

FOREWORD

Water Drops in a Water World

The world's experience in the first decade of the twenty-first century has clearly emphasized the importance of water and the challenge the world faces in dealing with this precious resource. Developed nations have begun to recognize that water is a necessity in their quest to continue growth and maintain the living standards to which they have become accustomed. Poorer nations have long recognized that water and water-related infrastructure are fundamental to providing for human health and welfare and economic development. Too little water—droughts—and too much water—floods—continue to be problems faced by both groups. The uneven distribution of water across the earth's surface complicates the picture and the potential impacts of climate change add to the difficulties. The United Nations estimates that by 2015, at least 40 percent of the world's population, three billion people, will live where it will be extremely difficult to get enough water to satisfy basic needs. In recent years, major floods have taken the lives of hundreds of thousands and crippled economies of the places where they have occurred. Many believe that this demand for water may create conflicts among nations and the potential for water wars. Still others believe that jurisdictions facing water challenges will find that water issues may become a tool for greater cooperation among these jurisdictions.

The United States faces many challenges in dealing with its water. While most communities have built facilities that at one

time provided quality drinking water to their residents, many of the facilities are reaching the end of their life span and are in need of major rehabilitation and upgrade to handle myriad emerging contaminants that we must now address. The American Society of Civil Engineers (ASCE) reports a greater than \$11 billion annual backlog in required work on these treatment facilities. The quality of the water in our rivers and in our estuaries has yet to meet the lofty goals we put forth during the halcyon days of the environmental movement when we demanded that our waters be *fishable, swimmable, and drinkable*. Our waste water treatment plants face the same level of backlog in rehabilitation and upgrade and address only part of our water quality problems. Control of the massive input of contaminants into our rivers and estuaries from nonpoint sources of pollution such as city streets and farm fields continues to be marginally addressed. Alien invasive species continue to be brought into this country through a variety of carriers and we struggle to control their spread. Water shortages, once thought to be only a problem for the arid Southwest, can now be found across the nation as urban centers grow and require more water and the agriculture community recognizes the substantial increases in yields that can be obtained from irrigation. Conflicts among jurisdictions for access to available water has led to court cases, formation of water markets, and a significant reanalysis of how we are going to deal with water shortages in the long run. Over the last fifteen years, Alabama, Georgia, and Florida have sought without success to reach agreement on the allocation of waters they share and critical decisions are now being made by judges and not the states. Reductions in the flow of the Colorado River are forcing Californians to seek new sources of water far beyond their major cities. Groundwater is becoming an increasingly important part of our water supply, yet in many parts of the country we know little about its quality and quantity, and where it is located. Although since the early part of the twentieth century the nation has supported federal programs to reduce the impacts of floods, flood losses continue to grow each decade as the magnitude of floods increases and as people and property continue to be placed in or drawn to harm's way. Inland waterways in the

United States carry bulk cargoes such as farm products, coal, petroleum, and building supplies within the nation and to ports for export abroad, yet we continue to fall behind in the maintenance and upgrades of our waterways, ports, and harbors. While other nations invest heavily in ensuring that with the growth in world trade their facilities can handle the largest vessels and move the cargo within their nations in the most expeditious manner, we seem reluctant to take on this challenge. ASCE grades the current state of our dams, levees, wastewater and water treatment infrastructure, and our waterways at the “D” level.

We have also come to recognize that our efforts to build dams, channel rivers, levee floodplains, and clear land for agriculture and other uses has had a severe impact on aquatic ecosystems and our riverine and wetland environments. As a result, today we have underway multibillion dollar projects to restore the Everglades, the wetlands of coastal Louisiana, and the badly damaged ecosystems of the San Francisco Bay-Delta, the upper Mississippi and Missouri Rivers, and the Chesapeake Bay. We are also struggling to deal with a growing number of rare and endangered species. Clearly, we have our work cut out for us.

Many of our water problems result from a failure on the part of decision makers at all levels of government and the public at large to understand what water is, how much there is, how it is used, how serious our challenges are, and what we must do to provide for a sustainable future. Given our nation’s wealth, we do little to deal with the significant water problems of developing nations and to reduce the continuous loss of life in those countries from the lack of access to water. It must be that we simply do not understand what is happening.

We operate in this country without a national water policy. We do not relate land-use to water use and the two are inseparable. We have not conducted an assessment of the status of our nation’s water since 1976, and, as earlier noted, we have failed to provide funding for water-related infrastructure at the level required to sustain it over time. Much of the water infrastructure that we are using today results from the visionary work of early-twentieth-century officials who invested in water resource development to meet not only the immediate needs of their time

but also to provide for the demands of those would come after them. Many of our environmental problems stem from a simple shortsightedness that suggested that nature could handle anything we might thrust upon it. Other environmental problems have resulted from our willingness to sacrifice the environment to support economic growth without recognizing that sooner or later we would have to go back and address the problems we were creating.

I can only imagine how much better the world and the United States might be today if our leaders better appreciated and understood water and the complexity of modern water resources management. How much better off would we be if a well-informed public had demanded of their elected officials attention to water issues and if they had concurrently assumed responsibility for their part in dealing with water?

Peter Black, in *Water Drops*, has provided us a much-needed guide to understanding water and water issues. He has put to paper his more than forty years of experience in the field of water management and given us his perceptive insights. If every other day a family that is sitting down to dinner would read one of his essays and spend a few minutes at the table discussing its implications in their lives, over the course of a year we would produce individuals and family units that recognize and are motivated to do something about our water challenges. Politicians, businessmen and businesswomen, educators, doctors, government officials, and the public at large would be better able to carry out their work because they would understand how their actions would affect or would be affected in the long and short term by our approach to water. It is not too late. Those who read *Water Drops* will be developing this better knowledge of water and will help to make this twenty-first century far better than the twentieth in the way we address these important water challenges. I hope they will share their *Water Drops* experience with others and help to build an informed America. I only wish we had started sooner.

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Washington, D.C., 2009