

Environmental Management

Concepts and Practical Skills

This contemporary textbook and manual for aspiring or new environmental managers provides the theory and practical examples needed to understand current environmental issues and trends. Each chapter explains the specific skills and concepts needed for today's successful environmental manager, and provides skill development exercises that allow students to relate theory to practice in the profession. Readers will obtain an understanding not only of the field, but also of how professional accountability, evolving science, social equity, and politics affect their work. This foundational textbook provides the scaffolds to allow students to understand the environmental regulatory infrastructure, and how to create partnerships to solve environmental problems ethically and implement successful environmental programs.

Marc Lame is Professor Emeritus in the O'Neill School of Public and Environmental Affairs at Indiana University. He is an entomologist and has taught courses on Environmental Management; Risk, Trust, Credibility, and Public Participation; Natural Resource Management and Policy; and Applied Ecology. He maintains a clinical practice diffusing environmental innovations. Marc is on the advisory committee to the US Environmental Protection Agency (EPA) and helped to develop the Integrated Pest Management (IPM) education program offered by the National Environmental Health Association and the Centers for Disease Control and Prevention.

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“*Environmental Management: Concepts and Practical Skills* is an extremely timely book addressing the challenges that executives will face in the decades to come. It is useful to college professors, students, and practitioners in their careers.”

Professor Jeff Anstine, North Central College

“*Environmental Management* offers sage advice, grounded in practical realities, for ethical and effective management of pollution and natural resource problems. Lame and Marcantonio have written a fantastic textbook, filled with real-world examples and concrete lessons, that instructors will find valuable for training future environmental leaders.”

Dr. David Konisky, Indiana University

“In an era when environmental management is often clouded by partisan politics and rhetoric, this book is a breath of fresh air teaching the next generation how to manage *for* the environment.”

Professor Rosemary O’Leary, University of Kansas

“The textbook is full of insightful details, from emphasizing that environmental management is managing both people and nature, to highlighting the importance of understanding the scale, effect, and history of an issue at hand, and using past knowledge to inform decisions while anticipating future conditions. It challenges prospective and seasoned environmental managers with tough but necessary questions, evaluating your effectiveness and inclusion of equitable practices.”

Professor Brian Watts, Flood-Prepared Communities Initiative, The Pew Charitable Trusts

“As a natural resource manager and professional, the book, while environmental management focused, is still relevant, as many of the trends and discussions occur in my world the same as they appear in the environmental management sphere. It’s a great book for being able to begin to understand the ever changing and evolving world of environmental management.”

Ben Weise, Contra Costa Resources Conservation District

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Preface

The United States has been learning critical lessons on how leadership and management, or more importantly, poor leadership and mismanagement, are addressing two human-caused existential threats to our species and planet: the pandemics and earth-systems change, the “Anthropocene.” In a speech recently (2020) delivered at the Indiana University O’Neill School of Public and Environmental Affairs, former administrator of the United States Environmental Protection Agency (US EPA) Gina McCarthy opined in a 50-year review of the agency, originally “the mission was fundamentally to protect public health and the natural resources upon which we all depend.” While this book is not about epidemiology or the global scope of managing human impacts on the environment, it *is* about the primary (to protect human health) and secondary (to protect the environment) management goals of our national environmental protection establishment. In this book we focus on domestic environmental laws, management concepts and skills, with the knowledge they can impact or be a model for international environmental management.

Environmental Management: Concepts and Practical Skills is written for scholars of environmental management and the environmental management professional. It is primarily focused on (1) the public sector – those of “Service” (civilian and uniformed service) – who are accountable for regulating human impacts on the environment; but also (2) those professionals in the private sector who, as corporate citizens, strive to comply with environmental policies (laws, rules, regulations, and guidelines); and (3) those in the not-for-profit sector who wish to influence the implementation of environmental regulation and requisite policy formulation. In other words, this book is intended to be of “tri-sectoral” utility.

We wrote this book from a perspective of clinical practice as opposed to management theory, though we do include a healthy dose of both. We thus incorporate management theories and the practical, real-world application and considerations of those theories. Collectively we bring together the experience of a state scientist and regulator turned environmental management professor and federal advisor, and a military professional turned human–environmental systems scientist and public health practitioner. The combination of our academic training and expertise brings to bear a management practicum for what our former students and clinical colleagues have suggested to us as “professional requirements to understand science, policy and management.” This book should be viewed as a text for teaching and training but also as a reference and practical manual that can be used throughout the career of the environmental management professional. Our teaching philosophy relies on intellectual stimulation accompanied by entertaining stories, mantras, irreverence, and humor. It is written by authors who are and have been “mission oriented,”

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who have participated in the program, resource and political management necessary to attain objectives: one who is old and crusty and one who is fresh, tested, and enlightened.

Much like how one might address an essay exam question, we provide detailed solutions (often by way of explanatory lists) to environmental management concepts and skills backed up with scholarly evidence and expert opinion. We rely heavily on a number of books, seminal articles and examples which bring together commonalities encompassing applied ecology, the importance of leadership and administration, ethics, economic competitiveness, and communication such that the environmental management professional can develop a foundation for accomplishment.

Special features in this text include Real-World Examples, Author's Notes, Interviews from the Field, and end of chapter questions. The first three features are meant to provide the reader with a clinical perspective to aid in concept and skill clarification but might also be critical of current practices based on real-world experiences. The Real-World Examples provide mini-case studies from the firsthand experiences of environmental management professionals ranging from civil servants at the US Environmental Protection Agency (EPA) to environmental practice consultants to a farming-focused non-profit. These professionals provide keen insights from their area of expertise that offer lessons for environmental managers of any stripe. The Author's Notes are our own take on a range of issues from funding of environmental management research to firsthand accounts of the challenges of diffusing innovations. Environmental management is rarely easy, so we offer our experience in certain challenging circumstances to help others better navigate their way when faced with similar contexts. The Interviews from the Field are a further extension of firsthand accounts of environmental management, from two environmental managers with a wealth of experience in public, private, and non-profit environmental management practice. The end of chapter questions were developed to allow the scholar to organize text material for application. We urge the reader to take advantage of these features.

Environmental Management: Concepts and Practical Skills addresses:

- Why we manage the environment – history from Malthus through Carson to current trends of human impacts on the environment including contemporary threats to human health and biodiversity.
- What is environmental management? Defining environmental management, what causes environmental problems and the differences between environmental management and natural resource management.
- What are the fundamental elements required for the successful environmental management professional? The diversity of training, worldview, expertise and experience requisite for an environmental manager and groups of managers to be effective managers is greater today than it has ever been.
- The nexus of management fundamentals, service and environmental protection – including the functions and requirements of the public manager. Multiple perspectives and approaches are needed because each area contributes to and has an interest in the environmental issues we face today.

- Who manages the environment? The different professions involved in environmental protection. How do inside and outside participants influence environmental protection and how do courts manage the environment? From the courtroom to the landowner, decisions about environmental management plans are made every day with a multitude of preferences, outcomes and regulations involved in the process.
- The structure of environmental regulatory programs in the US: federalism – US EPA HQ/region/state dynamics, tensions and solutions; understanding specific environmental media, offices and how to address “the silo” and the importance of mission with regard to the actions of federal departments or agencies.
- Critical and basic issues for the environmental manager and their managerial impact. Special attention is paid to environmental justice, jurisdiction, funding, sustainability, and legal/professional accountability and how these factors can and should affect the program, resource and political management of the environmental management professional.
- What authorities – laws, rules, and regulations – are in place for the environmental management professional to protect human health and the environment? Providing a basic understanding of 13 US environmental laws, summarizing their intent and major provisions.
- The basic legal trends and how they impact the environmental manager in terms of public accountability, property, and civil rights.
- The ethics of management for the environmental professional to understand and ethically address the forces that influence environmental managers. As well, how to co-produce environmentally ethical solutions with stakeholders while considering the managerial implications of the rights revolution. What defines environmental leadership?
- Communication: Why do we communicate and what are the differences between public and private communication? What are the professional requirements and responsibilities (legal and ethical) to address strategic communication planning, barriers to communication, and how to maintain trust and credibility? What are the specific skills required for risk and crisis communication including public participation and environmental dispute resolution? An observation of the skills and concepts necessary for working with the public and media including using the public ombudsman and public information officer.
- Program implementation and the questions that must be asked and answered before implementation. What are the necessary strategic planning and personnel management skills, including task assignment and situation analysis? The skills needed to get communities to adopt environmental innovations? How best to conduct a program evaluation and report? What management systems work for the environmental manager?
- Contracting for environmental management: Why do we contract out work and what are the advantages and disadvantages of contracting?
- How the environmental manager uses and/or reformulates policies. Understanding the participants and process for policy formulation. Basic policy tools and rules for the implementation of public environmental programs.

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We would like to acknowledge those who helped this book to come to fruition after some years in concept and development. In general, there are three groups who come to mind: those who believed this text should be published as a contribution to the profession and its professionals; those who contributed to the text with their assistance and expertise; and those who allowed for its publication.

The first group consists of our graduate assistants who believed our conception of a text would help students and instructors to understand environmental management better. More so, that we could actually come up with stimulating and authentic ways of explaining the concepts and skills needed for today's environmental manager. For at least five years (ten semesters on the Teaching Assistant timescale), this group helped to brainstorm ideas for its organization and provided updated outlines. More important was the fact that they made us better scholars and instructors of environmental management, assisting us to improve our teaching continuously. Finally, this first group included some particularly persistent folks – Leanna McKeon, Julia Savia, Rebecca Ciciretti, Taylor Michel, Elizabeth O'Brien, Ashley Scholl, Ben Weise, Ben Young, and Rachael Sargent, who, as they became professionals, would follow up with the question, "How is your book coming along?"

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From there, we thank those colleagues who taught us as we were teaching and while we occasionally needed better information to include in this text. There are many such colleagues, but a few standouts would include: Jim Barnes, who patiently explained environmental laws in terms of the authority they provided and the goals they aspired to. Jim was a large part of crafting many of those laws, and then implementing them with his general counsel and administration as the US Environmental Protection Agency began and evolved – truly an honorable public servant. Evan Ringquist, who explained environmental policy and required policy wonks to follow the science; and David Konisky, who has a deadpan read of what is environmental justice and how it might be addressed. I (M. L.) thank my colleagues at the Arizona Department of Environmental Quality: Ed Fox, Bill Wiley, Nancy Wrona, Ira Domsy, Bill Norman, Dot Roberson, and John Godec, who taught me many

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There are two essential entities that allowed us to publish this book. First, our editors and publisher. Our readers should be aware that finding a world-class publisher and convincing them to publish your book is HARD. Cambridge University Press is a world-class academic publisher, and we want to acknowledge their confidence in us. Finally, and most importantly, we must acknowledge our families who pretended to believe our excuse, “We have to work on our book!” – thereby allowing us to skip out on certain family functions. But, more than that, they listened to us, guided us, and allowed us to really dig into this project and make it happen. Without them it would have been a non-starter. Thank you.