# ECOLOGICAL ASPECTS OF USE THE INFORMATION-COMMUNICATION TECHNOLOGIES (ICT)

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In conditions of an information society stresses of attention and the importance are displaced from traditional kinds of resources on information. Though information resources of a society exist basically so much, as long as a mankind, they were never considered as an economic category. Transition to market relations has caused occurrence of system of the markets within the limits of which the significant place should belong to the information market. Development of market relations during an epoch of prompt growth of information of economic relations allows to speak about occurrence of the new subject of the global market - the market of information services.

ICT industry seriously can impact the environment at different levels and in various dimensions. The ICT industry designs application programs which can ensure cleaner production patterns. Being an enabler of development, ICT can make a valuable contribution to sustainable environmental management; improve environmental monitoring and response systems; facilitate environmental activism; raise awareness and enable a more efficient use of resources. The industry uses material resources to manufacture products such as computers, hardware, and devices, but it also produces wastes. For example, mountains of waste from computers are piling up in European countries, Japan, China and Taiwan.

Applications of ICT for environmental protection are becoming common around the world. For example using ICT to collect, store, process and disseminate environmental database and information. This provides users with access to up-to-date information, thereby increasing and enhancing efficiency in environmental monitoring. It also facilitates the prevention and mitigation of environmental degradation. For instance, the websites of the Food and Agricultural Organisation (FAO), the United Nations Environmental Programme (UNEP), World Meteorological Organisation (WMO) and the World Resource Institute (WTI) are very good sources of data and information on the environment.

Table 1 below indicates the effects and opportunities created by ICT at three orders: physical existence of ICT (first order), on-going use and application of ICT (second order), and accumulative effects (third order).

Table 1: Environmental Effects and Opportunities Created by ICT
(EITO, 2002)

| First Order Effects | Second Order Effects | Third Order Effects |
|---|---|---|
| Design and Manufacture of ICT equipment<br>- ICT production is relatively lightweight industry<br>- Use of toxic components<br>- New waves of technology are more energy-efficient | Increase and Decrease in use of Transport<br>- E-commerce have significant environmental impacts from the increases in home deliveries<br>- IT employees have less travels, then less pollution<br><br>ICT managed control systems in business can reduce environment impacts | Decoupling economic growth and energy consumption and/or carbon emissions<br>- Possibilities of reducing energy used and/or $CO_2$ per unit GDP |
| Operation of ICT equipment:Save energy use by stand-by mode | Distribution and manipulation of environmental information such as ISO 14000 label/ certification | Changing settlement patterns<br>- Conflicting pressures on local settlement |
| Disposal of ICT equipment - Increase in recycling and reusing | | |

Geographical Information Systems (GIS) and Global Positioning System (GPS) are typical ICT based tools for environmental purposes. A GIS is an automated system that enables the capture, storage, checking, integration, manipulation, analysis, display, and modelling of complex spatial data. It comprises hardware, software, and specified procedures for solving complex planning and management problems and formulating coherent management strategies. A GPS on the other hand, is a space-based radio positioning system that provides 24 hour three-dimensional position, velocity and time information to suitably equipped users anywhere on or near the surface of the planet.

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