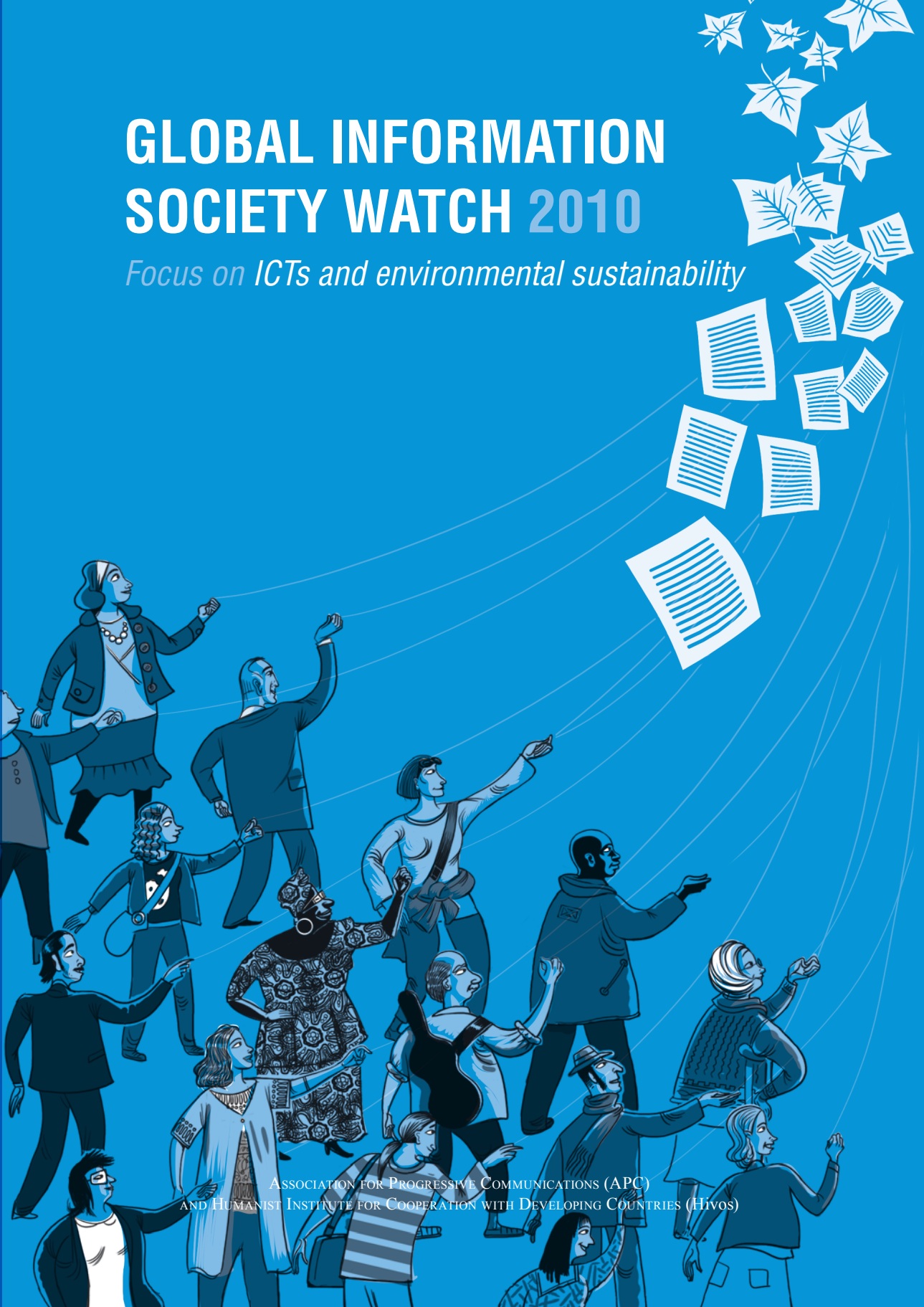
GLOBAL INFORMATION SOCIETY WATCH 2010

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

Steering committee
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Coordinating committee
Karen Banks (APC)
Monique Doppert (Hivos)
Karen Higgs (APC)

Project coordinator
Karen Banks

Editor
Alan Finlay

Assistant editor
Lori Nordstrom

Publication production
Karen Higgs

Graphic design
MONOCROMO
info@monocromo.com.uy
Phone: +598 2 400 1685

Cover illustration
Matías Bervejillo

Proofreading
Stephanie Biscomb, Lori Nordstrom, Álvaro Queiruga

Financial partners
Humanist Institute for Cooperation with Developing Countries (Hivos)
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Federal Department of Foreign Affairs FDFA
Swiss Agency for Development and Cooperation SDC

ETHIOPIA

Ethiopian Free and Open Source Software Network (EFOSSNet)
Abebe Chekol
abechekol@yahoo.com

Introduction

Concern for environmental degradation in Ethiopia has been growing in recent years. The Constitution of the Federal Democratic Republic of Ethiopia provides basic and comprehensive principles and guidelines for environmental protection and management. The constitution states that everyone has the right to live in a clean and healthy environment and the government will make every effort to provide such an environment. The constitution also holds the government and the people of Ethiopia responsible for the preservation of natural resources and maintenance of ecological balances.

Since the climate change issue has entered the scientific and policy arena in recent years, Ethiopia has given the issue focused attention nationally, and has been leading the regional agenda. An assessment of the current climate variability and observed trends reveals that there has been warming in the annual minimum temperature over the past 55 years (1951-2006). It has been increasing by about 0.37°C every ten years. The main environmental problems in the country include land degradation, soil erosion, deforestation, loss of biodiversity, desertification, recurrent drought, floods, and water and air pollution. Climate-related hazards in Ethiopia include drought, floods, heavy rains, strong winds, frost, and heat waves. Climate change could be particularly damaging to the country, given that it is dependent on rain-fed agriculture and under heavy pressure from food insecurity. Famine is often caused by natural disasters such as drought.[1]

Climate projections for Ethiopia have been generated using the software MAGICC/SCENDEN for three periods centred on the years 2030, 2050 and 2080. For the Intergovernmental Panel on Climate Change (IPCC) mid-range (A1B) emission scenario, the mean annual temperature will increase in Ethiopia in the range of 0.9-1.1°C by 2030, in the range of 1.7-2.1°C by 2050, and in the range of 2.7-3.4°C by 2080 compared to the 1961-1990 norm.

Information and communications technologies (ICTs) are both a cause of the problem and part of the solution for climate change. They contribute 2% of all global emissions – the same amount as the airline industry. However, ICTs can help to reduce energy demand, mitigate CO_2 emissions and help to save the planet.

Policy and legislative context

A number of proclamations and supporting regulations have been made that contain provisions for the protection and management of the environment, and which reflect the principles of the constitution.

Article 44 of the Constitution of the Federal Democratic Republic of Ethiopia[2] addresses the protection of the environment and declares that everyone has the right to a clean and healthy environment.

Since 1994, Ethiopia has taken important steps through the incorporation of environmental rights under the constitution, adoption of the Environmental Policy and Conservation Strategy of Ethiopia, ratification of multilateral environmental conventions, and establishment of the Environmental Protection Authority (EPA)

The most important step in setting up the legal framework for the environment in Ethiopia has been the establishment of the EPA by proclamation No. 9/1995. According to this proclamation the EPA has amongst its powers and duties:

- To prepare environmental protection policy and laws; and, upon approval, to follow up their implementation.
- To prepare directives and systems necessary for evaluating the impact of social and economic development projects on the environment; and to follow up and supervise their implementation.

In this regard, the first comprehensive statement of Environmental Policy for Ethiopia was approved by the Council of Ministers in April 1997. The overall policy goal is to improve and enhance the health and quality of life of all Ethiopians and to promote sustainable social and economic development through the sound management and use of natural, human-made and cultural resources, so that the needs of the present generation can be met without compromising the ability of future generations to meet their own needs.

Detailed reference to the role of ICTs is not given in this environmental policy. However, one of the cross-sectoral policy areas, namely the Environmental Monitoring Information System, is expected to use ICT tools to make it possible to have access to widely used information and to ascertain the type and location of any specialised data and information.[3]

The Council of Ministers adopted the following environmental laws submitted to it by the EPA:

- The Proclamation on the Establishment of Environmental Protection Organs, which assigns responsibilities to separate organisations for environmental development

1 CEEPA (2006) Climate Change and African Agriculture, Policy Note No. 25, August. www.ceepa.co.za/docs/POLICY NOTE 25.pdf

2 Adopted through Proclamation No.1/1995. www.erta.gov.et/pdf/Constitution.pdf

3 Environmental Protection Authority and Ministry of Economic Development and Cooperation (1997) *The Environmental Policy of Ethiopia*, Federal Democratic Republic of Ethiopia, Addis Ababa.

and management activities on the one hand, and environmental protection, regulation and monitoring on the other.[4]

- The Environmental Impact Assessment Proclamation, which was prepared to facilitate the implementation of the environmental rights and objectives provided in the constitution by predicting and managing the environmental effects of a proposed development activity or public (legal) instruments.[5]
- The Environmental Pollution Control Proclamation, which aims to eliminate or, when not possible, to mitigate pollution that is an undesirable consequence of social and economic development activities.[6]

On the basis of the Environmental Pollution Control Proclamation, two sets of standards were prepared: the industrial emission standards, which set maximum permissible pollutant emissions and the extent to which each sector must reduce its emissions; and the ambient environment standards, which set criteria for evaluating the air pollution to which humans and the environment are exposed, the impact-based values recommended by the World Health Organization (WHO), and compliance with ambient air quality standards which generally means that no harmful effects occur.[7]

Key issues

Although it is now clear that ICTs contribute to global greenhouse gas (GHG) emissions, with the current low level of ICT penetration in Ethiopia – a mere 532,000 PCs (2007), four million mobile subscribers and 915,000 fixed telephone lines (2009) – the contribution of the sector is insignificant. However, ICTs can play a significant role in reducing emissions through enabling smart energy efficiency and by providing a substitute for the physical transport of goods and people. Currently, the single largest source of urban air pollution in Ethiopia is the emissions from motor vehicles. Transportation is the largest contributor (52% in 1999) of CO_2 emissions in Ethiopia, followed by emissions from manufacturing and construction (25%) and residences (15%).[8] The trend has been increasing in the same direction. In the last three years alone the number of vehicles imported from abroad has increased by 17.2%.

While there are numerous ICT initiatives in the country, very few of them are dealing with environmental issues in a holistic way. However, it can be said that the implementation of the WoredaNet (see below) would make a positive impact, not only in facilitating communication and raising awareness on climate change mitigation and adaptation issues, but also in providing a substitute for the physical transport of people.

WoredaNet is a terrestrial and satellite-based network designed with the primary objective of providing ICT services such as video conferencing, messaging and voice over internet protocol (VoIP), and internet connectivity to government entities at the federal, regional and *woreda* (an administrative division in Ethiopia) levels. WoredaNet connects more than 611 woredas.

Video conferencing is one of the most utilised services of the WoredaNet. The video conference service is used for various purposes. The most common ones include government conferences, court services, training and distance education. The service has helped to encourage effective and frequent communication among different sectors and tiers of the government administration. The service has facilitated the provision of timely information to the lowest level of government institutions and reduced travel and administrative costs for sharing information. Between 2006 and 2008, WoredaNet provided a total of 2,185 hours of services for meetings, education and training, and workshops and seminars in which 186,578 participants took part. The video conferencing is also used for court hearings held at the Federal Supreme Court, as well as regional and zonal-level courts. Providing court services using video conferencing has helped citizens to avoid travelling from woredas to zonal and regional centres and to Addis Ababa. Instead of travelling long distances, people can use the video conference services of the WoredaNet near/in their hometowns to attend court. During 2007 and 2008, a total of 4,055 hours of video conferencing were used for court services for a total of 6,446 cases handled by the Federal Supreme Court (in Addis Ababa), Tigray Region Higher Court (Mekelle), and Amhara Region Higher Court (Bahir Dar). Apart from improving the efficiency of the government at all levels by allowing better use of executive time and speeding up decision-making processes, video conferencing improves the capacity of government institutions to provide better services to citizens.

The indirect effect that the use of ICTs can have in raising awareness and dialogue about the effect of climate change on vulnerable communities is critical. In this regard, the use of various ICT tools for different target communities is of great importance. For instance, the National Meteorological Agency's daily meteorological forecast through radio and TV is also available online through its website.[9] The video conference facility is also a powerful tool that the government can use to raise awareness on environmental issues and facilitate dialogue at all levels.

There are a number of NGOs active in environmental protection whose activities include providing ICT-based platforms for advocacy and communication among people and institutions concerned with the environment in Ethiopia.

4 Federal Democratic Republic of Ethiopia (2002) *Proclamation on the Establishment of Environmental Protection Organs*, Proclamation No. 295/2002.

5 Federal Democratic Republic of Ethiopia (2002) *Environmental Impact Assessment Proclamation*, Proclamation No. 299/2002.

6 Federal Democratic Republic of Ethiopia (2002) *Environmental Pollution Control Proclamation*, Proclamation No. 300/2002.

7 Tesfaye, M. (2008) Environmental Policy and Laws of Ethiopia and Clean Fuel, paper presented at the Workshop on Promotion of Clean Fuels and Vehicles organised by the Forum for Environment, Addis Ababa, Ethiopia, 22 July.

8 EarthTrends (2003) Climate and Atmosphere – Ethiopia, EarthTrends Country Profile. earthtrends.wri.org

9 www.ethiomet.gov.et

Such institutions include the Forum for Environment[10] and Tena Kebena.[11]

Finally, the goal of the Ethiopian National ICT Policy[12] is to vigorously promote an ICT-driven socioeconomic development process and transform Ethiopia from an agriculture-based economy and society to a predominantly knowledge- and information-based economy and society, with a deep-rooted democratic culture and good governance. The ICT for Development 2010 Plan,[13] which defines the e-government implementation strategy guided by an e-government functional model, identifies the Environmental Monitoring Information System as one of the elements of the functional model.

New trends

Recently, there have been a number of developments both in the ICT and non-ICT sectors which are linked to climate change issues.

In February 2010, the Information and Communication Technology Development Agency (ICTDA) inaugurated the Computer Refurbishment and Training Centre (CRTC) built with the support of the World Bank, Microsoft and International Business Leaders Forum (IBLF). The purpose is to refurbish second-hand computers imported from worldwide markets and distribute them to community-based organisations and agencies. This is designed to improve information technology access for lower-income citizens. The CRTC is also to commence de-manufacturing PCs. Instead of dumping defunct devices, this will lead to the reuse of the components in an environmentally friendly way. PC waste is a critical problem for the global environment, including in developed countries. The de-manufacture system is the latest way to disassemble PCs. At the CRTC, about 42 components are produced from a single PC that can be an input for other products. With concerns for environmental impact of importing second-hand computers, the recent government announcement of tax exemptions on ICT equipment as part of the country's "ICT for Development" campaign is a great incentive to enhance up-to-date ICT infrastructure in the country.

Ethiopia has also launched an electric car, which will make it the second African country to do so, after South Africa. Two versions of the Solaris Elettra will be manufactured in Addis Ababa, costing around USD 12,000 and USD 15,000. The cars will be sold in Ethiopia as well as exported to other countries in Africa and Europe. The car does not use any fuel or oil and so does not let off carbon emissions – it only uses ten rechargeable batteries. The challenge is whether this car will be widely used where erratic power supplies, low levels of personal wealth and poor infrastructure are common. However, given that the largest contributor of CO_2 emissions is the transportation sector, and this mainly in urban areas, the electric car is another initiative that puts the country in the direction of green growth.

Action steps

Ethiopia, like any other African country,[14] has a window of opportunity where it has at least three advantages: a late start, climate change investment and a highly skilled diaspora. This means that there is much technology Ethiopia can simply adapt to local conditions, along with the availability of financing for low-carbon development and a generation of highly skilled Ethiopians abroad, who should be encouraged to engage in and contribute to the country's development.

Addressing the climate change challenges and exploiting the associated opportunities requires the country to understand where it is and where it wants to go. In order to access global financing flows for climate change following the Copenhagen Conference (COP 15), Ethiopia would need to develop "low carbon growth plans" and "ecological footprint indicators" to plan adequately for development in an environmentally sustainable way. This is something to be considered at the macro-level, where ICTs should feature as a key instrument for climate change mitigation, monitoring and adaptation.

In this regard, WoredaNet's video conferencing service offers a good example, particularly regarding its role in travel substitution. The large-scale investment in energy generation and distribution is another development activity that caters for the need for smart power/grid systems. The increasing energy use as a result of the expansion in ICT infrastructure, real estate development and transportation infrastructure, as well as the increase in the number of motor vehicles, also triggers the need for policies, standards and procedures that introduce smart motors, smart building design and smart transport.

To ensure the cause and effect of the development activities to do with climate change, monitoring is an important area where ICTs would contribute to data capturing, processing and presentation, or dissemination. In this regard, the EPA should coordinate with the Ethiopian ICT Development Agency regarding the implementation of the Environmental Monitoring Information System, which is already identified as one of the elements of the e-government model in the ICT for Development 2010 Plan.

Furthermore, a lot of advocacy work by civil society players concerned with the environment is needed to promote how ICTs can help in adapting to climate change in the short and longer term. This can be achieved through the use of ICT-enabled applications for measuring, information and networking, predicting (risk, early warning), planning, and coping (including short-term disasters). ■

10 www.ffe-ethiopia.org

11 www.tenakebena.org

12 Federal Democratic Republic of Ethiopia (1997) *The Ethiopian National Information and Communication Technology (ICT) Policy.* www.eictda.gov.et/Downloads/Policies/ICT_Policy_English.pdf

13 Federal Democratic Republic of Ethiopia, Ministry of Capacity Building (2006) *The National ICT for Development (ICT4D) Five Years Action Plan for Ethiopia (2006-2010).* www.eictda.gov.et/strategy/The%20ICT4D-2010%20%20Plan-MAIN-FINAL.pdf

14 Ayensu, E. S. (2010) *African Innovation Framework (AIF): Unlocking Africa's Future,* prepared for the ICT, Science & Technology Division of the United Nations Economic Commission for Africa (UNECA) Addis Ababa.

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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