GLOBAL INFORMATION SOCIETY WATCH 2010

Focus on ICTs and environmental sustainability

Global Information Society Watch

2010

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Introduction

The Intergovernmental Panel on Climate Change (IPCC)[1] estimates that the Mediterranean Sea will rise by a metre by 2050 as a result of global warming, ending in the loss of one third of the Nile delta. The delta is one of the most fertile areas of Egypt. It spans the area between the two branches of the Nile before the river empties into the Mediterranean Sea. Today, agriculture in the delta uses the Nile water nearly to its last drop. This has created an inverse sea water intrusion, a "salt wedge" into the area – as the water levels of the Nile have been receding over the years, the void has been sucking sea water into the agricultural lands bordering the northern edge of the delta. This salt wedge reaches nearly 30 kilometres inland. Besides a rise in sea levels, the delta is experiencing severe water quality deterioration. Fertilisers, sewage and industrial waste are accumulating as there is not enough water to flush them out to the sea.[2]

An average of 100 million tonnes of sediment per year were deposited by Nile water before the building of the Aswan Dam. These annual silt deposits compensated for the sea coast erosion and soil depletion as a result of the intense agricultural activity in the region. With the building of the Aswan Dam, the sediment has been held behind the dam now for over 40 years, resulting in the subsiding of soil in the delta: in other words, the delta is sinking slowly below sea level. The government has countered this loss of land by building concrete barriers along some of the most eroded coastal areas and is replenishing the sand on beaches on a yearly basis. These remedial actions, though, are not enough to salvage the delta, especially if the Mediterranean Sea is going to rise due to climate change.

Along with the loss of an important living and agricultural area, Egypt's most industrial cities and some important historic sites like Alexandria, Damietta, Rosetta, Edco and Port Said would be victims of the Mediterranean Sea inundation. Furthermore, the delta's inhabitants' living space is endangered; this affects to a greater or lesser degree approximately 50 million out of a total population of 80 million, which increases by one million every nine months. This means that there could be a massive population displacement of ten to fifteen million people if the sea level rises by one metre.[3]

As a new and potential alternative agricultural and living area, the government has developed infrastructure in Toshka in the south of the country, bordering Sudan. Toshka features one of the most powerful water pumps in the world that diverts water from the Nile to this former desert for irrigation and living needs. Yet despite these measures, to date there has been no relevant migration to Toshka, as was initially planned, due to the hot climate and inadequate social services in the area.

Adding to potential water scarcity scenarios for the future is the Nile Basin Initiative (NBI),[4] through which the Nile riparian countries are trying to change the traditional water quota allocation to Egypt and Sudan. The present Nile water quota was set in 1929 between the then colonial Britain and Egypt, allocating more than 80% of the Nile water to Egypt and Sudan. Ethiopia and Tanzania have been threatening to build dams for years. If this should finally materialise, it could have serious consequences for Egypt.[5]

Accordingly, the Egyptian government has three climate change priorities:

- Sea level rise
- Water resource deficiency
- Agricultural crop deficiencies and extinction of some crops.[6]

Policy and legislative context

Egypt does not have climate change-specific policy or legislation, although the country has ratified the United Nations Framework Convention on Climate Change (UNFCCC). In lieu of a climate change policy, the Egyptian Environmental Affairs Agency (EEAA) put forth its Initial National Communication on Climate Change in June 1999.[7]

Egypt also signed the Kyoto Protocol in 1999 and ratified it in 2005, which led to the establishment of the Egyptian Designated National Authority for the Clean Development Mechanism (DNA-CDM) in 2005.

The umbrella environmental law in Egypt is Law 4 of 1994, which deals with the protection of the environment, and which was amended by Law 9 of 2009. The law assigns the roles and responsibilities of the Ministry of State

1   www.ipcc.ch

2   Agrawala, S., Moehner, A., El Raey, M., Conway, D., van Aalst, M., Hagenstad, M. and Smith, J. (2004) *Development and Climate Change in Egypt: Focus on Coastal Resources and the Nile*, OECD. www.oecd.org/dataoecd/57/4/33330510.pdf

3   Ibid.

4   www.nbi.org

5   Zahran, N. A. (2010) Navigating the regional difficulties of the Nile, *Foreign Policy*, 18 May. mideast.foreignpolicy.com/posts/2010/05/18/egypt_s_existential_worry

6   EEAA (1999) *The Arab Republic of Egypt: Initial National Communication on Climate Change*, prepared for the United Nations Framework Convention on Climate Change (UNFCCC). unfccc.int/resource/docs/natc/egync1.pdf

7   Ibid.

for Environmental Affairs (MSEA) and EEAA.[8] The law and its executive regulations govern data collection for environmental planning, studies and reports and the integration of environmental information into a national action plan. The law also governs monitoring and enforcement of environmental laws and rules.

As part of this monitoring and enforcement role, MSEA prepared a second National Communication to the UNFCCC and a greenhouse gas (GHG) inventory covering different sectors in 2007. This inventory is the first baseline assessment regarding GHGs in Egypt. MSEA has also prepared directives for private sector investments in clean energy, waste recycling and afforestation enterprises.

As climate change is a priority issue for Egypt, it formed an inter-ministerial National Climate Change Committee (NCCC) in 1997, and restructured it in 2007, so that it can function as the effective coordinator of climate change on the national level. The committee is chaired by EEAA's executive officer and its members encompass a broad range of governmental, academic and non-governmental representatives. The committee facilitated the establishment of Egypt's Climate Change Action Plan (CCAP) and the Initial National Communication on Climate Change, both in 1999. In its newer version, the committee is putting out ideas for needed strategies, policies, and the mechanisms for their implementation. The CCAP has also been instrumental in coordinating governmental, non-governmental and private sector climate change projects with substantial international financial and technical aid.

Although Egypt is one of the countries highly vulnerable to climate change, it only contributes 0.5% to global GHG emissions.[9] Because of this, Egypt's main concern is adaptation. Towards this end the government has been mainstreaming climate change adaptation into national policy and investment frameworks, including increased CDM financing opportunities.

EEAA encourages private sector investment in clean energy, waste recycling and afforestation. It initiated a three-year Climate Change Risk Management Programme (CCRMP) in May 2009, which addresses national climate change adaptation and mitigation issues involving multiple ministries and sectors.

With the involvement of different ministries and sectors the Ministry of Communications and Information Technology (MCIT) also became involved in Egypt's climate change initiatives. MCIT participated for the first time in the United Nations Climate Change Conference in Copenhagen (COP 15) in December 2009. During the conference, MCIT raised the issue of the information and communications technology (ICT) industry's green footprint, and the reduction of GHG emissions.[10]

How viable are environmental information systems?

For both adaptation and mitigation decision making, planning and implementation, a sound, regularly updated environmental information system is needed. Although not easy, creating an environmental information database that allows for timely storage, retrieval, processing and analysis is doable and relatively straightforward. MSEA and EEAA have been investigating several such environmental information systems in their decision-making and planning processes. However, Egypt, like many developing countries, faces challenges in collecting, on a timely and consistent basis, quality environmental data.

What has been effective are environmental information systems that target specific geographic areas like protectorates, where information gathering is more focused and specific. An example of this is the Environmental Common Information System (ECIS) run by the Egyptian Environmental Information System, and situated inside EEAA, which was established in partnership with the Canadian government. In the early 2000s, ECIS had information regarding the St. Catherine protectorate, with plans to include other Red Sea protectorates.

Another information system initiative was launched regarding environmental assessments of new development zones, appropriately called the New Development Zones Information System (NDZIS). Likewise, an Environmental Contingency Plan Information System (ECPIS) was established, and the Industrial Pollution Information System (IPIS) was set up to assist the Environmental Inspection Unit to track the industrial sector's compliance towards environmental regulations and laws. The Cairo Air Improvement Project (CAIP) is another important air quality monitoring network. The CAIP is linked to the Early Warning System which monitors the air quality of the Greater Cairo area.

Other systems include the Cement Factories Monitoring System and the Egyptian Hazardous Substances Information Management Systems (EHSIMS). Many of these include digital mapping information systems and databases.

The establishment of such environmental information systems is, however, only one side of a complex issue. These information systems are only as effective as the enforcement that is being based on the available data and information is. Enforcement capacities and compliance is a weak point in Egypt, as it is in many developing countries. Strengthening institutional capacities for monitoring and enforcement goes hand in hand with establishing environmental information systems.

This leads us to another issue that has not been resolved since the creation of MESA and EEAA, which is their lack of enforcement capacity towards other ministries and agencies. MESA and EEAA have mainly advisory and coordinating roles over environmental issues within the large network of ministries, and between the government and the private sector. The information systems allow MESA and EEAA to disseminate environmental information nationally,

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8   www.eeaa.gov.eg/English/main/about.asp

9   UNDP (2008) *Egypt Human Development Report 2008*. hdr.undp.org/en/
    reports/nationalreports/arabstates/egypt/2008_Egypt_nhdr_en.pdf

10 www.mcit.gov.eg/NewsDetails.aspx?id=amkuLiqiKME=

locally and among the various sectors, but enforcement lies principally with sectoral ministries and agencies and not with their environmental counterparts.

Nevertheless, one has to say that MSEA and EEAA were successful in establishing an environmental information system tying the MESA and EEAA offices at the national level to branch offices in the governorates, as well as the provincial administrative units, through the EEAA environmental information systems.

Action steps

Environmental information systems in their various forms are being used in Egypt. However, their effectiveness hinges on many contingencies, the most important of which are the accuracy of the raw data, enforcement capacities, the human resources needed and the compliance levels of national and sub-national ministries, agencies and organisations towards implementation of policies and decisions based on the feedback of the system. Egypt's interest in developing its ICT potential in the region is a strong starting point for the development of these systems.

Nonetheless, with a limited budget, Egypt is better off allocating its resources to capacity building and better enforcement of climate change-related adaptation and mitigation initiatives, while pursuing a multilateral data and information system wherever possible. Sharing costs on GIS and raw data with multilateral and bilateral organisations seems a good idea, with attention on the many challenges the country faces to adapt to climate change in a short time frame in order to reduce the high risks it is facing.

The government should make water resource management its priority, especially given what might follow due to changes in Nile water quotas that could be the outcome of the NBI. Although Egypt has been talking about the importance of water resource management for decades, a lot still needs to be done, for instance in terms of reducing potable water leakage. At the same time, with the establishment of new cities around Cairo and the development of the Mediterranean and Red Sea coastal areas, water is being used to irrigate landscapes that have no agricultural benefits. These waters are diverted from the Nile and are also sourced from non-renewable groundwater resources.

With the present political focus on the upcoming presidential election in 2011, and the renewal of the emergency law, it is not realistic to expect civil society to be advocating a water management strategy as its main public demand, despite its urgency and importance. The same is true with any adaptation activity regarding coastal zone management, be it for the Mediterranean or the Red Sea. ▪

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).