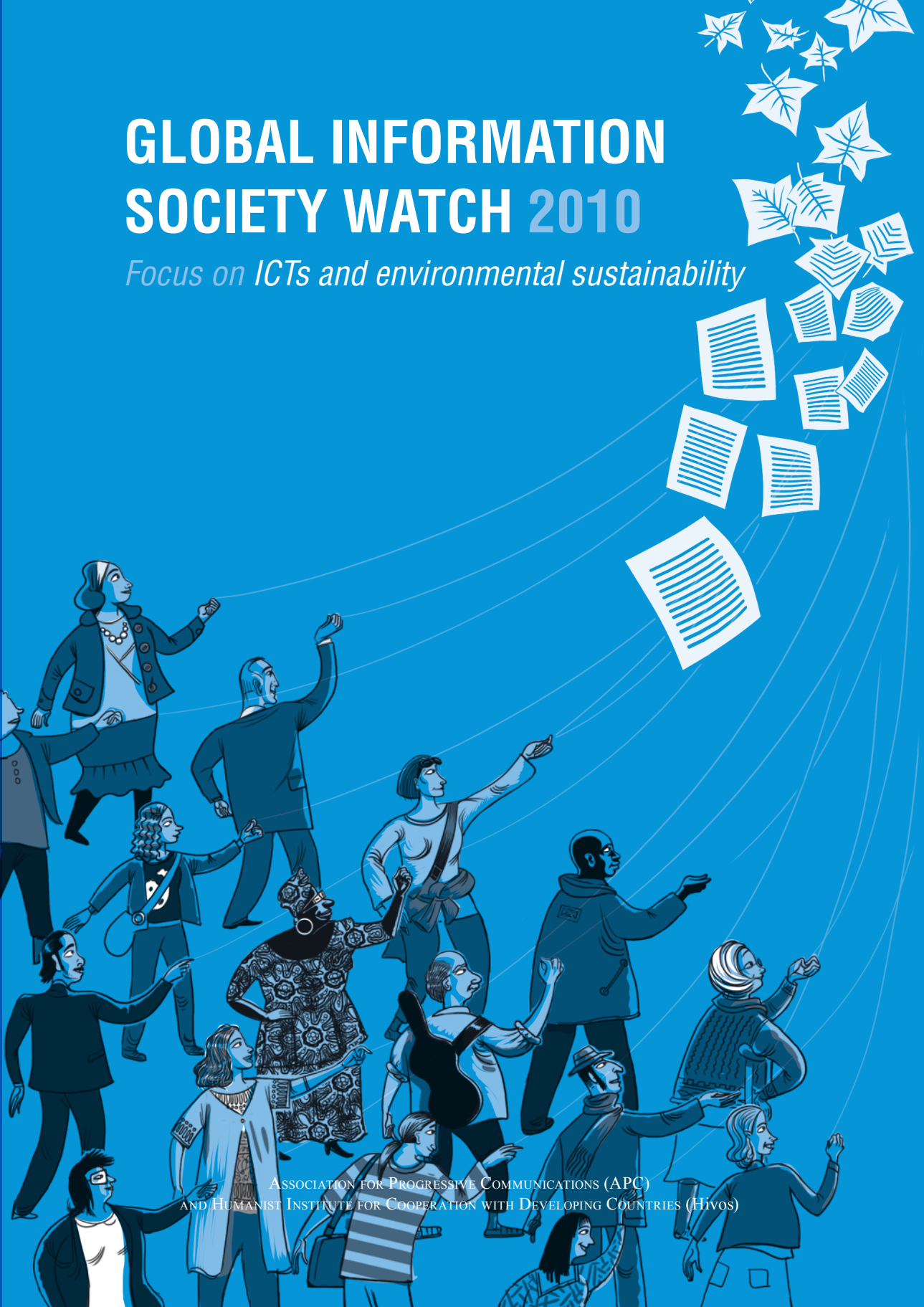
GLOBAL INFORMATION SOCIETY WATCH 2010

Focus on ICTs and environmental sustainability



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

Global Information Society Watch

2010

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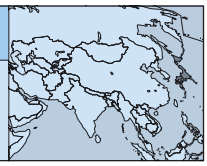

Introduction

Right after being elected as Japan's new prime minister in September 2009, Yukio Hatoyama pledged to cut the country's greenhouse gas (GHG) emissions by 25% from 1990 levels by 2020. This pledge was made at the United Nations (UN) climate change summit in New York, where Hatoyama was calling for effective and fair international mechanisms to provide support to developing nations as part of efforts to tackle global warming with all major actors participating. Though Hatoyama stepped down from the premiership in June 2010, his successor Naoto Kan and the ruling Democratic Party have stuck to this commitment, making "green innovation" policy one of the five key strategies for economic development.

This pledge had a mixed reception in Japan, however. Most environment-conscious citizens welcomed it, while many industry leaders expressed their concerns that the 25% reduction might impose burdensome regulation and restrictions on their economic activities and severely hinder economic growth.

Given the accelerating take-up of information and communications technology (ICT) products and the fact that the power consumption of ICT products is increasing rapidly, the ICT industry has serious obligations to contribute to the environment. General awareness of these obligations does exist in Japan among ICT industry leaders, as well as policy makers and some civil society activists.

The role of government

In Japan, there are two ministries working on environmental issues to do with the ICT industry: the Ministry of Internal Affairs and Communications (MIC) and the Ministry of Economy, Trade and Industry (METI). The former is in charge of the telecommunications industry and the latter in charge of the computer and electronics industry, as well as general manufacturing and energy industries.

MIC initiatives

In 2007, MIC convened a Study Group on ICT Policy for Addressing the Issue of Climate Change and made its forecasts on the effects of green ICTs in Japan from a mid-term perspective. According to its report published in April 2008, the power consumption of the communications and broadcasting industry will reach 73 billion kilowatt-hours (kWh) by 2012, generating 30 million tonnes of CO_2 emissions. On the other hand, the increasing popularity of e-commerce, dematerialisation and the reduced need for people to travel as enabled by ICTs will reduce the CO_2 emissions in society as a whole by 68 million tonnes by the same year. As such, MIC concluded that the overall effects of ICTs on CO_2 emission reductions in society seem set to be more than double the amount of CO_2 emissions caused by ICTs themselves.

Subsequently, MIC co-hosted the International Symposium on ICTs and Climate Change in Kyoto in April 2008 with the International Telecommunication Union (ITU). The ITU, which established its Focus Group on ICTs and Climate Change also in 2008, is now making climate change a key priority. This includes strategies to work on the creation of a standard methodology for calculating the carbon footprint; harnessing the power of ICTs to actively reduce the carbon footprint; monitoring climate change through the use of remote sensing; and providing key climate data via radio-based applications.[1]

MIC also developed the ICT Innovation Promotion Project for Global Warming Measures (PREDICT) to award research and development proposals that will contribute to the significant reduction of energy consumption within two to three years by applying innovative technologies. To date, nine programmes have been awarded funding.[2]

METI initiatives

METI convened a study group on green ICTs and estimated the effects of energy conservation of IT equipment itself (such as office computers or the internet) as well as those to be achieved by solutions using IT equipment, not only in Japan but also throughout the world. It estimated that by introducing energy-efficient technology in IT equipment, power consumption could be reduced by 40%, or around 100 billion kWh in Japan and two trillion kWh worldwide. Based on these assumptions, METI is promoting innovation aimed at producing more energy-efficient ICT products and services.

Among several specific measures that METI and MIC are deploying, "Eco-Points" has become widely appreciated by consumers. This measure is a generous incentive programme that provides cash-equivalent points for the purchase of eco-friendly home appliances such as TV sets, air conditioners and refrigerators that meet the criteria for energy saving. Depending on the accredited energy efficiency of the product, a certain number of "points" are given to the purchaser who can later claim cash-equivalent coupons, food, crafts, or many other items of their choice.

1 www.itu.int/themes/climate

2 www.soumu.go.jp/main_sosiki/joho_tsusin/eng/Releases/Telecommunications/100326_a.html

More than 17 million applications from individuals and corporations were submitted from July 2009 until June 2010. The equivalent of JPY 245.5 billion (USD 3 billion) has been granted to the applicants. Despite its popularity, this programme, together with a similar incentive programme for purchasing energy-efficient cars, will be terminated this year due to a severe budget deficit.

The role of industry

To move towards a low-carbon society, industry as a whole should act. However, the ICT industry can uniquely provide key infrastructure to help reduce the energy consumption of other industries and the whole of society. Though not sufficient yet to achieve the promised 25% reduction by 2020 in Japan, there are a number of activities that the ICT industry can carry out to address climate change in Japan. Below are some examples of these activities.

Replacement of existing services

The most basic but direct effects can be achieved through dematerialisation. Typical examples include the introduction of e-billing and e-payments.

An internet service provider in Japan, NEC Biglobe, for example, reported that it has achieved a 98.5% reduction in its CO_2 emissions by replacing paper-based direct mailings with email. Not only does this appeal to users in terms of greater convenience, but it can also offer extra benefits such as discounts on fees or the redemption of points as part of an incentive system. Many similar programmes are found among telecommunications service providers, as well as other service providers in the financial, insurance and retail industry, as the move cuts down on company expenses significantly.

Advanced control and automation

ICT networks have the ability to make intelligent judgments based on data on a real-time basis. Much more precise control is possible with fewer errors compared to control and management based on human judgment. The fact that accurate, round-the-clock control of large volumes of data is possible makes a huge contribution to the conservation of resources.

For example, it is now fairly common to see the use of infrared sensors to turn public washroom lighting on as people enter and then off when they leave. Some companies in the food service industry use networks in their kitchens to monitor the amount of electricity that is being consumed, and control their cooking appliances, air conditioning and lighting in an integrated manner so as to minimise their power consumption. Savings on the order of 10% can be achieved for cooking appliances alone by operating them only when they are needed. Sharp has been developing range sensor technology that can dynamically measure the distance between a PC and its user: whenever the user walks away the PC can switch over to power-saving mode.

Establishment of the Green IT Promotion Council

The Green IT Promotion Council was jointly proposed and established by seven industry associations in February 2008. The seven associations include the Japan Electronics and Information Technology Industries Association (JEITA), the Japan Information Technology Services Industry Association (JISA), the Communications and Information Network Association of Japan (CIAJ), and the Japan Users Association of Information Systems (JUAS). These industry groups have joined together in pursuit of a single common goal of contributing to addressing global environmental issues. As of May 2010, 307 member companies and associations had joined the Council.

The activities of the Council include technological development to create a road map for energy-saving technologies through to 2025, and measurement and analysis to measure or estimate the energy-saving effects of ICT equipment itself and the energy-saving effects enabled by the use of ICT.

In August 2008, a sub-working group (SWG) was established to focus on energy savings in data centres. This SWG works in cooperation with The Green Grid in the United States, exchanging technical information on energy conservation in data centres.

Action steps

To create a low-carbon society, we propose that government, industry and citizens take the following steps:

Industry: Improve efficiency beyond industry silos

A single entity can achieve functions that promise effects in the short term. However, functions that are more important and generate effects in the medium term often require collaboration among multiple actors. In pursuit of optimisation throughout the supply chain, efforts must be made to enable many companies, regardless of whether they are upstream or downstream in the supply chain, to participate in activities to fulfil such functions by overcoming differing interests. Through such efforts, an ecosystem that enables the entire supply chain to achieve energy conservation and resource savings can be created.

A large-scale company that has the ability to take the initiative and that is well known to consumers can take the lead in building an industry-wide supply chain mechanism. This may be the quickest and easiest way to improve efficiency.

In a comparably small-scale supply chain that mostly consists of small- and medium-sized companies or that covers a limited area, using shared service through application service providers (ASPs) or "software as a service" (SaaS), more widely known as "cloud computing", could be highly effective.

In considering the means of reducing energy consumption and addressing environmental problems, an effective shortcut is to look at the steps taken by other companies in the same industry, as their experience is likely to be very similar. One possibly good example of such exchange of best practices is the sharing of data centres. There are several

data centres in Japan that offer services targeting common operations within the same industry. Compared to developing individual systems and setting up facilities to operate separately, major savings can be expected in development cost and operational expenses. However, any attempt to promote the establishment of such a mechanism to be shared by competitors within a given industry requires understanding among all concerned, so that such a mechanism is mutually beneficial and does not affect the competitiveness of any one company.

Government to take the lead

There are several key policy areas where the Japanese government should take the lead.

Increase support for investments in energy-saving projects and use of energy-efficient appliances

To accelerate a cycle of development, introduction and improvement of energy-efficient technologies and services, government support is essential in areas such as tax incentives and subsidies for innovative programmes.

Widening the scope to Asia

Another area that will see slow progress if left up to the private sector alone is the adoption and spread of environmental values in international trade and currency dealings. In Asia, Japan was the first country that ratified the Kyoto Protocol. Based on its experience in controlling the carbon footprint, Japan should take the lead in these endeavours for the region. It is our obligation to achieve successful effects by making use of ICT networks to apply measures for controlling climate change, and to share such effects with other countries in Asia.

Citizens as consumers, users and advocates

There are different "kinds" of citizens when facing the climate change challenges from an ICT perspective. There are those consumers who purchase commodities, appliances and services from industry players. Then there are users who are active in using ICT equipment and services. Last but not least, the citizen's role as advocate is, of course, quite important.

As consumers, citizens could exercise their purchasing power by selecting more eco-friendly products that are energy efficient. Consumers are expected to properly recognise the approaches that companies take in pursuit of a low-carbon society. Companies must provide accurate information to help consumers make meaningful decisions in selecting the products. If we compare the amount of CO_2 emissions by sector, households still constitute a significant portion. Therefore, it is necessary to cultivate a mindset among consumers that best suits a low-carbon lifestyle.

As the first step, integration and joint use of ICTs can be applied to reduce any overlap of resources within a community, which is likely to generate certain effects in reducing CO_2 emissions. Japan has already seen the start of car-sharing services. Through the popularisation of similar services, the resistance towards the sharing of resources diminishes, and greater progress will be made toward the creation of a low-carbon society.

Some of the traditional lifestyles in Japan are now being re-examined. In his book *Just Enough: Lessons in Living Green from Traditional Japan,* Azby Brown, born in the United States and now living in Japan and working as the director of the Future Design Institute in Tokyo, argues that people in the Edo period (1603-1868) overcame many of the same problems confronting present-day society – issues of energy, water, materials, food and population – in unique ways.

Brown highlights, for example, "the idea of heating only a limited area where people are, trying to heat the people, not the space," citing the *hibachi* and *kotasu*, traditional Japanese heating devices using charcoal and providing heat for one's hands or legs.

Exploring "traditional ideas" in Japan may offer some useful suggestions for limiting energy consumption and for the innovation of ICT products and services. Of course, it is too optimistic to conclude that old ideas will help solve the problem; but there may be room to shed a different light on this highly complicated and difficult set of challenges. ■

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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