

From the Guest editors

Sustainable development is often defined as such “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. Assessing the sustainability of human activities is a difficult task, since the ability of future generations depend on many different factors, like resources, environment, economic, and social relations, as well as their interaction. A failure in one area would probably bring a failure in another and derailing humanity from its goal of achieving sustainable development.

The task for science is to bring technological development that would enable sustainability of the use of necessary resources, of protecting environment, as well as enabling balanced economic and social progress. A difficult part of that task is to gauge this technological development on global, regional, national, and local scale, by measuring and monitoring sustainability of various human activities.

The aim of the series of Dubrovnik Conferences on Sustainable Development of Energy, Water and Environment Systems is to give deep insight into issues of measuring and monitoring sustainability of old and new technologies applied in those systems, as well as developing ways of increasing sustainability, by showing ways to optimised use of resources and environment, while allowing for economic progress and socially balanced development.

The Second Conference, held in Dubrovnik June 15-20, 2003, focused on the following objectives:

- to promote a new field of sustainability science that seeks to understand the fundamental character of interactions between nature and society,
- to discuss sustainability concept of energy, water, and environment systems and its relation to the global development,
- to analyze potential scientific and technological processes reflecting energy, water, and environment exchange,
- to present energy, water, and environment system models and their evaluation, and
- to present multi criteria assessment of energy, water, and environment systems taking into a consideration environmental, economic, social, and resource-use aspects.

The Third Conference, held in Dubrovnik June 5-10, 2005, focused on the following objectives:

- development of new methods for the analysis and evaluation of energy, water, and environment systems (such as emergy and exergy analysis, life cycle assessment, ecological footprint, MIPS, *etc.*),
- analysis of potential scientific and technological processes addressing the interactions between energy, water, and environment,

- promotion of a new field of sustainability science that seeks to understand the fundamental character of interactions between energy, water, and environment systems and society,
- development of inter-disciplinary partnerships bringing together leading experts in physical, life, and environmental sciences, engineering, economics, and social sciences and informatics,
- development of models of energy, water, and environmental systems, and their evaluation,
- development of energy, water, and environmental system models based on ecological economics, and
- enhancement of methodologies for assessing the comparative sustainability of different energy, water, and environment systems options, taking into account economics, environmental resource use, and social validation.

This Special issue of the journal *Thermal Science*, dedicated to highlighting issues important to regional sustainable development of South Eastern Europe, is bringing forward a selection of papers presented at those two Conferences. Guest editors would like to use this opportunity express our high appreciation to the authors and reviewers for their assistance in preparing this issue. In particular, we would like to mention that Prof. Simeon Oka, the editor-in-chief of the journal *Thermal Science*, has played substantial role in the preparation of this issue.

Guest editors of this Special issue

Neven Duić

Professor, University of Zagreb, Croatia

Naim Afgan

Professor, Instituto Superior Técnico, Lisbon, Portugal

Željko Bogdan

Professor, University of Zagreb, Croatia

Zvonimir Guzović

Professor, University of Zagreb, Croatia