

An Interdisciplinary Response to Mine Water Challenges:

A Foreword to the Proceedings of the 12th IMWA Congress

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The great thinker Confucius said, “How happy we are to meet friends from afar!” It is our pleasure to warmly welcome you—scientists, researchers, engineers, regulators, and managers on mine water science and technology from all over the world—to the 12th International Mine Water Association (IMWA) Congress 2014 in Xuzhou, China. This is the first time that the IMWA has hosted its conference in Asia since it was founded in 1979.

First of all, we would like to thank the IMWA for giving China University of Mining and Technology (CUMT) the opportunity to organize the 12th IMWA Congress 2014. During the IMWA conference in Pretoria, South Africa, on October 19–23, 2009, CUMT expressed its willingness to organize a future IMWA conference in China. On February 24 to 27, 2011, the IMWA Secretary General, Professor Christian Wolkersdorfer (云村 in Chinese), visited CUMT, Xuzhou, and the Qianyingzi Coalmine of Wanbei Coal-Electricity Group to investigate the potential conference venues, accommodations, mid-excursions, and so on. After that, Professor Wolkersdorfer, representing IMWA, and Professor Xuefeng Song, vice-president of CUMT, signed a memorandum: IMWA entrusted CUMT with hosting the 12th IMWA Congress in Xuzhou. Constructive comments and invaluable help from President Dr. Adrian Brown of IMWA, Vice-President Dr. Robert Kleinmann, Councillor Dr. John Waterhouse, and many other colleagues from around the globe encouraged us as we prepared the 2014 Congress. Dr. Robert Kleinmann (萧男) and Dr. Wangfan Zhou visited Xuzhou in the winter of 2013 and gave the organizing committee invaluable guidance and directions for IMWA 2014.

In order to host a qualified Congress and inform international colleagues more fully about the efforts of Chinese experts and engineers in the area of mine water, on June 30, 2013, CUMT and China’s Chapter of IMWA organized a technical forum on mine water in Xuzhou to discuss the topics for IMWA 2014. About 40 experts from universities, research institutes, mining groups, and government attended the forum and discussed issues related to mine water, such as groundwater inrush, environmental pollution, and mine closures. The participants recognized that the mine water issue is not a one-dimensional problem, but has multiple facets in technology, the environment, society, economics, and ecology. Therefore, the solutions for these problems need interdisciplinary efforts. An interdisciplinary response can promote the understanding of the nature and extent of issues on mine water safety and the environment and can increase the knowledge needed to make comprehensive decisions. Actually, almost any mine water problem is an interdisciplinary problem. For instance, the prediction and control of groundwater inrush need the knowledge and techniques of geology,

hydrogeology, hydrochemistry, geophysics, mining, geotechnical engineering, drilling, grouting, and so on. Fortunately, the IMWA provides a greater platform for interdisciplinary experts in the areas that range from science (e.g., geochemistry, hydrogeology, microbiology, geophysics) to engineering (e.g., mining and geotechnical engineering) who can work together to face the mine water challenges. The theme of the 12th Congress is “an interdisciplinary response to mine water challenges,” which consists of the subthemes of hydrogeology, hydrogeochemistry, geophysics, and geoinformatics; legal, social, and educational aspects; interdisciplinary responses to water environmental challenges; mine water hazards, resources utilization and management; mine closures; and related water problems in oil and gas development. During the 2014 IMWA Congress, China’s Chapter of the IMWA will host its second technical forum on mine water, “Mine Inundation and Salvage: China's Experiences and Lessons.”

The themes of the 2014 IMWA Congress have attracted interest from more than 20 countries and more than 230 abstracts were submitted to the Congress Secretariat. After peer review, 140 full papers and 25 abstracts were selected for publication in the proceedings. We would like to thank the reviewers for their hard work on the abstracts and full papers. The editorial assistance of Juncheng Pan of CUMT Press and of 12 PhD and graduate students is also appreciated. The committee members, reviewers, and editorial assistants are listed in this volume. Without their help and support we would not have been able to organize the Congress.

Last but not the least, we would like to thank the co-organizers of the Congress: Xuzhou Municipal Government, Wanbei Coal-Electricity Group Co., LTD, Hydrogeology Bureau of China National Administration of Coal Geology, Xi'an Research Institute, CCTEG (China Coal Technology and Engineering Group), and many other sponsors, supporters from different universities, institutes, and mining groups for their kind help. The financial support from 973 Program under Grant No. 2013CB227900 A Project Funded by the PAPD of Jiangsu Higher Education Institutions is also appreciated.

Complex challenges in the field of mine water need creative solutions and interdisciplinary “problem-solving.” Let us work together and do our best to contribute to mine safety and the environment. We look forward to meeting you in Xuzhou, and to sharing your experiences, knowledge, and lessons and to discussing interdisciplinary approaches to managing interdisciplinary knowledge, research, and education with colleagues of mine water community from all over the world.