

ICTs AND THE ENVIRONMENT: ROMANIA AND EUROPE

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Members of the *Region, Environment, Culture Research Group* have participated in numerous projects concerning ICTs and the environment. Main findings and a research plan are presented in the poster appendices:

1. Global Information Society Watch: Romania and Europe
2. Greening Information Technologies: a Research Agenda
3. Internet Use and Environmental Concern in Post-Communist Europe
4. Assessing Environmental Awareness and Values Among Youth – Plan

References:

- Bakó, R.K. (2010). Europe. *Global Information Society Watch. Focus on ICTs and Environmental Sustainability*, 70-72.
- Bakó, R.K. (2010). Romania. *Global Information Society Watch. Focus on ICTs and Environmental Sustainability*, 199-201.
- Bakó, R.K., Péter, P. & Sólyom, A. (2010). Greening Information Technologies in Romania: a Research Agenda. *Reconnect*, 2(1): 51-59.
- Nistor, L. (2010). The Role of the Internet in Shaping Environmental Concern. A Focus on Post-Communist Europe. *Compasso: Journal of Comparative Research in Anthropology and Sociology*, 1(2): 145-167.

APPENDIX 1: Global Information Society Watch: Romania and Europe

Focus on ICTs and Environmental Sustainability

Europe – regional report findings¹:

This report focused on the relationship between ICTs, climate change and innovation in Europe, as reflected in EU policies and good practices at governmental and business level. Replacing dirty ICTs with green ICTs is a high priority for all stakeholders: supranational regulatory bodies, national governments and subnational structures and organisations. At the same time, using ICTs as smart tools for an environmentally sustainable Europe is being mainstreamed by governments and businesses equally.

European countries are at different stages of adaptation to climate change: while many of them have developed complex and well-documented projects and programmes (Denmark, Finland, France, Germany, Hungary, Ireland, Netherlands, Norway, Portugal, Spain, Sweden and the UK), others are still working on their coping strategies (Austria, Bulgaria, Czech Republic, Estonia, Italy, Latvia, Lithuania and Switzerland). Some countries provided scarce or no information to the European Environment Agency concerning their climate change adaptation strategies: Cyprus, Greece, Luxemburg, Poland, Romania, Slovak Republic and Slovenia.

According to a global green ICT policy evaluation, under the EU codes of conduct for broadband equipment, signatory companies commit to reducing energy consumption of broadband equipment. At the same time, the EU codes of conduct for data centres set energy efficiency goals and measures standards for data centre providers. The relatively small number of signatory companies to the EU codes of conduct for broadband equipment suggests that the codes of conduct have not yet been widely accepted. However, they are still useful for non-signatory companies as they include best practices and standards.

Romania – country report findings²:

Environmental and ICT issues still evolve on separate tracks in Romania, though with visible signs of intertwining. In order to develop a green ICT agenda in the country, several steps are necessary:

- Key stakeholders should be educated in order to promote a green approach to ICTs and a clean-tech approach to the environment.
- A set of economic indicators should be publicly available in order to assess the environmental impact of ICT use, as proposed at the 4th Internet Government Forum (IGF). These should include volumes of ICT exports and imports, employment rates in ICT-related industries, income generation in ICT-related industries, and impact of ICTs on efficiency. The IGF also proposes monitoring the availability of environmental content on the internet as a measure of the success of awareness-raising efforts.
- A set of environmental indicators should be developed in order to assess the impact of ICTs on the environment, and made publicly available.
- Primary research on ICTs and the environment should be encouraged through funding.
- Romanian ICT and environmental protection officials should be more actively involved in international discussions taking place at green ICT events.
- Civil society organisations should have a more active role in promoting the green ICT agenda, along with businesses and governmental agencies.

¹ Bakó, R.K. (2010). Europe. *Global Information Society Watch. Focus on ICTs and Environmental Sustainability*, 70-72.

² Bakó, R.K. (2010). Romania. *Global Information Society Watch. Focus on ICTs and Environmental Sustainability*, 199-201.

APPENDIX 2: Greening Information Technologies: a Research Agenda³

Romania has made significant steps ahead since the fall of the communist regime in terms of aligning to European and international policy-making standards (1989–2009). Accession to the European Union (EU) in 2007 imposed stricter standards and tighter regulations in all areas, particularly in highlighted fields like *environmental protection* and *ICTs*.

The Romanian waste management system is similar to the one operating in other EU countries, but less effective: for example the EU target for e-waste is 4 kg/person, while Romania collected less than 0,07 kg/person (2008–2009).

There are special legal acts for e-waste and used batteries, but the implementation and the enforcement has still a long way to go. There is a monthly national campaign for collecting e-waste, so people can put in front of their house this kind of waste, and the local waste collecting company collects it that day. Due to this campaign, the average amount collected is almost 2% of the national target.

Key stakeholders for research and advocacy:

<p>1. Governmental agencies in charge of planning and implementing environmental and ICT policies The Ministry of Environment and the eight regional EPAs are key governmental agents of environmental policy. The ICT Ministry and the ICT parliamentary commission are main governmental ICT policy stakeholders. Tactical model aims at advocating for change through research findings.</p>
<p>2. Environmental NGOs, because they are the main actors of pioneering, spreading and implementing innovative models across society. They fit both the enlightenment and the tactical research models.</p>
<p>3. Opinion leaders: they act as role models, innovators, advocates, quick-links between NGOs and decision makers. Their high visibility within civil society and mainstream media enables a stronger outreach of GreeningIT findings, which is instrumental for a tactical research model.</p>
<p>4. ICT and environmental experts, in order to access high quality, accurate input on the research topic, for objective research findings.</p>

Ideas for a collective GreeningIT campaign:

- to develop pilot advocacy campaigns around visible environmental NGOs, targeted at children and teenagers;
- to target ongoing successful ICT and green projects concerning waste management, clean energies, e-inclusion;
- to gain support from well connected opinion leaders to spread the greeningIT ideas via twittosphere and blogosphere;
- to involve and connect online communities dealing separately with green and ICT issues around creative campaign events (poster contest, widget contest, greeningIT animation contest, short film contest) – people just like creative things;
- to gain committed experts' support for the cause: giving their names, expertise, ideas help;
- to involve as many newcomer stakeholders as we can to expand the idea.

³ Bakó, R.K., Péter, P. & Sólyom, A. (2010). Greening Information Technologies in Romania: a Research Agenda. *Reconnect*, 2(1): 51-59.

APPENDIX 3: Internet Use and Environmental Concern in Post-Communist Europe⁴

Data: Special Eurobarometer 68.2 (2007 November – 2008 January)

Geographical focus: the post-communist European Union member states (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia)

Dependent variables:

- Environmental information
- Environmental concern
- Environmentally friendly behaviors (i.e. energy saving, environmentally friendly travelling, environmentally friendly consumption)

Explanatory variables:

- Socio-demographics
- General Internet use (frequency of usage)
- Specific Internet use (e.g. Internet is among the main sources of environmental information seeking)

Method of analysis: multiple linear regression

General conclusions:

- Internet usage has a positive, significant influence on the dependent variables (except the energy saving behavior);
- Compared to the specific Internet use, general Internet usage has a stronger influence on the dependent variables;
- Environmental concern seems to be a side effect of the general Internet use and not necessarily the direct, explicit result of the specific Internet use;
- It is legitimate to conclude that surfing the Net in general provides citizens with some essential background information and makes them more open-minded in terms of environmental concern;
- The quite strong influence of the Internet usage remains valid even after controlling for socio-demographics, i.e. even among the well educated citizens, those who are more frequent Internet users are more committed in terms of environmental concern;
- In the post-communist EU states – considered the environmental laggards of the Union – Internet use can be considered an important ‘catch-up factor’ in terms of environmental concern.

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⁴ Nistor, L. (2010). The Role of the Internet in Shaping Environmental Concern. A Focus on Post-Communist Europe. *Compasso: Journal of Comparative Research in Anthropology and Sociology*, 1(2): 145-167. http://doctorat.sas.unibuc.ro/wp-content/uploads/2010/11/Issue2_LauraNistor_Environment.pdf

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APPENDIX 4: Assessing Environmental Awareness and Values Among Youth Aged 11-18 (February – August 2012)⁵

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Method: survey

Population: students from the Mikes Kelemen High School Sfântu Gheorghe, Romania

Sampling: entire population surveyed

Topic: environmental awareness and values, with a focus on ICTs

Questionnaire items are aimed at exploring students' interests and attitudes concerning environmental issues, their sources of information and knowledge, family rooted patterns of behaviour, and values.

Research questions and hypotheses

1. There is a correlation between values and environmental attitudes: students who prefer post-material values are more environmentally aware.
2. We presume age differences between students when it comes to environmental awareness:
 - a. High school students⁶ are more aware than junior high school students⁷.
 - b. The two age groups' sources of information differ: high school students learn from TV and the internet about the environment, whereas junior high school students get informed from family and school.
3. Family background and environmental attitudes are correlated:
 - a. Students with a stronger cultural capital are more environmentally aware.
 - b. Students from affluent families are less environmentally aware: the life-cycle of their cell phones and other electronic devices is shorter; they purchase more, and they produce more e-waste.
4. Academic performance and environmental attitudes are correlated: we presume that high achievers are more informed and more interested in environmental issues.
5. If replicated in three years, we estimate that current 5th graders will be more environmentally aware as 8th graders than present 8th graders, as an impact of the *Greening the Way for Tourism* – a state funded environmental education project involving over 1000 students from the Mikes Kelemen High School, Romania.

⁵ preliminary research plan prepared by Andrea Sólyom

⁶ 9th to 12th graders

⁷ 5th to 8th graders