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## Information Technology in Disaster Risk Reduction

Yuko Murayama, Dimiter Velev, Plamena Zlateva

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IFIP was founded in 1960 under the auspices of UNESCO, following the first World Computer Congress held in Paris the previous year. A federation for societies working in information processing, IFIP's aim is two-fold: to support information processing in the countries of its members and to encourage technology transfer to developing nations. As its mission statement clearly states:

*IFIP is the global non-profit federation of societies of ICT professionals that aims at achieving a worldwide professional and socially responsible development and application of information and communication technologies.*

IFIP is a non-profit-making organization, run almost solely by 2500 volunteers. It operates through a number of technical committees and working groups, which organize events and publications. IFIP's events range from large international open conferences to working conferences and local seminars.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is generally smaller and occasionally by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is also rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

IFIP distinguishes three types of institutional membership: Country Representative Members, Members at Large, and Associate Members. The type of organization that can apply for membership is a wide variety and includes national or international societies of individual computer scientists/ICT professionals, associations or federations of such societies, government institutions/government related organizations, national or international research institutes or consortia, universities, academies of sciences, companies, national or international associations or federations of companies.

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Yuko Murayama · Dimiter Velez ·  
Plamena Zlateva (Eds.)

# Information Technology in Disaster Risk Reduction

4th IFIP TC 5 DCITDRR International Conference, ITDRR 2019  
Kyiv, Ukraine, October 9–10, 2019  
Revised Selected Papers

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# Preface

The effects of disasters are very serious and it may take a very long time to recover from the destruction caused. Related damage can be severe and offering relief may lead to expenses in the billions of euros. There has been an increase in natural disasters that has occurred in the past years and it is expected that their frequency will continue in the coming years.

Due to the multidisciplinary nature of work in the field of disaster risk reduction, people from various backgrounds will be included in this field of research and activity. Their backgrounds are likely to include industry, diverse geographical and global settings, not-for-profit organizations, agriculture, marine life, welfare, risk management, safety engineering, and social networking services.

At present, at global and national levels, a wide range of scientific and applied research activity is conducted in the area of disaster risk reduction concerning individual types of disasters. Modern information and communication technologies (ICT) can facilitate significantly the decision-making processes from the point of view of disaster risk reduction.

Following the increasing number of disasters worldwide and the growing potential of both ICT and ICT expertise, at its General Assembly held during October 8–9, 2015, at the Daejeon Convention Center, South Korea, IFIP established the Domain Committee on Information Technology in Disaster Risk Reduction in order to:

- Promote disaster risk reduction within the ICT community
- Provide an additional opportunity for IFIP members to work with other specialized bodies such as the UN, UNISDR, ICSU, ITU, and ISCRAM
- Coordinate the efforts of member societies as well as different Technical Committees and Working Groups of IFIP in the disaster-related field

The disaster support offered by the Domain Committee is based on the following major pillars:

- Information acquisition and provision
- Shelter information management for local governments
- Disaster Information Systems
- State-of-the-art ICT (such as the Internet of Things, Mobile Computing, Big Data, and Cloud Computing)

IFIP's Domain Committee on Information Technology in Disaster Risk Reduction organized the 4th IFIP Conference on Information Technology in Disaster Risk Reduction (ITDRR 2019), held during October 9–10, 2019, at the Kyiv National University of Culture and Arts, Ukraine.

ITDRR 2019 provided an international forum for researchers and practitioners to present their latest R&D findings and innovations. The conference was focused on various ICT aspects and the challenges of disaster risk reduction. The main topics

included areas such as Natural Disasters, Big Data, Cloud Computing, Internet of Things, Mobile Computing, Emergency Management, Disaster Information Processing, and Disaster Risk Assessment and Management.

ITDRR 2019 invited experts, researchers, academics, and all others who were interested to disseminate their work and attend the conference. The conference established an academic environment that fostered the dialogue and exchange of ideas among different levels of academic, research, business, and public communities.

The Program Committee received 53 paper submissions, out of which 19 research papers were successfully accepted. We are grateful to the members of the Program Committee and to paper reviewers for their dedication in helping produce this volume.

April 2020

Yuko Murayama  
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# Contents

Issues in the Use of the Recovery Watcher for Situation Awareness in Disaster and Inclusive Communications . . . . .	1
<i>Yuko Murayama and Kayoko Yamamoto</i>	
Information Technology Reengineering of the Electricity Generation System in Post-disaster Recovery . . . . .	9
<i>Igor Grebennik, Ata Ovezgeldyyev, Yevhen Hubarenko, and Maryna Hubarenko</i>	
Information Technologies for Assessing the Impact of Climate Change and Natural Disasters in Socio-Economic Systems. . . . .	21
<i>Igor Grebennik, Valerii Semenets, and Yevhen Hubarenko</i>	
Problems of Cultural Heritage Preservation in the Context of the Armed Conflict Growth . . . . .	31
<i>Yuliia Trach, Maryna Tolmach, Olena Chaikovska, and Tetiana Gumeniuk</i>	
Proposal of Evacuation Support System and Evaluation by Multi-agent Simulation in a Regional Disaster . . . . .	45
<i>Makoto Kitsuya and Jun Sasaki</i>	
Environmental Monitoring and Population Protection from Environmental Factors . . . . .	55
<i>Tetiana Kovaliuk, Nataliya Kobets, Dmytro Ivashchenko, and Valerii Kushnarov</i>	
Ecological Internet Resource as a Tool for Information Control of the Harmful Effects of Environmental Pollution . . . . .	67
<i>Tetiana Kovaliuk, Nataliya Kobets, Olena Chaikovska, and Dmytro Ivashchenko</i>	
Building Resilient Community by Public Private Partnership – From Science to Action in Developing Countries. . . . .	78
<i>Wei-Sen Li, Yanling Lee, Yi-Chung Liu, Ke-Hui Chen, and Chi-Ling Chang</i>	
Building Resilient Community Through Plant Back Better Initiative – Guiding Principles and Best Practices . . . . .	85
<i>Yanling Lee, Wei-Sen Li, Yi-Ching Liu, Ke-Hui Chen, Chi-Ling Chang, and Kenji Watanabe</i>	

**An Earth Coordinate System for Earthquake Forecasting Using SLHGN . . . . .** 107  
*Benny Benyamin Nasution, Rahmat Widia Sembiring,  
Muhammad Syahrudin, Nursiah Mustari, Abdul Rahman Dalimunthe,  
Nisfan Bahri, Berta br Ginting, and Zulkifli Lubis*

**ImpactMap: A Collaborative Environment to Support Impact Projection  
of Complex Decision. . . . .** 119  
*Juliana Baptista dos Santos França, André Viana Tardelli,  
Raffael Siqueira de Souza, Angélica Fonseca da Silva Dias,  
and Marcos Roberto da Silva Borges*

**Ad-Hoc Architecture of Systems for Disaster Risk Management . . . . .** 135  
*Oleksii Kovalenko and Dimiter Velev*

**Conceptual Model of Debris Flow Information System . . . . .** 146  
*Valentina Nikolova, Plamena Zlateva, Boyko Berov,  
Asparuh Kamburov, and Dimiter Velev*

**Towards an Indoor Navigation Application for Emergency Evacuations  
and Persons with Visual Impairments – Experiences from First Responders  
and End Users . . . . .** 159  
*G. Anthony Giannoumis, Terje Gjørseter, and Cristina Paupini*

**Cyber Crisis Management Roles – A Municipality Responsibility  
Case Study. . . . .** 168  
*Grethe Østby and Basel Katt*

**Mathematical Model of Management of the Integral Risk of Emergency  
Situation on the Example of Fires . . . . .** 182  
*S. Kravtsov, O. Sobol, V. Komyak, O. Danilin, and O. Al'boschiy*

**3D Simulation to Validate Autonomous Intervention Systems Architecture  
for Disaster Management . . . . .** 196  
*Tullio Tanzi and Matteo Bertolino*

**Classification of Social Media Messages Posted at the Time of Disaster. . . . .** 212  
*Kemachart Kemavuthanon and Osamu Uchida*

**Workshop Program on Disaster Prevention and Mitigation for Young  
Generation Utilizing Disaster Information Tweeting and Mapping System . . . . .** 227  
*Osamu Uchida, Sachi Tajima, Yoshitaka Kajita, Keisuke Utsu,  
Yuji Murakami, and Sanetoshi Yamada*

**Author Index . . . . .** 237