

## Preface

There is an increasing global need for implementation science that questions the mechanism of knowledge and technology implementation for the various fields of systems science. This special issue “New Paradigm for Systems Science: Survivability, Vitality and Conviviality in Society” is composed of selected papers in “The International Conference on Vitae Systems — New Paradigm for Systems Science: Survivability, Vitality and Conviviality in Society”, December 1-2, 2007, Kyoto, which focused on the implementation issues in disaster reduction, community vitalization and conflict resolutions. Papers in this special issue aim at mutually exchanging academic and practical findings obtained from the areas of studies and contributing to the expansion of the frontiers of academic knowledge in implementation science.

The vitae system model is proposed as a new conceptual framework for Integrated Disaster Risk Management (IDRiM). The model provides a holistic view of cities, regions and communities under different opportunities and threats such as disaster risks. The three fundamental functions of the vitae system are to stay alive (survivability), to live lively (vitality), and to live together (conviviality and communication). The importance of the three functions is now widely recognized as the key elements to examine society when we investigate implementation mechanisms of disaster risk reductions, regional vitalizations and conflict resolutions. This special issue investigates the frontiers of academic knowledge in implementation science.

Readers will find the collection of papers extremely diverse and rich in focus and approach. If we try to categorize the seven papers, the following four papers straightforwardly discuss the concept and framework of “Implementation Science”, “Vitae System” and “IDRiM”; **Okada** proposes the Vitae System Perspective for “Implementation Science”, where he links three research frontiers, i.e. IDRiM, CRREM (Conflict Resolution in Resources and Environment Management), and Kasology (sustainable rural development). **Hipel, Kilgour and Fang** bring a new perspective of system science demonstrating how systems tools can implement a Vitae System of systems philosophy using different techniques in the context of complex large-scale environmental and water resources management problems. **Shi, Xu, Ye, He, Wang and Li** review discussions on a disaster reduction implementation science system, and propose the framework of disaster risk science where its structure, function, and dynamic system are explored. Finally, **Misra and Okada** focus on the breakthrough in implementation, where they advocate several shifts: “from ‘technology principle’ to ‘life principle’” and “from a conventional ‘prescriptive style’ to an innovative ‘proactive style’”.

With profound implication in comprehensive governance issues, the other three papers focus on the communication process; **Hatori, Kobayashi and Jeong** formulate a game-theoretic model to investigate the communication and trust formation process between an individual and policy maker. **Takeuchi, Wei, Kajitani and Okada** investigate the trust formation process in risk communication, and propose a new methodology named “communicative survey”, which has proved to be effective in a case study. **Takagi** develops the integrated evaluation indicator which checks a community’s evacuation status, and proposes a measure that helps to improve local residents’ disaster awareness and preparedness.

It is our sincere hope that this special issue will provide a fresh intellectual input for readers in different countries and regions with a variety of cultural and socio-economic settings, thus generating a prospective dynamism in the new academic field of Systems Science.

Muneta Yokomatsu and Hirokazu Tatano  
Disaster Prevention Research Institute, Kyoto University

\*According to editing situations, three papers, **Misra and Okada, Takeuchi, Wei, Kajitani and Okada,** and **Takagi** will appear sequentially on this website in the following months.