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Introduction to information systems and decision technologies for sustainable development minitrack

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Introduction to Information Systems and Decision Technologies for Sustainable Development Minitrack

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The final report of the World Commission on the Environment and Development, also known as the Brundtland Report, defines sustainable development as "development that meets the needs of the present with¬out compromising the ability of future generations to meet their own needs". Subsequent international efforts such as the Rio de Janeiro Conference in 1992, the publication of Agenda 21, the Rio+5 special session of the United Nations (UN) in 1997, and the formation of the World Business Council for Sustainable Development in 1997 can be credited with raising environmental concerns to increase public awareness, serving as an initial focus and impetus for collaboration as well as conflict between government, industry, and academia. The Johannesburg "Plan of Implementation", revealed at the Earth Summit 2002, affirmed commitment by the UN to fully implement Agenda 21. Environmental management systems standards (EMSS) such as ISO 14001 and the European Eco-management and Audit System (EMAS) provide a sound practical basis for environmental management within organizations.

Information systems (IS) support both immediate action and sustainable long-term strategies, helping to address the urgency and scope of environmental problems. This mini-track emphasizes the significant research synergies that exist between IS and environmental management for sustainable development from an organizational as well as a technical perspective. Collaboration and cross-fertilization between these domains can be mutually beneficial and may in fact present unique, timely and socially relevant 'real-world' research opportunities as well as viable public sources of empirical ecological information for interdisciplinary research and application. The mini-track accommodates both research articles and practitioner reports exploring technical and organizational issues that pertain to the development, implementation, and deployment of IS and decision technologies in sustainable development.

This year's conference has attracted contributions along two broad themes. The first theme centers around IT in organization in the context of environmental sustainability. In that regard, Wati and Koo investigate factors affecting the adoption of Green IT practices. The proposed model resembles the heavily researched technology acceptance model reported in the information systems literature. However, the model emphasizes motivational factors particularly relevant to environmental sustainability such as eco-technological knowledge and perceived altruism. The model and associated findings are significant steps towards under-standing and promoting the adoption of Green IT practices. From an accountability perspective, Freundlieb and Teuteberg propose a framework for evaluating web based sustainability reports. The framework highlights the need for additional quality metrics that are stake-holder-driven. The paper emphasizes the continued prominence of the role of IS in facilitating environmental reporting and how such role can be enhanced through research. Another role of IT in supporting sustainable business practices. Along these lines, Lindgren and Holgersson explore the design of information infrastructures for supporting environmentally sustainable. Their paper documents the results of their design experiences from a ten year project with the trucking industry in Sweden. The paper describes unique considerations with a particular emphasis on the social-technical aspects for designing large scale, multi-organization systems that support and promote environmentally sustainable business practices.

The second theme centers on the application of decision and information technologies in environmental management. In that regard, Reynolds et al. demonstrate the use of a spatial decision support system for assessing the impact of atmospheric sulfur on aquatic ecosystems. Integral to the system is a logic-based model for interpreting impact on the ecosystem. While Le, Cheong, and Choeng demonstrate the utility of a decision support system for improving the sustainability of aquaculture operations, Hepting, Maciag, and Hill propose a web-based system for supporting crop selections, and Lin, Sedigh and Hurson demonstrate the use of ontologies to facilitate automated reasoning in the context of intelligent decision support for water distribution networks. Last but not least, Hsiao et al. proposes a Data Envelopment Analysis approach to improve emission trading mechanisms in a manner that address environmental and economic needs. Collectively, these application-oriented research contributions emphasize the diversity and innovative use of decision and information technologies supporting environmentally sustainable practices.

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