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## Introduction

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**Biographical notes:** Jarmo Vehmas holds a PhD in Administrative Science and a BSc in Power Engineering. He works as a Regional Manager at Finland Futures Research Centre. He has coordinated EU FP7 project synergies in multi-scale inter-linkages of eco-social systems (SMILE), EU FP6 project development and comparison of sustainability indicators (DECOIN) and several other international and national research projects dealing with sustainable development and industrial ecology. He is an Adjunct Professor (Docent) of Environmental Policy in University of Helsinki, Finland.

Hanna Lakkala holds a degree of Master of Science in Physical Geography/Earth Science from Umeå University, Sweden. She has worked at Finland Futures Research Centre as a Project Researcher. Her research covers poverty-environment nexus and energy-environment-livelihoods linkages with a focus on the Mekong region in Southeast Asia.

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Finland Futures Research Centre (FFRC) is one of the seven special units in University of Turku, Finland. The 13th International FFRC Conference was held in Tampere, Finland on June 9–10, 2011 under a title ‘Trends and future of sustainable development’. The conference brought together 168 participants from 16 countries. This *PIE* special issue is based on a selection of papers with relevance in the field of industrial ecology presented in the thematic workshops of the conference.

Sustainable development has gained popularity as a policy goal as well as a general framework for scientific research during a period of almost 30 years after the WCED report ‘our common future’ was published in 1987. Sustainable development, especially its environmental dimension, can be considered as a generic framework and goal for industrial ecology as well. The papers selected in this special issue cover topics such as sustainable development indicators, energy technology development, integrated water resource management (IWRM), and carbon sequestration in urban ecosystems.

The first paper by Janne Rinne, Jari Lyytimäki and Petrus Kautto, focuses on the use of sustainable development indicators. Based on literature and interviews, the authors discuss the barriers of use and the possibilities to generate wider impacts on society. The second paper by Sanford Gaines urges the application of sustainable development principles to guide a revolution in energy technologies. The third paper by Sari Jusi analyses and discusses the IWRM processes and discusses the sustainability and problems of IWRM implementation in Lao PDR. In the fourth paper, Tianlin Zhang and Markku Kuitunen discuss the natural process of carbon sequestration from the

atmosphere into urban ecosystems, and present empirical results based on a field work undertaken in Shenyang, China.

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