# INFORMATION TECHNOLOGY IN SOLVING ENVIRONMENTAL PROBLEMS

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**This scientific paper shows the use of information technology in environmental conservation through the disclosure of concepts of information technology and monitoring, as well as the main environmental problems of the present and some types of information gathering.**

Nowadays there are many environmental issues and all of them are interdependent. That is why there is a question of using not only traditional methods to solve them, but also the widespread introduction of information technology. We live in the digital age, so mechanization, digitization and automation can result in significant increase of the level of efficiency in the fight against environmental problems.

Information technology is the processes that use a set of means and methods for the collection, processing, storage and transmission of data to obtain information of a new quality on the state of the object, process, phenomenon, information product as well as the dissemination of information and the modalities of such processes and methods [1].

Monitoring is a complex involving observation, analysis and evaluation of predictions of changes in the state of the environment that occur as a result of anthropogenic influences.

The purpose of the environmental monitoring system is to provide up-to-date and verified data on the state of the natural environment and objects, including forecasting possible changes in the environmental situation, as well as the development of economic and political solutions based on environmental factors [2].

We are going to focus on these four data collection approaches: sensors, public monitoring, neural network and satellites.

Sensors are devices that convert the physical characteristics of the environment into an electrical signal. There are different sensors depending on the measured parameter: pressure, flow, temperature, concentration, radioactivity, position, vibration sensors and many others. Sensors can be used to monitor the number of endangered species, the content of various elements in the soil, radiation levels etc.

Public monitoring is a form of public control carried out by a subject of public control by systematic or temporary monitoring of compliance with environmental norms and rules. This is usually done in the form of establishment of an additional information channel through data collection, object observation and problem-based attention. To make this information public people can use special sites and applications, for example interactive internet maps. It also helps to achieve one of the sustainable development goals: the involvement of the general public and of each individual member in the solution of global problems.

The neural network is a mathematical model, as well as its software or hardware implementation, built on the principle of the organization and functioning of biological neural. Simulation of systems using artificial neural networks is carried out in three stages: training, evaluation of learning results and use of trained networks. Neural networks are commonly used where conventional algorithmic solutions are ineffective, such as: identification, recording and monitoring of unauthorized landfills, Baikal monitoring, wildlife monitoring (e.g., counting of penguins, which is difficult for satellites to do), poaching surveillance and much more [3].

Throughout the world, the use of satellites to explore the Earth from space is becoming ever-increasing. The most informative of these is the use and thematic analysis of images and multidisciplinary geophysical information obtained from spacecraft. Satellite data play a key role in managing the following issues: meteorological characterization, production of maps of major natural disasters, the abnormal movement of tectonic plates, monitoring of snow cover and snow pollution trends etc.

All the above-mentioned data collection approaches are applied in solving most of the existing environmental problems in different ways, for example by regulating the degree of soil, water and air pollution, carbon dioxide levels in the atmosphere, glacier melting levels, pound levels (to prevent floods).

Man has been a consumer of nature for too long, so it is time to take responsibility for our actions. Modern technologies allow independent monitoring of the state of the environment at various levels. Also, by revealing the data we can avoid covering up crimes. The future is in our hands!

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