BOOK REVIEW

“Guidance on Water Supply and Sanitation in Extreme Weather Events”
Edited by L. Sinisi and R. Aertgeerts, eds.

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http://www.euro.who.int/__data/assets/pdf_file/0016/160018/WHOGuidanceFVLR.pdf

During the last decade, a gradual evolution in scientific thinking regarding climate change and impacts has been taking place, with the concepts of sustainability and sustainable systems becoming a central focus. It is within this context that this new publication has emerged from the auspices of the Regional Office for Europe of the World Health Organization (WHO). Contributions to the volume came from a wide spectrum of disciplines, agencies (including the World Meteorological Organization) and European Community nations.

Specifically, the work tackles the subjects of water availability, quality and delivery systems within a framework of a changing global climate. As such, it seems primarily addressed to water authority managers, policy makers and leaders of various water stakeholder groups, especially within Europe. However, the basis for much of the content lies in science and engineering, including atmospheric science, marine biology, physical oceanography, hydrology, civil engineering and microbiology. Thus, it serves as a potentially interesting read for even the educated layperson interested in climate change impacts and sustainability issues. While most of the volume focuses on issues of concern to the European community, many of the issues translate easily to the Western Hemisphere. Despite no mention of cloud seeding, weather modification or geoengineering in the text, the issues presented can be taken and easily used as arguments by the weather modification community in support of their efforts to increase quality water supplies around the globe.

Chapters 2 and 3 deal with aspects of disaster preparedness, including early warning systems and communication hierarchies in an emergency. The need for application of integrated risk management principles as part of disaster preparedness planning activities is stressed, as well as the need for transparent, freely available information flows to all potential stakeholders for any given severe weather event. Specific communication activities should be pre-planned with different targeted risk groups before, during and after the event.

Chapters 4 and 5 examine vulnerabilities of coastal areas and water systems to extreme weather events as well as to an increased frequency of those events. Impacts of drought and flood conditions are the focus of these chapters, emphasizing the risks to water supply (including water quality), groundwater and human health via waterborne diseases. With respect to coastal regions, rising sea levels potentially complicate these impacts via encroaching salinization in estuaries and river delta systems over time, not to mention more dramatic salinization associated with tropical cyclone storm surges.

After introductory Prefaces and an Executive Summary intended to set the stage, the first chapter provides the meteorological background for the discussion of impacts and adaptation strategies that comprise the remainder of the volume. The key point made is that extreme weather events, including drought, floods, windstorms and tropical cyclones, have been increasing in frequency throughout Eurasia over the past several decades, with commensurate increases in damages to water system infrastructure and quality water supplies. The increasing economic and human costs of these events prompted the publication of this volume by the WHO.
Chapter 6 deals with strategies for development of Water Safety Plans (WSPs) to deal with the potential threats to water systems and human health discussed in Chapters 4 and 5. A key postulate is that multidisciplinary teams, including meteorologists, are needed at least within the risk assessment portion of the WSP development process (if not the entire WSP development). Key to the WSP development are identification of risks, assessment of risks and hazards, and the determination and validation of control measures for managing the water system. Clearly, cloud seeding could be utilized as a control measure to help ensure a stable water supply, but there is no mention of seeding or any weather modification within the chapter or book as a whole, which I was quite disappointed with. It would seem the contributors, editors and WHO are missing the boat on the potential that seeding could offer.

Chapters 7 and 8 both deal explicitly with adaptation measures for, respectively, (1) general public drinking water systems and (2) drainage and sewer systems, within the primary context of drought and flood events expected to increase in frequency under most climate change scenarios. Though some points from earlier chapters are unnecessarily repeated here, each chapter addresses detailed areas of concern for each type of system, as well as some possible solutions that should be considered.

As the Executive Summary provides most of the synthesis of the material in the eight chapters, there is no concluding synthesis chapter or afterword. Rounding out the volume is a list of references and a bibliography.

Overall, the volume, published in English, reads well with a minimum of typos (I found only one) and contains clear graphics and a host of informative tables. A series of Case Studies are sprinkled through the chapters to illustrate specific points, though they are generally aimed at an audience of water managers or civil engineers. Some of the Case Studies were quite interesting to read through; while a few were so short and with such little overall content that they could be easily omitted.

For the weather modification community, the best use of this volume is twofold: (1) to gain a better appreciation of the potential risks to water systems, which can then be used as arguments in support of cloud seeding efforts with potential customers, and (2) to gain a fuller appreciation of sustainability issues in general and how climate, extreme weather events and sustainability are linked. To use the volume in this way, only chapters 1, 5 and 6 are really essential, making it an easy weekend read.