólidos bajo cambio climático en la Ciudad de México*, Centro Virtual de Cambio Climático de la Ciudad de México, Instituto de Ciencia y Tecnología del Distrito Federal y Centro de Ciencias de la Atmósfera de la UNAM, Mexico City.

of CO_2 equivalent in 2008. Considering the temperature rises predicted for the MVMA due to global climate change and the heat island effect, along with the solid waste generation rate and management practices staying the same, by the year 2050 we may be emitting 42.42 billion tonnes of CO_2 equivalent, 625% more than in 2008. Still, the numerous inconsistencies reported in reaching these estimates suggest that the situation could end up being much worse."[6]

In addition to examining the forms of production, consumption and disposal that mark our society, it is crucial to acknowledge what numerous studies show:[7] the potential of ICTs as instruments to modify usage of fossil fuels and their consequent effect on GHG production. However, the Mexican plans contained in the 2009-2012 Special Programme on Climate Change (PECC) make no mention of ICTs as possible tools in confronting the challenges of climate change. Because of this we lose sight of a potential means to reduce emissions and facilitate their further reduction.

According to the PECC, the ICT sector is in a vulnerable position: "The communications sector will be affected by climate variability, in the form of infrastructure damage, as well as by interruptions in transmissions and communications. In order to reduce their vulnerability we will arrange… to implement prevention programmes with climate change adaptation goals in telecommunications services and their infrastructure."[8] Concretely, the goal is to carry out an information campaign on the issue of climate change within the communications sector and to incorporate basic information on preventative actions and contingency plans.

In addition, it should be noted that an electronic system for recording GHG emissions is included within the PECC information and communication tasks, which would give visibility to reduction efforts.

What about pollutants and e-waste?

Like most countries with expanding markets, the country has experienced an elevated consumption of ICT devices. Added to personalised consumption of electronic products, there is a trend towards the automation of public spaces and services.

Mexican society, like the global society, has undergone a change in its form of consumption. Previously, electronic devices were usually repaired: their greater durability meant less energy expenditure in fossil fuels, for instance, and produced less pollution. With today's typical shelf life for electrical appliances, the consumption rate for electronic devices is higher, giving way to greater pollution and more e-waste.

Guadalajara, Jalisco is the main producer of software, electronics and digital components in Mexico.[9] Telecom and computer equipment from Guadalajara accounted in 2005 for about a quarter of Mexico's electronics exports.[10] There are a dozen major original equipment manufacturers, including IBM, HP and Siemens, and several contract equipment manufacturers, such as Solectron, Flextronics and Jabil Circuit. The electronics and ICT sectors have earned Guadalajara the nickname of the "Silicon Valley of Mexico".

There is ample evidence that electronics industry workers are suffering health effects[11] from exposure to toxic compounds such as chromium (used in metal covers), which is carcinogenic; cadmium (used in rechargeable batteries, contacts and cathode ray tube monitor connections), which affects the kidneys and bones; mercury (used in the lighting system of flat screen monitors), which damages the brain and nervous system; lead (contained in cathode ray tube monitors and in soldering), which causes loss of intellectual capacity and harms the nervous, circulatory and reproductive systems; and brominated flame retardants (used in circuit cards and plastic covers), which are neurotoxins and can hinder learning and memory.

E-waste is a problem for the nation, although it has not yet been recognised as such by society or official management plans in the national agenda, despite a few isolated actions undertaken by local governments, companies and NGOs.

We are unsure of the actual inventory on quantities of e-waste generated annually in the country. The Recall[12] company, specialising in mobile phone recycling, believes that slightly more than four million devices per month are discarded in Mexico.[13] A 2007 report from the National Ecology Institute estimated that between 150,000 and 250,000 tonnes of e-waste were produced in 2006, representing 1.5 to 1.6 kg/year per capita.[14] However, a more recent regional study on e-waste in Latin America stated that "a report concerning Mexico estimated 28,000 tonnes of IT waste for 2006."[15]

We are aware of the lack of infrastructure for appropriate and safe handling of e-waste. In terms of regulations, only the General Law on Waste Management exists, dating back to 2003, and includes a special procedure for technological waste.[16] This law has yet to be implemented. In addition, the country does not have binding legislation concerning

6 Ibid.

7 Pamlin, D. (2008) *The potential global CO_2 reductions from ICT use: Identifying and assessing the opportunities to reduce the first billion tonnes of CO_2*, WWF Sweden; Pamlin, D. (2008) *Outline for the first global IT strategy for CO_2 reductions: A billion tonnes of CO_2 reductions and beyond through transformative change*, WWF International.

8 Poder Ejecutivo Federal (2009) *Programa Especial de Cambio Climático 2009-2012*, Comisión Intersecretarial de Cambio Climático.

9 Vérut, C. (2007) *Mexican Information Technologies Industry*, MOITI Mexico Office, Mexico City.

10 www.allbusiness.com/professional-scientific/computer-systems-design/850022-1.html

11 For examples see lib.bioinfo.pl/auid:4058337

12 www.recallinternacional.com

13 www.ecobar.net/2009/11/la-basura-tecnologica-reciclada-evita-costos-y-contaminacion-internacional

14 Román, G. J. (2007) *Diagnóstico sobre la Generación de Basura Electrónica en México*, INE/IPN, Mexico City.

15 Silva, U. (2009) *Gestión de residuos Electrónicos en América Latina*, Ediciones SUR/Plataforma RELAC SUR/IDRC, Santiago.

16 www.adnmundo.com/contenidos/ambiente/celulares_basura_electronica_280806.html

extended producer responsibility (EPR). Responsibility for refuse, therefore, falls to the municipalities. As a result, electrical devices supposedly arrive at the regular landfills. However, there is an informal trade in dismantling, recycling and final disposal activities.[17] Participants include small businesses or individuals, some of whom secure sales contracts with large companies and sell e-waste to them.

In terms of e-waste recycling, there are various small business and local government initiatives which attempt to promote it and create profits from handling e-waste. An example would be Reciclotón, which carries out recycling campaigns organised by the Commission for Integrated Solid Waste Management in Mexico City.[18] Among the private companies involved in this recycling are 2M Tech México,[19] RDMSA, Proambi and Incycle, in addition to the subsidiaries of multinational companies who hold recycling campaigns for mobile phone and computer devices, such as Motorola, HP, Dell and Nokia (which even received an award from the Mexican government for having recovered 96,700 mobile phones, seven tonnes of batteries, and 200,000 IT accessories).[20]

Yet, despite this awareness, there are still a number of questions that need to be answered on a national level. What happens to all this equipment? Under what conditions for the workers and nearby residents are the parts dismantled? Who does it? What happens to the toxic components of electrical devices such as chromium, cadmium, mercury, lead or brominated flame retardants?

Action steps

We believe it is necessary to integrate environmental and digital public policies that promote more sustainable models of ICT production and consumption. The development of national clean manufacturing programmes for ICT products is urgent.

More research and academic assessments on the possible ways of reducing the carbon footprint of ICTs are in order. A joint effort by the academic, public, private and civil society sectors to obtain reports, evaluations and proposals about the impact of ICT on GHG emissions would be necessary.

It is essential to create programmes for consumers and producers that can help to analyse the current means of production and consumption and help to promote sustainable models of ICT use, which include reuse and recycling of equipment, but also innovation and the optimisation of ICT use to contribute to lowering the GHG emissions of other sectors.

Current data on e-waste indicates the need to draft national plans and regulations on the handling of e-waste that reduce its negative effect on the environment and on people. These plans must also take recycling, reuse and safe final disposal into account. ■

17 Román (2007) op. cit.

18 asambleagdf.gob.mx

19 ew.2mtech.com.mx/default.asp

20 saladeprensa.semarnat.gob.mx/index.php?option=com_content&view=article&id=937:se-suman-empresas-de-telecomunicaciones-a-la-adopcion-de-esquemas-sustentables-&catid=50:comunicados&Itemid=114

GLOBAL INFORMATION SOCIETY WATCH 2010

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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