- Predesign activities
- Biopile construction
- Biopile system management
- Sampling and analysis procedures
- Regulatory requirements
- Health and safety requirements

There are 18 short appendices with useful information and worksheets.

Although I claim no deep expertise in site remediation, I do understand the topic and engineering design needs. This book should be an extremely useful tool for bioremediation engineers as a guide for planning, costing and design of above ground bioremediation projects.

GARY F. BENNETT

PII: S0304-3894(98)00179-4

Discovering Industrial Ecology: An Executive Briefing and Sourcebook, E.A. Lowe, J.L. Warren and S.R. Moran, Battelle Press, Columbus, OH, 1997, $19.95, 202 pp., soft cover. ISBN: 1-57477-034-9

The challenge to society in general and industry in particular is outlined in the first sentence of this book: ''The level of resource consumption and environmental degradation involved in our current economic/industrial system is one of the major challenges facing the world in the 21st century.'' This level of resource consumption by the expected 10 billion population of the world in 2030 would generate 400 billion tons of solid waste every year—enough to bury Los Angeles 100 miles deep.

Further on in the introduction, the author states, ''The challenge to already industrialized and emerging economies is to create sustainable industrial systems. The source of value for economic systems must be transformed from maximizing throughput and consumption of resources to optimizing quality of life within the constraints of natural systems. This requires integration of human economic activity and material management with biological, chemical, and physical global systems. Industrial ecology offers a framework for achieving this transition.''

The basis for action is therefore an adaptation of industrial ecology which is a dynamic system-based framework that enables management of human activity on a sustainable basis by:

- Minimizing energy and materials usage
- Ensuring acceptable quality of life for people
- Minimizing the ecological impact of human activity to levels natural systems can sustain
- Maintaining the economic viability of systems for industry, trade, and commerce.

The authors note there are five things to remember about industrial ecology (IE):

1. Industrial systems are living systems that operate in living systems.
2. Industrial ecology opens new opportunities for business.
3. Industrial ecology opens new opportunities for government.
4. Strategies for creating and implementing IE are emerging.

5. Methods and tools are available for applying industrial ecology; and presented these concepts in the following chapters:

- Industry as Living Systems Within Living Systems
- Industrial Ecology Methods and Tools
- Product-Life Extension and the Service Economy
- Emerging Business Opportunities Suggested by Industrial Ecology
- Industrial Ecology Opens New Opportunities for Government
- Industrial Ecosystems and Eco-Industrial Parks
- Strategies for Creating and Implementing IE Are Emerging

The book's format is intriguing. For example, the authors use only 2/3 of each page for their text, leaving the column nearest the outer edge of each page open—but in many instances filled with examples of industrial ecology successes. Second, each chapter provides extensive references to publications, on-line sources, and organizations for gaining more information about different aspects of the field.

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Safe Work Practices for the Environmental Laboratory, Frank R. Spellman, Technomic Publishing, Lancaster, PA, 1998, $89.95, 158 pp (looseleaf, 8 1/2 × 11 in.), ISBN: 1-56676-574-9

The purposes stated by Spellman for this guide are two-fold: (1) to assist the laboratory's Chemical Hygienist/Safety Officer in complying with OSHA regulations; and (2) to give laboratory workers the information needed to perform routine laboratory tests both correctly and safely. The major hazards discussed in this text concern hazardous materials—dangerous chemicals and compounds—and the affect they can have on work practices.

The introduction to the book begins with the following statement: ''The health and safety of personnel who work in a laboratory is ultimately the responsibility of the person in charge of the facility.'' Managers cannot delegate safety; it is their responsibility, thus making use of books such as this essential in examining their own practices in establishing a safe working environment.

Towards this goal, Spellman has written the text as a reader-friendly book designed specifically for environmental laboratory workers involved in environmental/analytical testing of: (1) water/wastewater/stormwater/groundwater; (2) soils; (3) hazardous waste characterization; (4) drinking water certification; (5) state NPDES permit requirements; (6) petroleum products testing; (7) field sampling; (8) lead and paint testing; and (9) asbestos testing.

The main objective of this text is the focus on the two major components of laboratory safety: (1) the design of safe facilities; and (2) safe work practices. In line with these objectives, the text is composed of the following 16 chapters that cover the wide range of topics that are important in maintaining a safe laboratory environment:

1. Introduction
2. Management, leadership, and employee involvement