GLOBAL INFORMATION SOCIETY WATCH 2010

Focus on ICTs and environmental sustainability

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Introduction

Rwanda has done a lot in setting up a conducive framework for environmental protection and putting in place measures for mitigating climate change, but there is a need for policies on greening using information and communications technologies (ICTs) and on electronic waste (e-waste) management. Today's growing global trade in which Rwanda is expected to actively participate, inevitably will have environmental side effects that are the result of imported ICT equipment flowing into the country. If this flow is not well managed, and if appropriate measures are not taken now, the future generations and the country's economy may suffer from the undesirable effects.

Climate change: A challenge with monitoring

Like other countries, Rwanda is affected by climate change.[1] Over the last decade, the disturbance of the climate system has impacted on many different sectors of the country's socioeconomic development,[2] and the health and well-being of the people[3] as well. The most obvious impacts have been the decrease of lake water levels and water flows, the drying up of water catchments, the loss of biodiversity and the loss of agricultural productivity as a result of prolonged drought and/or sometimes floods. To deal with these phenomena requires strategic actions and equipping the country with an early warning system to predict the coming events and to reduce harm.

As a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, Rwanda has a clear policy on climate change and a national environmental policy that set out general and specific objectives as well as fundamental principles for improved management of the environment. These are effective both at the central and local level, in accordance with the country's current policy of decentralisation and good governance. The organic law on the environment, the national forest policy and law, as well as the country's Vision 2020 development plan have clear guidelines of what has to be done so that Rwanda can reduce the effects of climate change and CO_2 emissions.[4]

Since 1994 the country has ratified various international conventions. The UN conventions on biodiversity (1995), climate change (1998) and desertification (1998) are all linked to global warming and climate change. Rwanda really does not contribute very much to global warming, but it addresses the mitigation and adaptation measures necessary to cope with climate change. For its climate change adaptation programme, Rwanda published its Initial National Communication to the UNFCCC in 2005.[5]

Rwanda has identified six priority areas for adaptation to climate change, which include "setting up an information system for early warning of hydrological and agrometeorological systems and rapid intervention mechanisms."[6]

In 1996, National Agenda 21 and the National Environment Strategy and Action Plan were updated. The establishment of the Rwanda Environment Management Authority (REMA) is in the process of finalisation. It is the organ responsible for the execution of environment-related policies and laws.[7]

With the establishment of Vision 2020 and the Economic Development and Poverty Reduction Strategy (EDPRS), the environment was considered a cross-cutting pillar for all sectors. In the second National Information and Communications Infrastructure plan for Rwanda (NICI II),[8] it was decided that ICTs should be used to improve geographic information systems and get better meteorological information.

The country does not have an operational observatory network to facilitate an adequate understanding of national climate conditions and lacks the ability to predict local climate change.[9] The few existing meteorological monitoring stations are run down due to a lack of maintenance and expertise to track changing climatic conditions. Those that are currently operational are not representative enough to provide a true picture of climate variability.

The government's endeavour to encourage investments goes hand in hand with a careful understanding of the nature and impacts of climate variability and climate change on the economy and people's livelihoods. The government plans to gradually strengthen its meteorological service by adopting and implementing a meteorological policy and strategy,

1   Mugabe, R. (2010) Hundreds of Flood Victims Need Emergency Aid, *The New Times*, 21 May. allafrica.com/stories/201005210004.html

2   Mugabe, R. and Mukombozi, B. (2010) Rwanda: Heavy rains claim lives and hundreds homeless in Northern and Western Provinces, *The New Times*, 18 May. rwandinfo.com/eng/rwanda-heavy-rains-claim-lives-and-hundreds-homeless-in-northern-and-western-provinces

3   Humanitarian Early Warning Service (HEWS) www.hewsweb.org/floods

4   REMA (2009) *Rwanda State of Environment and Outlook: Our Environment for Economic Development*, Kigali, p. 119.

5   Interview with Patricia Hajabakiga, former minister of state for land and environment (2006-2008).

6   REMA (2009) op. cit., p. 8.

7   www.rema.gov.rw

8   Government of Rwanda (2006) *NICI II: An integrated ICT-led socio-economic development plan for Rwanda 2006-2010*, Kigali, p. 130. www.rita.gov.rw/laws/nici_plans.html

9   REMA (2009) op. cit., p. 104.

establishing an upper air observatory and establishing an atlas on the spatial and temporal distribution of rainfall, temperature and humidity over Rwanda by 2012.[10]

E-waste accumulation in Rwanda

Rwanda is currently undergoing rapid advances in the use of ICTs. Starting with the active use of computers by Rwandans in 1990s, the country believes in ICT implementation in all sectors of production to increase the pace of socioeconomic development and create value for all citizens.[11] Although Rwanda is a signatory to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, it is not at this stage worried about e-waste – a position which is potentially short-sighted.

A very significant proportion of ICT users in Rwanda rely on second-hand equipment, primarily from Europe. In recent years, used and end-of-life computers and accessories, televisions, transformers, and mobile phones have been imported from the United Kingdom (UK), Germany, Belgium and France. Most of the used computers have been distributed to students from the National University of Rwanda, the Kigali Institute of Technology (KIST), and the Kigali Institute of Education (KIE), and to small businesses and enterprises in Kigali and other towns of Rwanda.[12]

Various charity and business organisations are donating or selling low-cost computers to Rwandan people too, and their contribution to e-waste accumulation is relatively high. Their actions seem to be a way of getting rid of "home waste" by giving it to needy people who are not aware of the near-future consequences. A statement by Computer Aid, a charity organisation from the UK, urged people to donate to the organisation old Pentium II and III computers that they may have been planning to send to landfills. For donors, this is a way to do their bit for the environment and for the Rwandans who will appreciate it.[13] Apart from Computer Aid, there are various companies in Kigali, both Rwandan and Chinese, that are helping Rwandans get cheaper used computers. These initiatives are safe if they are aware of e-waste and its consequences, and if they are shipping good working computers. If not, this is a short-term solution for environmental protection which should be considered a global concern. Besides, this used ICT equipment is coming into the country with no clear measures established to manage it, and with no clear understanding amongst the population of the dangers it can cause.

Significant challenges that Rwanda is facing in the management of e-waste include, among others:

- Unknown amount of e-waste (lack of inventory)

- Lack of awareness of its impacts on people's health and the environment

- Lack of formal or informal e-waste collection and management systems in the country

- Lack of infrastructure for sound hazardous waste management, including recycling

- Lack of policy and legal framework for e-waste management

- Lack of strong and effective regulatory framework for toxic chemicals and waste management.

New trends

Having an economy that is heavily dependent on rain-fed agriculture, Rwanda's economy and people's livelihoods are vulnerable to climate variability and climate change. Agriculture, biodiversity and water resources are more likely to be affected by climate variability and climate change.[14] To cope with this problem, the country is building a mast at the Kalisimbi volcano whose use will include weather forecast data collection to warn farmers and economic operators on climate change. These data will be complemented by data from countrywide meteorological stations which need to be equipped with up-to-date ICT technology that can help to raise awareness and stimulate dialogue about the effects of climate change on vulnerable communities.

As far as e-waste is concerned, data on waste generation, sources of waste and quantities disposed of in existing sites are not available.[15] In Rwanda, there are a number of ministries and institutions whose mandates are related to climate change and e-waste disposal. Currently, the ministries at the policy level include the Prime Minister's Office (PRIMATURE), Ministry of Infrastructure (MININFRA), Ministry of Health (MINISANTE), and the ministry in charge of ICTs in the President's Office.

Among public institutions, REMA comes first as an environmental management authority. It plays a big role in environmental protection. To contribute to the better use of paper (as a way to protect forests), it urges all public institutions to go paperless by adopting the use of document management systems within institutions, and when necessary, to use printers and photocopiers that use both sides of the paper.

As for the Rwanda Utilities Regulatory Authority (RURA), its principal functions and responsibilities as stipulated by law are to regulate the activities of identified public utilities, ICTs (telecommunications network and services), broadcasting, and waste products from residential or business premises, among others.[16] Recently it put in place[17] a service in charge of creating awareness on e-waste and promoting e-waste management, and setting up a regulatory

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10 Ibid., p. 104.

11 Government of Rwanda (2006) op. cit.

12 Interview with an expert consultant in the environmental sector, Kigali 2009.

13 Coates, R. (2004) Computer Aid to treble PC delivery to Rwanda, *silicon.com*, 13 May. www.silicon.com/management/cio-insights/2004/05/13/computer-aid-to-treble-pc-delivery-to-rwanda-39120654/

14 REMA (2009) op. cit., p. 126.

15 Ibid., p. 23.

16 RURA (2008) *Annual Report 2008.* www.rura.gov.rw/reports/2008AnnualReport.rar

17 www.rura.gov.rw/index.php?option=com_content&view=article&id=107&Itemid=142

framework for e-waste management. This is also meant to establish recycling facilities. The service is new and most of its actions so far in the area are at the stage of planning and human capacity building, including drafting an e-waste policy in partnership with all Rwandan environmental stakeholders.

Apart from companies that import ICT equipment, private sector institutions are not very active in dealing with the e-waste issue. Some initiatives are done by the Rwanda Computer Network (RCN), whose business is the assembly of computers parts, and e-ICT, which is an institution dealing with ICT training and maintenance. Small and medium enterprises are consumers of e-waste products. Some of them collect used toner cartridges for recycling.

The role of civil society organisations in dealing with e-waste is limited due to the lack of human capacity in the field. Most interventions in environmental protection by civil society are oriented to the activities of deforestation and terracing.

Currently, some organisations are in possession of piles of used computers and printers stored in their office premises, with no knowledge on how to dispose of them. One way different institutions are using to get rid of e-waste is to call repairers and offer them broken computers and printers whose parts are in turn used to repair other machines. They recognise however that there is a need for the environmentally friendly disposal of e-waste.[18]

Action steps

Regarding climate change, at the moment there is a need to document the nature and impacts of greening using ICTs and greening ICTs, to strengthen existing livelihood coping strategies before any introduction of new high-tech solutions.

Coordination of efforts within and between government, the private sector and civil society in promoting adaptation to climate change and sustainable development through sharing information will encourage innovation, reduce duplication and maximise the efficient use of limited resources. There is also a need to strengthen national capacity for effective engagement in the regional and global negotiations and collective actions to mitigate and adapt to climate change.

In Rwanda e-waste is becoming a serious challenge for the future due to the fast-growing volume of e-waste imported from the West and the lack of both an effective policy and infrastructure for sound hazardous waste management. Furthermore, there is low public awareness of the hazardous nature of e-waste, coupled with the use of low-end or crude recycling techniques.

In Vision 2020, ICT is a key pillar of development and therefore the e-waste issue needs to be considered for its challenges and opportunities. There is, for instance, a need to establish innovation hubs and centres of excellence, including small businesses to make early steps in the local development of recycling technologies.

Above all, raising public awareness is an urgent action that is necessary so that Rwandans are informed on how to cope with both climate change and e-waste. Specific information on climate change and e-waste needs to be disseminated through regular publications, and through electronic and other media. Workshops, seminars and talk shows should be organised in languages deemed appropriate to ensure access by all members of the Rwandan public.

There is also an urgent need for public participation in decision-making processes through public hearings, written submissions, and consultative meetings with various groups. ▪

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18 Interview with Paul Barera from the Rwanda Telecentre Network and Innocent Benineza from the national NGO DUHAMIC-ADRI, Kigali, May 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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