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Chapter 1- Introduction to Water and Food Conference Proceedings

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INTRODUCTION

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The Future of Water for Food conference in 2009 brought together experts from around the world to discuss the issues and challenges surrounding the use of water for agriculture and to explore the need for an organization with a global perspective and diverse expertise to address these challenges. Building on the enthusiasm of that conference and a generous $50 million gift from the Robert B. Daugherty Charitable Foundation, in 2010 the University of Nebraska established the global Water for Food Institute, a research, education and policy analysis institute dedicated to helping the world efficiently use its water resources to ensure a sustainable food supply.

The Water for Food Institute is an emerging institute, one that is putting down roots and seeking international collaborations and partnerships. Yet it grows from the University of Nebraska's long history of research leadership in water, agriculture and natural resources management, and the university's willingness to share that critical knowledge not only with Nebraskans, but with the rest of the world. The annual Water for Food conferences are one means of engaging with, and learning from, others who bring decades of experience and perspectives from many disciplines and cultures.

In 2010 the second international conference – Water for Food: Growing More with Less – explored the roles of science, technology, policy and education in developing solutions to the global challenge of doubling world food production under water-limited conditions. This interdisciplinary, multiple-stakeholder conference brought together more than 300 people from 13 countries and included agricultural producers, scientists, scholars and leaders from academic institutions, business, government and nonprofit organizations. Participants came with a shared concern and urgency about a looming crisis in water and food security. They also brought considerable optimism fueled by the renewed interest and funding in agricultural development, and the dawning recognition in the private and public sectors that the global community is reaching a critical juncture in the management of water resources.

Kenya's Njoro Agricultural Research Station

This was made clear in the keynote address by Jeff Raikes, CEO of the Bill & Melinda Gates Foundation, who issued a call to action, urging that we innovate across the spectrum, invest in and pull on all the key levers, and take an interdisciplinary, integrated approach. "It will be your understanding of this crisis and your vision that leads to greater awareness and inspiring the necessary public and political will to support these investments," Raikes said.

The conference included plenary sessions, technical sessions with presentations and discussions by panels of experts, a panel discussion presenting the views of agricultural producers and a closing panel session. The

plenary sessions, Global Perspectives on Water for Food (Chapter 2), outlined the major topics and challenges, and presented diverse viewpoints from scientific experts and decision-makers, including, among others, Pedro Sanchez, Columbia University Earth Institute and 2002 World Food Prize Laureate; John Briscoe, professor of the practice of environmental engineering and environmental health, Harvard University; David Molden, deputy director general for research, International Water Management Institute; U.N. Panjiar, secretary, Ministry of Water Resources, India; Shiqi Peng, chief scientist, Ministry of Agriculture, China; and Robert T. Fraley, executive vice president and chief technology officer, Monsanto Company.

Concurrent technical sessions focused on four broad areas that are central to the challenge of growing more food with less water. Genetics and Physiology of Crop Water Use (Chapter 3) covered global assessment of corn water use, breeding techniques for drought tolerance in cereal crops and the transition of scientific innovations from the laboratory to the field. Human Dimensions of Water for Food Production (Chapter 4) featured diverse views, from Australia to Zambia, on the policies and economics of agricultural water use, the world food equation and management of water scarcity. Technologies and Advances in Water Management (Chapter 5) explored applications of research and technologies, such as modeling and remote sensing of evapo-transpiration, wireless underground sensor networks and irrigation system advances, and their effects on increasing crop water productivity. Climate Challenges to Water for Agriculture (Chapter 7) focused on climate effects on water resources and crop production in two key areas: the glaciers of the Hindu Kush and Western Himalayas, and rice and aquaculture production in the Mekong Delta of Vietnam.

Recognizing that even the most innovative research and policy advances are effective only if they are adopted by those who grow our food, the panel, A View from Agricultural Producers (Chapter 6), stimulated the most discussion of any conference event. Producers from Nebraska, Argentina and Oregon, who manage irrigated and rainfed systems, discussed the advances in crop production and water management they have implemented from the 1950s until today, as well as the challenges and potential solutions on the horizon.

The closing session, Key Issues for the Future (Chapter 8), addressed what participants learned at the conference, goals for the Water for Food Institute during the next three years and perspectives on the most pressing questions facing researchers, producers, policymakers and organizations interested in water issues. The panelists brought together perspectives on crop science, international water management, economics and policy, and agricultural production.

Despite the many disciplines and viewpoints represented at the conference, all participants agreed that the challenges surrounding water for food are urgent and that our search for solutions must include the diverse expertise and experiences of scientists, scholars and decision-makers from all corners of the world. The goal of the Water for Food Institute at the University of Nebraska, and of future conferences, is to build the partnerships and programs that will contribute to those solutions.