



## Editorial

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### **50 Issues of the Journal Since 1995**

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The journal “Environmental Research, Engineering and Management” was initiated by the Institute of Environmental Engineering (APINI) and was established in 1995 by Kaunas University of Technology, Vytautas Magnus University, Lithuanian Agricultural University, Klaipėda University, Vilnius University, Lithuanian Energy Institute and Engineering Ecology Association, Lithuanian Confederation of Industrialists.

The journal “Environmental Research, Engineering and Management” is designed to serve as a roadmap for understanding the issues and debates in the overlapping fields of environment and development. Tremendous strides have been made in the past fifteen years in elevating the issues of the environment and sustainable development in public and governmental consciousness, in research and developing institutions for addressing these issues, and in implementing practices and policy options.

It is recognized that industry’s support for environmental protection is crucial. This means consulting business in the drafting of new legislation, co-financing research initiatives, and offering incentives to companies which improve their environmental performance. Companies themselves are realizing that adopting a cleaner production strategy makes sense in both cutting costs, and promoting a better image and winning customers and clients. Environmental care should be as important to business as customer satisfaction, and the growing move towards corporate social responsibility both in Europe and globally is forcing companies to examine their green as well as their social credentials.

The global economy is nearly five times the size it was fifty years ago. This unprecedented level of growth places huge demands on limited resources and has degraded an estimated 60% of global ecosystems. Business cannot continue as usual, and while the current crisis is uncomfortable, it could provide a unique opportunity to jointly address financial and ecological sustainability.

At the same time, the European Union policy on the environment is based on the precautionary principle. This means that in cases where scientific uncertainty exists, but a preliminary scientific evaluation gives reasonable grounds for concern about potential adverse effects on the environment or health, even if the risk is not proven, the action to avert it should be considered. Therefore, responsibility of researchers and their initiatives for environmental protection is crucial.

Natural resources are not inexhaustible and careful management only can go on benefiting from these resources without destroying future supplies. It means reducing consumption of the resources that are running out, and finding other ways of maintaining and improving living standards through new policies, technologies, methods and innovations. Forests, rivers and soils are all natural resources that need special attention and research. Water is a crucial resource for all forms of life, too.

The Journal meets these challenges in many ways. First, it provides advanced original papers on specific environmental and sustainability issues, such as air and water pollution, impact on environmental and human health assessment, sustainable production and consumption, life cycle management. All issues, covering sustainable development are presented in the Journal in a fully balanced way (see Fig. 1). When considering the goal of ecologically sustainable development, the most striking difference between the ecosystem and industrial system operation is the energy flow. Industrial systems rely on non-renewable fossil energy whose use creates emissions that nature cannot assimilate.

The Journal also reflects “decoupling” – the delinking of economic growth and environmental impact. It always stresses that we clearly differentiate between relative decoupling and absolute decoupling, because relative decoupling shows the rate of environmental impact in relation to the economic growth by promoting efficiency, whereas absolute decoupling breaks the link entirely by actually reducing the impact. In this context small and medium enterprises (SMEs) have more flexibility than multinational and can easily change to meet important environmental and social targets.

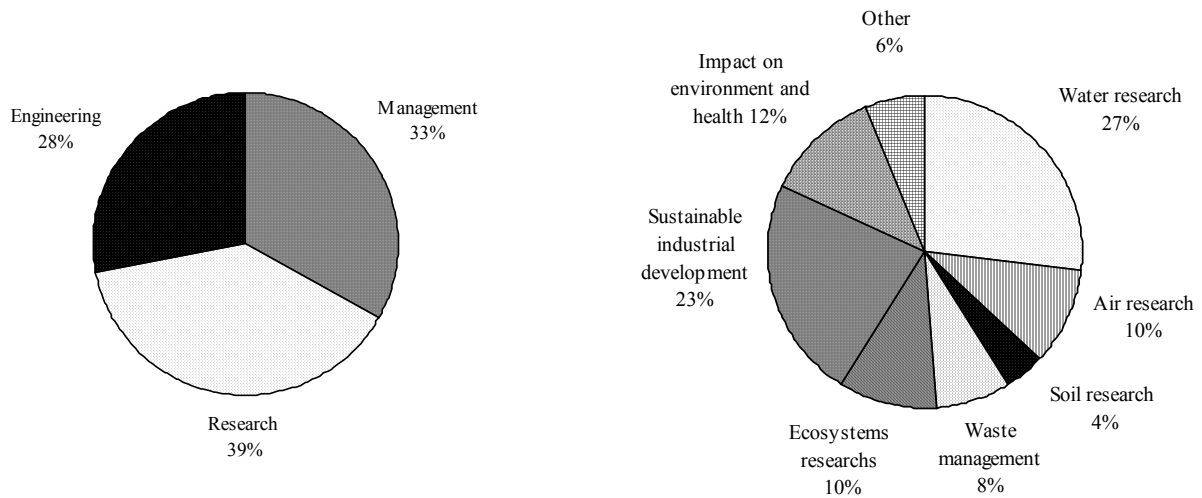


Fig. 1. Distribution of sustainable development topics reflected in the Journal papers during the last fifteen years

Therefore, for energy production and consumption, the overall goal and the vision for industrial activity is to reduce the use of non-renewable fossil coal, oil and gas in industrial production and in societal consumption, and the emissions that this use generates. The descriptive and prescriptive models, based mainly on the computer “mass balancing” modeling technique, are presented as an important tool in the Journal. Mass balancing, which builds on the input-output models, accounts for the materials and energy that enter and leave the system, keeping in mind storage and chemical transformations. If it is known exactly what enters the systems, then, theoretically, even the substances that are the hardest to measure can be explained.

It is recognized that environmental performance does not depend solely on technology but also on the management of the production. At the same time, the environmental management system is mainly concentrating on intra-organizational environmental management. The Journal is now focusing on regions or local network systems, such as those advocated in industrial symbiosis, which provide a fruitful context to expand on the environmental management system and to bridge the engineering and natural sciences oriented tools of industrial ecology to business.

The increasing inter-linkage between the physico-ecological and socio-economic sectors of society has placed a variety of pressures upon decision makers concerned with government, administration and the economy. The role of decision making in the context of environmental control systems is, on the basis of the best available information and theory, to make a disposition of resources between the policy instruments and the other system variables in a way that control policy objectives are achieved as closely as possible within cost, probability or other constraints. In many cases it is essential to construct a model of the real-world system and, on the basis of both this model and the existing information system, to generate forecasts of the future system behaviour. From these forecasts it is then possible to anticipate future system deviations before they occur. This PREVENTION of feed-forward control is of the greatest utility in systems with long lag, reaction and relaxation times, and where there are significant delays in the provision of information on the system behaviour and performance. To allow forecasts without a modeling system, the decision making process can act only as a feedback control system which is capable of counteracting deviations from the target only AFTER they have occurred.

Next, the scope of topics, the number of papers generally and in English particularly, geography of authors have been constantly expanding (see Fig.2). The main flow of papers is still coming from Lithuania, but the number of foreign publications is increasing. During the fifteen years period there were accepted and published papers from Lithuania (389), USA (14.1), Russia (10.5), Sweden (6.9), Germany (6), Greece (5), Estonia (4.3), UK (3.2), Denmark (3), Poland (3), Switzerland (2.5), Finland (2.4), France (2.3), Latvia (2.3), Italy (2), Belarus (2), Norway (1.4), Belgium (1.3), Ukraine (1.1), Portugal (1), Canada (1), Australia (1), Berlin (1), Turkey (1), Netherlands (0.5), Hungary (0.5) and Austria (0.5).

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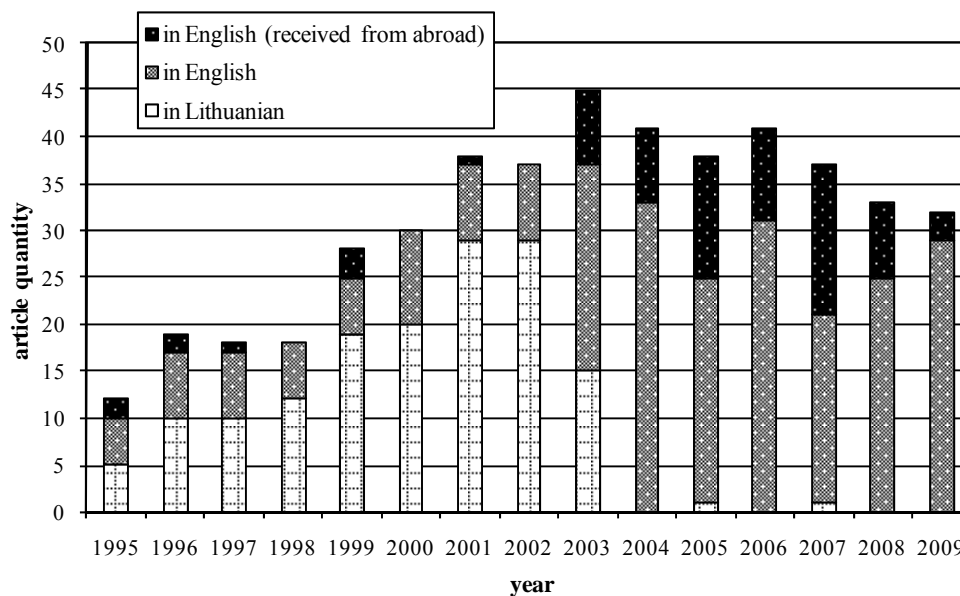


Fig. 2. Dynamics of published papers in Lithuanian and English languages and papers from abroad in the period of 1995-2009

Finally, the Editorial board has been organizing round table discussions and workshops together with business, government and academics on key environmental problems locally and globally. Discussion results and recommendations were reflected in the Journal. This activity has increased the awareness and importance of the Journal among different research institutions in Lithuania and created a platform for presentation and discussion different sustainable development aspects. During the fifteen years period the Journal has published papers from Institute of Environmental Engineering (96.8), Kaunas University of Technology (61.4), Vytautas Magnus University (46.2), Lithuanian University of Agriculture (31.7), Lithuanian Energy Institute (27.6), Vilnius University (25.1), Klaipėda University (20.8), Institute of Chemistry (13.4), Šiauliai University (9), Vilnius Gediminas Technical University (5.9), Institute of Geology and Geography (5.1), Centre of Marine Research (3.7), Institute of Mathematics and Informatics (2.8), Ministry of Environment (2.5), Water Management Institute (2), Engineering Ecology Association (2), Lithuanian Textile Institute (2), Lithuania veterinary academy (2), Institute of Physics (1.9), Lithuanian Forest Research Institute (1.8), Kaunas University of Medicine (1.7), Institute of Architecture and Construction (1), Mykolas Riomeris University (1), other organizations (88.4).

I am indebted to many people who have contributed to the content of this Journal. First of all, I want to thank all the members of the Editorial board and reviewers who did a great job in organization of this challenging Journal. We all appreciate the permanent encouragement of His Excellency the President of the Republic of Lithuania dr. Valdas Adamkus. We also value the support of the technical staff.

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