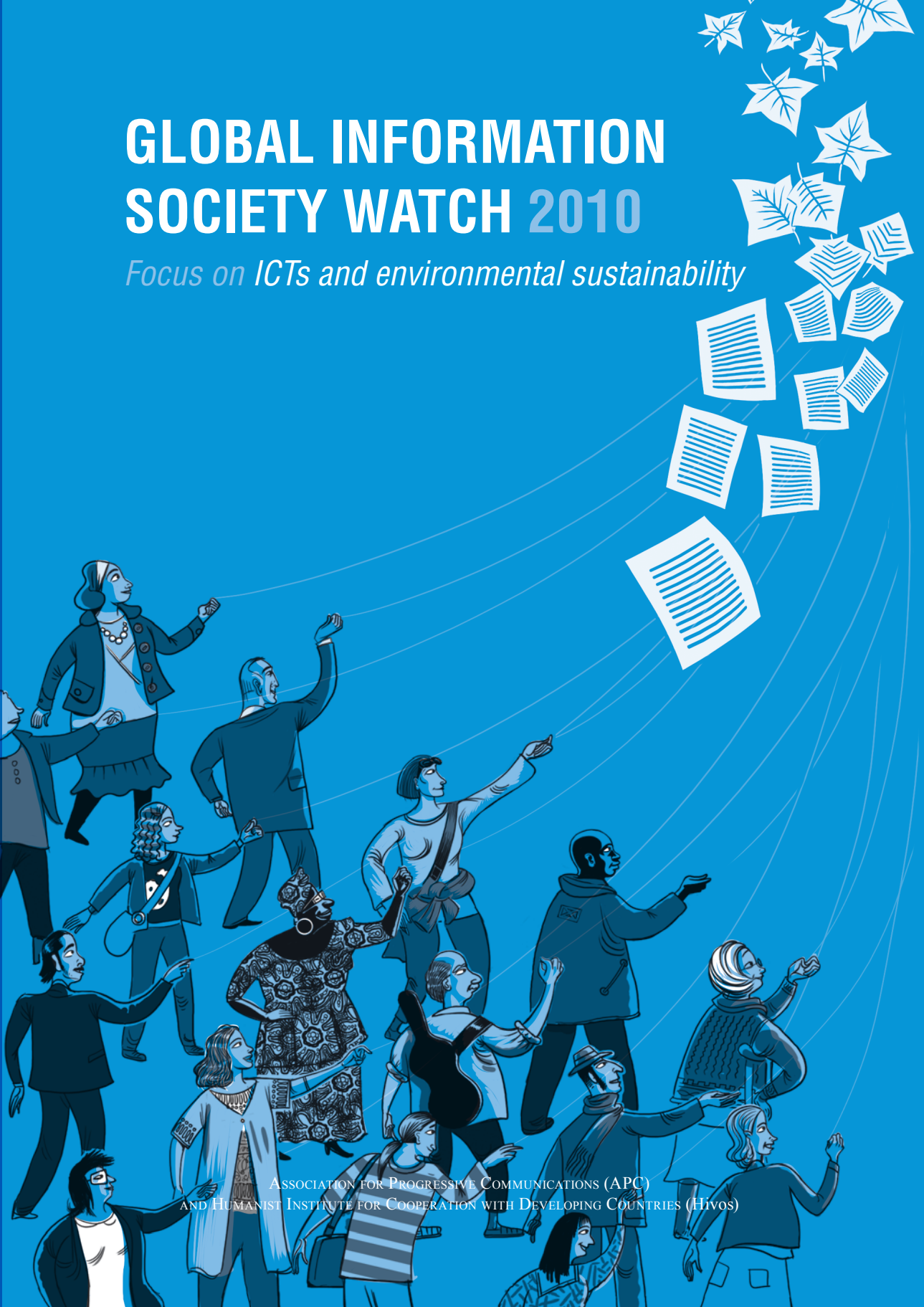
GLOBAL INFORMATION SOCIETY WATCH 2010

Focus on ICTs and environmental sustainability



Association for Progressive Communications (APC)
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Global Information Society Watch

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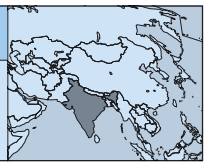

Introduction

Among all the manufacturing sectors, the electronics industry is the fastest growing. High demand and the short life span of technology result in ever increasing waste in the industrialised world.[1] The production of electronic waste (e-waste) on a global scale is estimated to be 20-25 million tonnes per year, with major roles being played by Europe, the United States and Australia. China, Eastern Europe and Latin America are expected to become major producers of e-waste in the next ten years.[2]

The use of laptops, PCs, mobile phones and other electronic and entertainment devices is also increasing rapidly in India. Some 52 million active users out of 1.2 billion people in the country access the internet, and there are 15 million mobile users on average each month, according to a report by the Internet and Mobile Association of India (IAMAI) and Indian Market Research Bureau (IMRB). The report also found that 72% of young people access the internet on a regular basis in India.[3] The Indian electronics industry has shown an increase in production, internal consumption and export.[4] The number of PCs per capita in India grew by 604% from 1993 to 2000, in contrast to a world average of 181% during the same period.[5]

The dark side of these statistics is an increase in e-waste in the last two decades. Among various Indian states the highest contributors to e-waste are Maharashtra, Andhra Pradesh, Tamil Nadu, Uttar Pradesh, West Bengal, Delhi, Karnataka, Gujarat, Madhya Pradesh and Punjab. However, city-wise, the largest e-waste generators are Mumbai, Delhi, Bangalore, Chennai, Kolkata, Ahmadabad, Hyderabad, Pune, Surat and Nagpur. In India the processing of e-waste is handled by the informal sector. The processing is very elementary and poses a grave threat to the environment and public health.[6] The waste is simply dismantled and valuables are kept for reuse, while what remains ends up on landfills, is openly burnt, or ends up in backyard recycling.[7] Within the national boundaries e-waste is generated by government, the public and the private sector. However, a secondary market and illegal scrap import also play a major role.[8]

Increasingly, India is becoming a dumping ground for e-waste. India generates around 0.3 million tonnes of e-waste annually, an amount that is predicted to grow exponentially to 1.6 million tonnes by 2012, according to the National Waste Electrical and Electronic Equipment (WEEE) Taskforce.[9]

India is also the sixth largest and the second fastest-growing producer of greenhouse gases (GHGs).[10] Due to climate change, the country is threatened with rising sea levels, droughts, torrential rain, flash floods, cyclones and forest fires, amongst other climate-related risks. These are resulting in serious impacts on ecosystems such as coastal mangrove and wetland systems, as well as impacts on human life, including an increase in the flood risk for coastal populations and threats to food security and human health. Two thirds of agriculture in India depends on rainwater. Though not actually easy to measure, due to irregular rainfall influenced by climate change and environmental hazards, farmlands are also facing drought.[11]

All of the above problems have created enormous additional pressure on India's industrialisation, socioeconomic development and poverty reduction efforts. Information and communications technologies (ICTs) have a high potential to increase energy efficiency and reduce GHG emissions.

Policy and legislative context

Policies and laws regarding environmental protection and sustainability have been introduced in India. The National Environment Policy of India was announced on 18 May 2006[12] as an umbrella policy for a range of environmental problems. It is the outcome of existing policies: the Environment Protection Act (1986), National Forest Policy (1988), National Conservation Strategy and Policy Statement on Environment and Development (1992), Policy Statement on Abatement

1 Wath, S. B, Dutt, P. S. and Chakrabarti, T. (2010) E-waste scenario in India, its management and implications, *Environmental Monitoring and Assessment*, SpringerLink, 12 February.

2 Robinson, B. H. (2009) E-waste: An assessment of global production and environmental impacts, *Science of the Total Environment*, 408, p. 183–191.

3 trak.in/tags/business/2010/04/07/internet-usage-india-report-2010/?utm_source=feedburner&utm_medium=twitter&utm_campaign=Feed%3A+trakin+%28India+Business+Blog+!%29

4 Dimitrakakis, E., Gidarakos, E., Basu, S., Rajeshwari, K.V., Johri, R., Bilitewski, B. and Schirmer, M. (2006) Creation of optimum knowledge bank on e-waste management in India, *ISWA Annual Conference*. www.iswa2006.org/papersalpha.htm

5 Sinha-Ketriwal, D., Kraeuchi, P. and Schwaninger, M. (2005) A comparison of electronic waste recycling in Switzerland and in India, *Environmental Impact Assessment Review*, 25, p. 492–504.

6 Sinha, S. and Mahesh, P. (2007) *Into the Future: Managing e-waste for protecting lives and livelihoods*. www.toxicslink.org/pub-view.php?pubnum=171

7 Dixit, N. (2007) E-waste: A disaster in the making, *CHANGE – The Goorej House Magazine*, 7 (2).

8 Veena, K. (2004) *E-waste in India, system failure imminent: Take action now.* www.toxicslink.org/pub-view.php?pubnum=40

9 Puducherry Pollution Control Committee (2008) e-Waste, *Quarterly News Letter of the ENVIS Centre*, January-March. dste.puducherry.gov.in/envisnew/tenthnewsjan-mar-2008.pdf

10 Environmental Legislation in India, January 2008. www.scribd.com/doc/30588775/Environmental-Legislation-of-India

11 www.scidev.net/en/climate-change-and-energy/climate-change-in-india/features/development-versus-climate-change-in-india.html

12 www.envfor.nic.in/nep/nep2006e.pdf

of Pollution (1992), National Agriculture Policy (2000), National Population Policy (2000), and National Water Policy (2002), amongst them. The National Environment Policy works as a guide to action on several fronts, such as regulatory reform, programmes and projects for environmental conservation, and the review and enactment of legislation by central, state and local governments. Although ICTs are not included in the policy, India set up the National Natural Resources Management System (NNRMS)[13] in 1983 for managing and mapping natural resources and environment.

The Ministry of Environment and Forests has drafted e-waste rules (dealing with the management and handling of e-waste) that were posted for comment on its website this year.[14] The Hazardous Waste Management and Handling Rules were regulated in 1989 and amended in 2000 and 2003. They are focused on the import of hazardous waste from any part of the world into India. Electronic waste was not, however, emphasised in existing regulation.[15]

Prime Minister Manmohan Singh released India's first National Action Plan on Climate Change (NAPCC) on 30 June 2008 under the Prime Minister's Council on Climate Change (PMCCC).[16] India also signed the United Nations Framework Convention on Climate Change (UNFCCC) in June 1992, and ratified it in November 1993. In 1994 India began preparing its First National Communication to the UNFCCC. This communication highlighted an inventory of GHG sources and sinks, potential vulnerability to climate change, adaptation measures and other steps being taken in the country to address climate change.[17]

The Ministry of Environment and Forests came up with the Guidelines for the Environmentally Sound Management of E-waste on 12 March 2008. These specify that India has no specific environmental laws or guidelines for e-waste and none of the existing environmental laws have any direct reference to e-waste or refer to its handling as hazardous in nature. However, several provisions of these laws may apply to various aspects of e-waste. Since e-waste falls under the category of "hazardous" waste, it is covered under the purview of the Hazardous Waste Management Rules (2003).

ICTs and climate change strategy

ICTs can function as sustainable means for mitigation of global GHG emissions and climate change threats. They have a critical role to play in combating climate change through the reduction of GHG emissions in India, which is the world's fourth largest economy and sixth largest GHG emitter. The country accounts for about 5% of global emissions; its emissions increased 65% between 1990 and 2005 and are projected to grow another 70% by 2020.[18]

Climate change is a part of the National Environmental Policy. The use and application of new technology is emphasised in the policy, such as energy efficiency technology, remote sensing, natural resource management, local information management and dissemination, disaster management, etc. Through the development of more energy-efficient devices, applications and networks that are alternatives to today's waste sources such as transport and travel, as well as the environmentally sound disposal of ICTs (e.g. low-emissions recycling), ICTs can be an enabling technology to stabilise and reduce emissions in all sectors.

While serving as a guide to action, the National Environment Policy also seeks to stimulate partnerships of different stakeholders (i.e. public agencies, local communities, academic and scientific institutions, the investment community, and international development partners) so as to harness their respective resources and strengths for environmental management.

India has launched several initiatives related to climate change.[19] These include the Indian Network for Climate Change Assessment (INCCA); the Himalayan Glaciers Monitoring Programme (HGMP); the Indian Satellite to Monitor Greenhouse Gases; India's Forest and Tree Cover as a Carbon Sink; National Policy on Biofuels, approved by cabinet to promote cultivation, production and use of biofuels for transport and in other applications; Energy Efficiency Standards for Appliances; Capacity Building in Forestry Scheme for forest personnel; and Intensification of Forest Management to improve forest management and infrastructure and prevent fires.

E-waste: The informal sector challenge

E-waste has become an acute problem in the country. It is estimated that India produced 0.3 million tonnes of e-waste in 2007, and it is growing. An additional 0.5 million tonnes are illegally imported into the country. The informal sector processes a large amount of e-waste in India through recycling and backyard scrap trading.[20]

Despite the problem, the legislation for e-waste is not fully in place. A task force has been constituted by the Ministry of Environment and Forests for the finalisation of guidelines on e-waste. There are also several laws in India that directly or indirectly deal with hazardous waste, such as the National Environment Tribunal Act (1995) and some notifications under the Environmental Protection Act (EPA, 1986).

Under the EPA, the ministry has created several rules to tackle the problem of hazardous waste management. It has drafted e-waste management rules where detailed liabilities and obligations of all stakeholders have been clearly spelt out. The draft rules lay emphasis on the responsibility of the producers, namely manufacturers and vendors, including financial responsibility, extending beyond the sale of

13 envfor.nic.in/envis/nnrms.html

14 moef.nic.in/index.php

15 www.e-waste.in/weee_policy

16 www.pewclimate.org/international/country-policies/india-climate-plan-summary/06-2008

17 envfor.nic.in/divisions/ic/wssd/doc2/ch2.html

18 www.pewclimate.org/docUploads/India-FactSheet-09-08.pdf

19 moef.nic.in/downloads/public-information/24_Recent_Initiatives_CC.pdf

20 www.pewclimate.org/node/6204

equipment and setting up of take-back systems for effective management and handling of e-waste.[21]

However, the informal sector – where 90% of the country's e-waste recycling is carried out – is ignored in the draft. The informal sector should be part of the new regulations. They should be involved in the collection, segregation, dismantling and refurbishing of e-waste. Recycling should be done only by approved units with pollution-control technologies.[22] The rules emphasise that e-waste can be handled only by companies registered with the Central Pollution Control Board. The government assumes it will be able to regulate the informal sector through its proposed rules – but the informal sector will do the business illegally.[23]

There is a demand to design new approaches and systems for e-waste collection, recycling and use. Such approaches will reduce the environmental impact by increasing reuse of equipment and parts, increasing the recyclability of materials found in e-waste, and developing a society that learns to balance rapid technological evolution with responsible product management.[24]

One option to deal with e-waste is to reduce the volume. Design and manufacturing has to be done in a way that the product is built for reuse, repair and is fit for upgrading. The focus has to be on production of less toxic, easily recoverable and recyclable materials that can be taken back for reprocessing, refurbishment, remanufacturing, disassembly and reuse.[25]

Most IT brands have already taken proactive measures for controlling and managing e-waste resulting from their products, with leading brands setting up their own take-back and collection systems.[26] Moreover, most IT products being offered on the market today are Restriction of Hazardous Substances (RoHS) compliant.

An e-waste system should be set up in conjunction with the informal sector. This must be in accordance with the National Environmental Policy and address sustainable development concerns. Already the policy encourages legal recognition and strengthening of the informal sector's system for collection and recycling of various materials.

The process of establishing an e-waste recycling and treatment facility has to be in line with the existing guidelines for establishing and operating a recycling and treatment and disposal facility for hazardous wastes. However, key issues like upgrading the present operating model in the informal sector call for the urgent establishment of a waste management channel. This will go a long way to engage the informal sector players into the mainstream of e-waste management and ensure environmental norms are adhered to.

The Indo-German-Swiss initiative for e-waste

The Indo-German-Swiss Partnership has been designed to serve as an information resource on the issues, problems and opportunities created by e-waste. It focuses on the present scenario in India, as well as on developing a common collaborative platform for stakeholders. The partners work in close collaboration with manufacturers, users, recyclers, and NGOs to develop a sustainable e-waste management system in India.[27]

New trends, new efforts

The government of India is insisting that it will shift from fossil fuels to renewable energy sources, including promoting solar energy. New satellite towns which are being built are designed in an eco-friendly manner. Eco-communities, resorts and housing complexes can also be found.

India is using ICT tools for different environmental projects to protect the environment. For example, it is planning to establish a centre for climate change research to provide data for modelling and monitoring climate change in the country. The centre will network with other national and international scientific institutes and universities that measure GHGs and monitor glaciers, temperature change and rainfall patterns. There are plans for a range of new satellites to contribute to climate change research, including the Indian National Satellite, INSAT-3D, and the Megha-Tropiques satellite, part of an Indo-French collaboration.[28]

The Planning Commission of India has recently set up an expert group to prepare a strategy on a low-carbon economy in India. The group will have to work out an holistic approach that takes on board concerns of all stakeholders – industry, transportation, power, labour, micro and small industry and agriculture – well in time before we embark on our Twelfth Five-Year Plan from April, 2012.[29]

A number of leaders in both the private and public sector are actively promoting a cleaner environment. These leaders can make a significant change in a company or in a certain locality. Social activists and environmentalists are also conducting awareness programmes and street campaigns, and holding meetings to save and keep clean the environment. Despite these positive signs there are also many alarming and strong signals of the graveness of environmental problems.

Action steps

The National Action Plan on Climate Change (NAPCC) has set up eight missions. These are the Solar Mission, Energy Efficiency, Sustainable Habitat, Sustaining the Himalayan Ecosystem, Green India, Sustainable Agriculture, and Strategic Knowledge for Climate Change.[30]

21 www.expresscomputeronline.com/20100517/news06.shtml

22 beta.thehindu.com/news/cities/Delhi/article433742.ece

23 Ibid.

24 Kahhata, R. et al. (2008) *Exploring e-waste management systems in the United States*, Arizona State University.

25 Ramachandra, T. V. and Saira, V. K. (2004) Environmentally sound options for waste management, *Envis Journal of Human Settlements*, March.

26 www.informationweek.in/Green_IT/10-04-29/MAIT_lauds_government_for_making_e-waste_rules_draft_public.aspx

27 www.e-waste.in

28 www.scidev.net/en/news/india-to-set-up-climate-change-research-centre.html

29 moef.nic.in/downloads/public-information/PM_DSDS.pdf

30 pmindia.nic.in/Pg01-52.pdf

Apart from the above missions of the NAPCC, the government is also putting in place advocacy efforts around energy security. This includes an awareness campaign, educational training, a rapid assessment of the disposal and recycling activities in cities, training programmes for skills, and technology upgrading of the sector. Special focus areas should also include NGOs. Local communities will have to be sensitised and prepared to work with government agencies. Public awareness, education and training will be most critical tools that should involve all sections of the public in the implementation process.

ICTs should be part of the policy and debate around climate change and implementation efforts where technology can bridge the gap between policy makers and implementers. Information is already available with stakeholders such as the as Department of Information Technology initiating citizen-centric Common Service Centres (CSCs). The knowledge platform needs to build the capacity of grassroots bodies/NGOs and village populations in variability assessment and on adaptation to climate change.

The current awareness levels regarding the existence and dangers of e-waste are extremely low in India. Government should immediately take action so that consumers and manufacturers become aware of e-waste and its impact.

Issues of e-waste management depend on the capacities of local government, the role of the operator of recycling services, the attitudes of citizens, and the role played by manufacturers and bulk consumers, all of whom need to shape and develop community participation. Raising the bar of civic sense and awareness among city residents is a major step needed. Collaborative campaigns to sensitise users and consumers to buy only necessary products that utilise emerging technologies (i.e. lead-free, halogen-free, recycled plastics) and from manufacturers or retailers that will "take back" their products are to be encouraged. Ensuring eco-labelling of products as a mandatory measure is a must. ■

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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