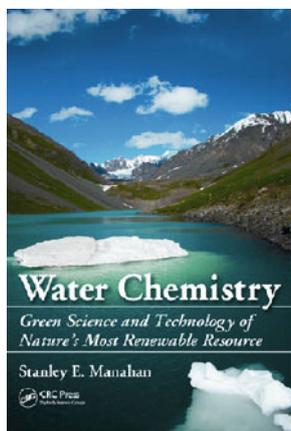


Stanley E. Manahan: Water Chemistry. Green Science and Technology of Nature's Most Remarkable Resource

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Bibliography

Water Chemistry. Green Science and Technology of Nature's Most Remarkable Resource
Stanley E. Manahan
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The author's stated objective is to present an overview of the chemistry of water in the environment in terms of its sustainability as the world's population increases. By dividing the subject matter into environmental chemistry, green chemistry, industrial ecology, and green science and technology, then linking them together requires a very substantial and comprehensive analysis of each sector. The 12 chapters created then contain specific details on the chemistry of major potentially contaminating species.

To make the link, the concept of five basic intersecting spheres is used: the hydrosphere, the atmosphere, the geosphere, the biosphere, and the anthrosphere. The latter defines that part of the environment controlled by human endeavour. The first chapter lays out the principles of the five interacting spheres and interweaving in the anthrosphere concept helps to diffuse some of the more controversial issues that exist between adherents and opponents

of climate change theory. This presentation is carefully engineered to avoid controversy, using published facts rather than citing conjecture.

By keeping descriptions to basic chemical principles and structures, the book will have limited appeal to graduate chemists and physicists, but is a quite adequate, and indeed well explained, text for students with limited chemical knowledge. The target readers are higher level students of environmental subjects, confirmed by a questions section at the end of each chapter.

The author also makes a very valid and often overlooked point in the overall energy equation; that of the very substantial use of cooling water in electricity generation plants. This effectively makes the availability of sustainable energy supply a function of local water availability. This relationship is developed in a separate chapter termed "Sustainable Energy; the Key to Everything". A system of industrial ecology is also included, based upon thermochemical gasification of biomass material whilst using wind energy to produce synthetic natural gas. However, the relative costs of production are carefully avoided; any economic investigation would quickly demonstrate that despite the ecologically attractive nature of such schemes they would be non-starters in terms of practical input.

The bulk of the original work quoted here has been selected from publications made by this prolific author, thus making the overall content somewhat US-centric. Nevertheless, it is a thorough review, and by virtue of its simple but clear diagrams and plain English makes the text easy to follow and understand. There is continuity between chapters, thus allowing a smooth flow between the various subjects whilst adding to its easy-reading nature.

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