



THE INTERNATIONAL LAW OF POLLUTION

**Protecting the Global Environment
in a World of Sovereign States**



Allen L. Springer

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Quorum Books
Westport, Connecticut • London, England

Library of Congress Cataloging in Publication Data

Springer, Allen L.

The international law of pollution.

Bibliography: p.

Includes index.

1. Pollution—Law and legislation. 2. Environmental law, International. I. title.

K3585.4.S67 1983 341.7'623 82-23194

ISBN 0-89930-052-9 (lib. bdg.)

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Library of Congress Catalog Card Number: 82-23194

ISBN: 0-89930-052-9

First published in 1983 by Quorum Books

Greenwood Press

A division of Congressional Information Service, Inc.

88 Post Road West, Westport, Connecticut 06881

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

Copyright Acknowledgment

Chapter 3 of the present work appeared previously in an article, "Toward a Meaningful Concept of Pollution in International Law," published in (1977) 26 *International and Comparative Law Quarterly*: 531-557 and is reprinted by permission of the British Institute of International and Comparative Law.

Acknowledgments

Many individuals deserve recognition for the help they have given me during the preparation of this book. First, and foremost, is Alfred Rubin, whose wisdom, patience, and good humor have been a constant inspiration. The idea for the book and many of its central concepts came from him. His passion for the precise meaning of words forced me to formulate my argument with greater care. Robert Meagher provided a much-needed perspective on the relationship between law and social change, a perspective that enabled me to approach the traditional literature of international environmental law with a more critical eye.

Access to documents was made possible by researchers at the Washington, D.C., and Windsor, Ontario, offices of the International Joint Commission; by officials of Environment Canada, the Canadian Department of External Affairs, Region I of the U.S. Environmental Protection Agency, and the U.S. State Department; by Rupert Neely of Maine's Department of External Affairs; and by Dr. John Carroll of the University of New Hampshire. Katherine Baty, Cynthia Kingsford, and Deborah Sparrow helped compile the necessary documents, and Jessica Birdsall organized the bibliography. Sue Theberge deserves special thanks for her conscientious preparation of the final manuscript, working virtually until her admission to the maternity ward. Meredith Davis also performed an invaluable service in helping to prepare the manuscript for publication.

Abbreviations

BEP	Board of Environmental Protection
CFMs	chlorofluorocarbons
COSPAR	Committee on Space Research
CPSC	Consumer Product Safety Commission
ECE	Economic Commission for Europe
EPA	Environmental Protection Agency
FAO	Food and Agricultural Organization
FDA	Food and Drug Administration
GATT	General Agreement on Tariffs and Trade
IAEA	International Atomic Energy Agency
ICJ	International Court of Justice
ICRP	International Commission on Radiological Protection
IJC	International Joint Commission
ILA	International Law Association
ILC	International Law Commission
IMCO	Intergovernmental Maritime Consultative Organization
IMOS	Inadvertent Modification of the Stratosphere
IUCN	International Union for the Conservation of Nature and Natural Resources
LDCs	less-developed countries
NASA	National Aeronautics and Space Administration
NGOs	nongovernmental organizations
NOAA	National Oceanic and Atmospheric Administration
OECD	Organization for Economic Cooperation and Development
PCBs	polychlorinated biphenyls
RICNT	Revised Informal Composite Negotiation Text
SST	supersonic transport
UNCLOS III	United Nations Third Conference on the Law of the Sea
UNSECO	United Nations Educational, Scientific, and Cultural Organization

Abbreviations

UNEP	United Nations Environment Program
WHO	World Health Organization
WMO	World Meteorological Organization

Introduction

Protection of the environment has become an important goal of the international community. Spurred on by the Stockholm Conference on the Human Environment, states have emphasized environmental issues increasingly in their bilateral relations. Such diverse concerns as the desire to avoid contamination of areas beyond the limits of national jurisdiction, fears of transnational effects of ultra-hazardous activities, and the need to promote equitable sharing of international waterways have all found expression in the work of international organizations. Even the problems of desertification, urban decay, and the destruction of cultural landmarks have been incorporated into programs to preserve and enhance the "human environment."

With the proliferation of conferences, programs, and institutions has come renewed interest in the norms and processes of international law and in their potential for the protection of environmental interests. A great deal has been written on the subject, ranging from detailed analyses of the International Joint Commission's role in resolving environmental disputes between the United States and Canada to pessimistic studies decrying the primitive state of the legal order in dealing with the incremental, though potentially deadly, effects of the deterioration of the ozone layer. While some writers have focused on the need for supranational institutions capable of prescribing and enforcing binding rules of international conduct, others have argued for a more creative use of those principles of customary international law that traditional practice makes available.

The field of international environmental law has seen a remarkable influx of scholarly talent from a variety of disciplines, individuals bringing diverse perspectives and concerns to the study of global environmental problems. What has been lacking in many of these efforts, however, is any kind of systematic approach to the central questions of international environmental law. The cumulative result of a mass of ad hoc studies has been a patchwork field created by individuals whose primary interests lie elsewhere. Words such as "pollution" and "responsibility" are too often tossed about in cavalier fashion, resulting in confusion about their intended meaning and, ultimately, their legal significance.

This book attempts to create a more useful framework for the study of inter-

national environmental law through a detailed analysis of "pollution," a significant dimension of the environmental law field. It begins with a discussion of the range of environmental problems identified as appropriate for international concern and examines some of the political, economic, and other factors that make these problems particularly difficult to resolve on an international level. After a brief look at some of the divergent attitudes toward the role of international law in the field of environmental protection, an attempt is made to place in perspective some of the most significant work by others in the field. Chapter 3 focuses on the various criteria used to describe the general threshold at which environmentally damaging actions become legally significant. Previous attempts to define this level as well as recent formulations, which tend to combine elements of past approaches, are analyzed.

The next two chapters discuss problems associated with making the threshold a viable legal concept. "Setting More Precise Limits" examines the ways in which concrete working limits for various kinds of detrimental change are established and given legal expression. Making the pollution limits effective also requires a body of rules that define both the primary obligations of states in environmental matters and the legal consequences that should follow if a state fails to fulfill its obligations. "The Evolving Law of State Responsibility for Pollution" describes and analyzes current attempts by publicists to move away from traditional liability-based regimes of state responsibility in favor of approaches designed to create responsibility before pollution occurs. It also outlines some of the processes by which these rules are applied.

The final chapter is a case study of a proposal to build an oil refinery at Eastport, Maine, which involves the passage of tankers through waters claimed by Canada and possible transboundary damage. The controversy created by this project illustrates some of the problems encountered when one attempts to rely on vague procedural duties to prevent environmental disputes.

The basic argument is that the international legal order has the capacity to resolve a number of significant environmental problems. Through the implementation of treaty obligations and evolving norms of customary international law and through the work of international organizations, meaningful steps can be taken to protect the global ecology. However, a clearer understanding is needed of how the pollution limits are and should be defined and of the nature of the process by which adherence to them is made to seem obligatory. By developing a comprehensive analytical framework for the discussion of pollution, this book attempts to contribute to that understanding.

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THE INTERNATIONAL LAW OF POLLUTION

The Global Setting

Changing Attitudes Toward the Environment

With the development of modern civilization and the rapid transformation of energy and resources into products for human consumption, new interest has arisen in the dynamics of the relationship between man and his physical environment. Earlier conceptions of the environment as man's natural adversary have been challenged by the realization of the detrimental impact of economic and social activities, which ignore the inherently "dependent" position of the human species in the interlocking web of the global ecology. Modern man's unecological tendencies have resulted in environmental changes that not only impair the quality of human life but that could ultimately threaten his continued existence.¹

Shortages of such resources as food, clean water, and energy needed to satisfy the living requirements of an expanding world population have helped create a sense of the finite limits of the planet's capacity to support life. The mounting evidence of widespread pollution has called into question the techniques by which human society converts available resources into useful goods, and dwindling supplies of raw materials valued by modern industrial nations have suggested the need for a reappraisal of current patterns of consumption.

In the face of these concerns, writers such as Lynton Caldwell and René Dubos have urged a conscious effort to develop and articulate what Caldwell calls a "comprehensive and coherent interpretation of man and his place in nature that is fully socially and politically operational."² If there is a single image of the natural world upon which such efforts have focused, it is that of the "biosphere," "that thin shell at the interface of the atmosphere, hydrosphere and lithosphere where life and its products exist."³ Forcefully illustrated by photographs of Earth taken during the Apollo moon flights, the biosphere has become a powerful symbol of the unity and interrelationship of living things and their physical setting.⁴ Required, in Dubos's words, is a move toward a "complementary . . . relationship" within the biosphere in which "man and nature should be joined in a non-repressive and creative functioning order." This new

order would not presume a static "no-growth" pattern of interaction but would create a "dynamic equilibrium. . . compatible with man's continuing development."⁵

Besides conflicting with traditional anthropocentric conceptions of nature, the biosphere approach to man-milieu relationships is one seemingly at odds with a world dominated by independent, territorially defined state actors. Indeed, to make the biosphere image a useful operational concept, Caldwell relies heavily on the assumption that traditional emphasis on national sovereignty and cultural diversity is giving way to a general acceptance of such ideas as the "natural limitations of political fiat" and the "universality of man's natural and cultural heritage."⁶

Yet the compelling unity of the biosphere image and its growing acceptance by scientific and environmentally concerned elites has made it a significant concept on the international political level, beginning in 1968 with the Biosphere Conference. Held in Paris and sponsored by the United Nations Educational, Scientific, and Cultural Organization (UNESCO), the Biosphere Conference attracted representatives from sixty-two nations and from a number of international organizations. Noting the "extreme complexity" of the biosphere, which makes it "certain that there are no simple answers to the problems of an environment of quality and of human life within it," the conference identified as paramount the problem of the "historic independent and uncoordinated use of resources" by states. As a result, "deterioration of the environment has been occurring at an accelerating rate," bringing serious and widespread effects throughout the globe. The *Final Report* concluded:

In the place of single-purpose actions in disregard of their associated consequences, both public and private, there is need to substitute planned programs for the management of resources if past degradation of the environment and deterioration of ecosystems are to be corrected, if the biosphere's productivity is to be maintained and even enhanced, and if aesthetic appreciation is given opportunity to flower.⁷

Of primary concern was the coordination of national and international scientific research efforts to identify threats to the global environment and to plan resource-management policies to be implemented at all levels of government to help meet these threats. The conference recommended the establishment of an "intergovernmental, interdisciplinary program on the rational utilization and conservation of the resources of the biosphere,"⁸ later created by UNESCO as the Man and the Biosphere program.

While the delegates to the Biosphere Conference recognized explicitly the importance of understanding the world political context in which such efforts were being undertaken, little attention was focused on any legal or institutional changes that might be necessary to translate their scientific findings into workable environmental protection policies. The *Final Report* did warn that "it has become clear. . . that earnest and bold departures from the past will have to be taken

nationally and internationally if significant progress is to be made,"⁹ but what those departures might entail was left unclear. Indeed, it was apparently presumed that no major changes could be expected in the foreseeable future and that the ultimate success of the program would depend greatly upon the willingness of national governments to incorporate the needed management policies into their individual resource-development programs.

Whether reflective of a somewhat naive faith in the power of science to develop rational management plans, which could be implemented by states whose national goals would be both complementary and consistent with the general global welfare, or simply a pragmatic reaction to the limitations of the political forum within which they were operating, the basic assumption of the delegates to the Biosphere Conference deserves closer examination. Is "rational management" a sufficient strategy for coping with existing and future threats to the global environment? What are the problems associated with developing a solid foundation of scientific data upon which sound management policies can be based? What economic and political obstacles exist to their effective implementation? These are significant questions, since scientific, economic, and political factors determine, to a large extent, the nature of the complex framework in which the rules of an international law of environmental protection must develop. Initially, it is useful to examine the dimensions of the global environmental problem. To make "protection of the biosphere" a workable operational goal requires an understanding of the biosphere's component elements, the activities that threaten their productive ecological role, and the kinds of environmental change that give rise to international concern.

The Problem of Pollution

In surveying the work of those who have attempted to define environmental problems of international concern, it is clear that no firm consensus exists about either the scope or the nature of those problems. C. I. Jackson, Hans Landsberg, Aida Luisa Levin, and others have made valuable contributions in areas relevant to their studies, yet a comprehensive framework is needed that defines, not only the factors that cause a given environmental problem to become internationally significant, but also the components of the problem itself.¹⁰ From a somewhat more systematic perspective, one can identify four key elements in any form of pollution: the "source," the polluting "agent," the "medium" through which the agent is transmitted, and the "effects" brought about by the actions of the agent.¹¹

Sources of Environmental Degradation

The term "sources" refers to the range of human activities that can give rise, either directly or indirectly, to detrimental environmental effects. From the construction of a massive dam to a solitary walk through the forest, human activity necessarily operates within an ecological framework in which any action in a

particular setting may set in motion forces that work through a complex chain of causation to injure human interests in the environment.

In recent years, there has been much scholarly and public debate over the linkage between "growth" and environmental degradation. While it has been generally recognized that presuming any absolute and unalterable connection between the two is, at best, simplistic, it is equally difficult to deny that efforts to meet the increasing material demands of rapidly expanding populations have contributed significantly to the environmental threats presently faced. Economic and social-development policies have too often relied on the assumption that man's ability to use technology to overcome the "limitations" of nature will ultimately provide solutions to problems posed by food shortages, sewage-choked waterways, and polluted air. The reexamination of land development and other "pro-growth" practices¹² has increasingly focused blame on the failure to recognize their environmental consequences. Even as developed societies look for technological solutions to problems created by past policies, pressures to develop new sources of energy and raw materials have resulted in expanded environmental threats from certain high-risk activities. The construction of nuclear-power plants, liquified-natural-gas terminals, and off-shore oil facilities, although carried out with a far greater awareness of the potential ecological costs than was true with earlier projects, still enhances the sense of a strong correlation between economic development and detrimental environmental change.

The problem has been compounded by international assistance programs that often encourage less-developed countries (LDCs) to repeat the mistakes of Western development practices. Irrigation projects may result in the destruction of valuable farmland through waterlogging and salinization. Agricultural development often brings pollution of waterways through fertilizer runoff and the spread of dangerous pesticides. Encouraging the movement of traditionally nomadic peoples into permanent settlements can put unacceptable pressure on limited land resources.¹³

On a more concrete level, there are two distinct kinds of environmentally damaging human activities, which can be subsumed under the general headings of "point-source" and "diffuse-source" pollution. As these labels imply, the former refers to human activities whose environmental consequences can clearly be tied to specific actions, while the latter involves environmental change stimulated by a variety of often unknown factors. Each type of pollution source presents special problems for regulation and deserves separate analysis.

Within the category of point-source pollution, a useful distinction can be made between those activities that involve a conscious decision to alter a given environmental medium for perceived social benefits and those where pollution is the unintended byproduct of otherwise productive behavior. "Intentional" pollution need not involve an immediate recognition of the costs associated with a particular action. Weather modification provides a good example. Cloud seeding and other techniques are being developed to enable scientists to perform such useful tasks as controlling hurricanes and providing more stable rainfall patterns

to important agricultural areas. Yet, of growing concern is the impact of such actions on global weather patterns and on the interests of individuals who do not share in the benefits derived from those activities. Similarly, the possible diversion of Siberian rivers by the Soviet Union, a project designed to provide water for arid regions of Central Asia, could result in a significant reduction of the polar ice cap, with potentially catastrophic worldwide effects.¹⁴ Ocean dumping of radioactive and other land waste can also be mentioned as within this general category to the extent that the ocean is perceived as an "acceptable" site for the deposit of substances that would be more dangerous if disposed of elsewhere.¹⁵

The far more common dimension of point-source pollution, however, is unintentional. A wide range of activities can be linked directly to specific environmental effects: ocean transportation of oil that has resulted in a number of tanker accidents whose devastating effects on the local ecology have been well publicized; coal-fired power plants that emit large amounts of sulphur dioxide damaging to local agricultural production; chemical waste from pulp mills that pollutes inland waters. (The list is endless.) Significantly, this kind of polluting activity, like its intentional counterpart, reveals its detrimental effects, with proper scientific monitoring, in a more or less direct way, often imposing significant local costs, which can create the political incentive to take effective regulatory action.

It is more difficult to identify and control problems that are posed by diffuse-source pollution. Unlike point-source pollution, the linkage between a polluting activity and its environmental consequences is often far more difficult to trace. This is true, not only because the effects themselves often take time to materialize and may be widespread throughout the biosphere,¹⁶ but primarily because of the variety of sources involved. This pollution is diffuse in two distinct ways. First, there may be many different activities that contribute to the problem. Ozone depletion is an excellent example of environmental change brought about by sources as diverse as fluorocarbon propellants and atomic testing.¹⁷ Second, each of these polluting activities may be carried out by a large number of different actors, any one of whom would likely be seen as having, at best, a minimal impact on environmental conditions—for example, the individual user of an aerosol spray or the home gardener coating his plants with toxic chemicals to protect against insects. Even if one traces these products back to their manufacturers, the number of suppliers worldwide creates significant regulatory difficulties. While it may be possible to generate the public support necessary to prevent a local pesticide plant from spewing chemical waste into a nearby river—a clear case of point-source pollution—it is far more difficult to take effective action against that same company for producing a chemical whose uncertain effects are felt only in a cumulative way and perhaps far from the production site. This is particularly true where the banning of a substance such as DDT would not only remove from the market a product with a wide variety of uses

but could also impose significant costs on different local economies without an easily perceived set of concomitant benefits for those who must absorb them.¹⁸

Polluting Agents

Whatever the source, pollution effects are seldom the immediate result of human activity.¹⁹ Set in motion is a process that brings about those detrimental changes associated with pollution. The polluting “agent” is the substance or energy that is created or displaced by the source and that produces the detrimental effects, due to its inherent toxicity, its concentration in a particular medium, or the presence of other factors capable of catalyzing it.²⁰ Polluting agents may work individually or in combination, as in the case of Lake Erie, where phosphorous loading from shore-based industry coupled with municipal sewage disposal have brought “excessive enrichment” of the lake and subsequent eutrophication.²¹

In his discussion of the dimensions of water pollution, Jackson separates polluting agents into three categories: “degradable,” “nondegradable,” and “persistent.” Degradable pollutants include sewage, organic chemicals, and thermal energy released from nuclear-power plants.²² All are capable of being assimilated by the environment yet can do damage if present in sufficient quantities or if deposited in a lake or other medium whose assimilative capacity has been exceeded or impaired by other usage. Nondegradable pollutants, on the other hand, do not respond to these natural processes. Sand, salt, and eroded soil are such pollutants, and Jackson refers to the impairment of the Rhine River by European mining operations as an example of the kind of effects they can have—in this case, on the fresh-water supply of the Netherlands.²³ Dust control has also received attention within the context of the European Community.²⁴ Persistent pollutants, on the other hand, can be broken down, but only at a very slow rate. Herbicides, radioactive waste, and similar materials “may remain in an aquifer, lake or bay for very long periods. Or they may travel great distances, carried by rivers and by lakes and ocean currents and by aquatic life.”²⁵ The expanding production of synthetic chemicals such as polychlorinated biphenyls (PCBs) has resulted in a steady rise in the level of these substances throughout the biosphere, since waste-disposal techniques simply alter the form in which they enter the environment, with potentially lethal effects on animal species.²⁶

Because of variations in chemical composition and degenerative capacity, different pollutants require different regulatory regimes. While emission standards and improved waste-treatment facilities can limit the threat posed by degradable pollutants, far more stringent measures may be required for certain nondegradable and persistent substances. Yet, because many pollutants in the last two categories are produced by diffuse sources, it may be difficult to obtain the consensus necessary to take those measures.

Global Media

It is through two of the nonliving components of the biosphere—the atmosphere and the hydrosphere—that most polluting agents make their way to the