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Environmental Engineering

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ABSTRACT

Solving current environmental problems is not only a matter of technical solutions, which until recently were called for either as a reaction to an environmental problem, or as part of a more progressive approach, as a preventive approach. It should be a change in the value orientation of a person, as an individual, but also of society and the whole of humanity. The monograph focuses on the issue of environmental engineering.

The authors of the monograph pay attention to both abiotic and abiotic factors of the environment, as well as sources of energy and substances in nature. They also focus on the natural resource and its acquisition.

Natural resources are currently being used to a large extent to build works that will serve several generations and make it possible to increasingly use alternative and renewable energy sources (building hydro, wind power plants, etc.). The question is whether humanity currently uses and will use in the future the energy and raw material potential of the earth to build sufficient environmentally suitable energy sources for the life of future generations. This means a process that includes not only the transition from the production of energy from fossil sources to renewable sources, but also the transition to less energy-intensive technologies and to products that need less energy for their operation. The problem from the point of view of the future does not appear to be a lack of energy, but the fact that with the growth of energy production, not only production but also environmental pollution grows.

The environment represents the interactions of three natural spheres, namely the atmosphere, the hydrosphere and the pedosphere, as well as the mutual connection with the biosphere. The authors of the monograph focus their attention precisely on this area. They are presenting the results of their long-term scientific and research activities in these areas.

The worldwide problem of surface water pollution is eutrophication, which means the excessive growth of plants and algae in waters with a high content of nutrients, especially nitrogen and phosphorus. In this area, original technical solutions designed by the authors of the monograph are presented, which are protected by domestic and foreign patents granted in the USA, Canada and Japan.

For several years, the authors of the monograph have focused on research, prediction and prevention of the spread of emissions and immissions of noise, vibrations, non-ionizing radiation, lighting and solid aerosols in the working and living environment. Attention is also focused on the development of methodologies, techniques and technical solutions for minimizing these emissions and immissions. The monograph presents selected results of scientific and research work in this area.

Also interesting are the results of scientific and research work aimed at researching heavy metals present in soils. The results are confronted with research carried out about 10 years ago in an identical location. The presence of heavy metals represents a serious environmental burden in many countries of the world.

The monograph also addresses issues of the impact of engineering production on the environment, and specifically the authors focus on research into environmental and economic factors of production and evaluation of engineering products in the conceptual phase.

KEYWORDS

Environmental Science, Environmental engineering, Soil, Water, Air, Natural Resources, Energy Sources, Emissions, Immissions.