Flood Risk Management

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Flood Risk Management: Hazards, Vulnerability and Mitigation Measures

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PREFACE

After a series of disastrous flood events during the recent years flood risks are in the forefront of public concerns. World-wide statistics indicate continuously increasing flood damages, and losses of human lives remain at unacceptably high levels. Many of these concerns have manifested themselves during recent extreme floods in Central Europe, like in the Vltava-Elbe river basin in August 2002 with catastrophic damages in the Czech Republic (2 billion EURO) and in Germany (9 billion EURO). In science and among professionals, there is a growing recognition that inundations by extreme floods cannot be totally avoided and maybe their occurrence will increase due to climate change. Accordingly, the previous paradigm of flood protection has to change to a societal flood risk management. This paradigm shift especially requires more comprehensive and continuous approaches considering all natural and societal factors of flood risks. Research and practice on flood risk management therefore depends on an enhanced collaboration of professionals in different fields, administrative sectors and regions or countries.

Against this background, the NATO Advanced Research Workshop (ARW) on 'Flood Risk Management – Hazard, Vulnerability and Mitigation Measures' aimed at discussing and advancing the understanding of an integrated and sustainable flood risk management. Therefore, it referred to the main risk factors and their theoretical and methodological investigations, like weather forecasting, climate change, flood propagation modelling, vulnerability assessment, design of risk reduction measures as well as the development of management strategies and instruments. In addition, it reflected practical experience from recent floods in Central Europe and elsewhere, considering both long-term as well as flood event measures, like flood warning, evacuation, etc. In this process, interdisciplinary and transboundary co-operation issues played an important role.

The workshop was held in Ostrov (near Decin), Czech Republic, close to the Czech-German border, from September 29th to October 3rd, 2004. Forty-three participants with backgrounds in natural sciences, social sciences, engineering and practical flood risk management represented 14 countries. The workshop covered sessions on 'flood hazard modelling', 'flood forecasting', 'modelling of vulnerability', 'flood risk mitigation' and 'historical floods and transboundary issues'. The proceedings provide the full texts of most of the formal oral presentations, and furthermore present the final conclusions of the ARW, which were announced during a reception by The Mayor of the City of Dresden.

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Dresden, Germany	Prague, Czech Republic	Burlington, Canada

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The Advanced Research Workshop (ARW) on 'Flood Risk Management – Hazards, Vulnerability and Mitigation Measures' was directed by Jochen Schanze, Leibniz Institute of Ecological and Regional Development (IOER) as Member of the Dresden Flood Research Center (D-FRC), Dresden, Germany, and Evzen Zeman, DHI Hydroinform a.s., Prague, Czech Republic. Both were assisted by Jiri Marsalek, National Water Research Institute (NWRI), Environment Canada, Burlington, Canada, as member of the organising committee.

The ARW was sponsored by an award of NATO under the Programme Environmental and Earth Science & Technology. The co-directors and members of the organizing committee especially thank Dr. Alain H. Jubier and Dr. Deniz Beten for their personal assistance in preparing the workshop and the proceedings.

The institutes of the co-directors provided additional financial and staff resources. The local organisation of the workshop was predominantly provided by DHI Hydroinform a.s. headed by Evzen Zeman with extensive contributions from Pavlina Nesvadbova and other staff. The typescript of the proceedings was prepared by Jochen Schanze supported by Alfred Olfert, Katrin Vogel and Margitta Wahl at the Leibniz Institute of Ecological and Regional Development (IOER).

The co-directors thank all participants for their presentations at the workshop and their papers contributed to this book. The exchange of various scientific perspectives and experiences from different regions of the world made the workshop particularly fruitful in terms of the future improvement of flood prevention by the civil societies.