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Radoslav S. Dimitrov. *Science and Environmental Policy: Regimes and Nonregimes in Global Governance.* Lanham: Rowman & Littlefield Publishers, 2006. x + 207 pp. $34.95, paper, ISBN 978-0-7425-3905-1.

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Effectively, inaction is a form of action. The literature on international environmental regime formation is conspicuously lacking any comprehensive evaluation of cases where regimes do *not* form, implying the assumption that there is nothing to be learned from either failure or absence. On the contrary, failure is at least as informative as success, if not more so. Further, there is as much information to be gleaned from that which does not exist as from that which does. As such, Radoslav S. Dimitrov's work is a refreshing new way of looking at international environmental regime formation that challenges us to read between the lines and ask why some regimes do *not* form, and what role scientific knowledge plays in regime and nonregime formation.

Science and Environmental Policy is well organized, treating topics such as the nature of scientific knowledge and the theoretical foundations of the author's analytical framework without diverging into irrelevant tangentials. The succinct language condenses a wealth of information into a lucid treatment of a complex and multi-faceted analytical problem. Dimitrov makes several significant contributions to the literature, not the least of which is to highlight instances where regimes have not formed and compare them to instances where successful regimes have formed. What is the difference between the two? What formula for success does one have that the other lacks? Through the development of a well-constructed analytical framework, Dimitrov answers these questions. All of this makes for a book that is as accessible to students and policymakers as it is to career academics.

While the emphasis of the book is on the social and political dimensions of regime and nonregime formation, the context is derived from scientific knowledge as a decision-making variable. The discussion of scientific knowledge is insightful, informing the reader that there is much about scientific knowledge that is either taken for granted or misunderstood in the policy world. For instance, scientific knowledge is often assumed to be a single variable, as if all scientific knowledge falls under one umbrella (pp. 32-33). Further, there is a tendency to assume, in a rather deterministic manner, that scientific knowledge will

necessarily lead to sound policy formation (p. 18). Thus, the *type* of knowledge is more important than knowledge in general (p. 4).

These insights help to lay the foundation for Dimitrov's analytical framework, in which he divides scientific knowledge into three sectors: the cause, extent, and consequences of the problem (p. 34). The framework is applied to the analysis of four international case studies: ozone depletion and transboundary air pollution represent regimes, and coral reefs and deforestation represent nonregimes. The author concludes that different types of scientific knowledge influence decision making to varying degrees in the formation of both regimes and nonregimes, but that shared consequences weigh most heavily (p. 170). This conclusion, that states enter into international cooperative agreements only when shared negative consequences are known to exist, is informative because it carries with it serious implications for international cooperation where exact consequences cannot be constrained.

In addition to answering some questions regarding the relationship between science and policy formation, the book raises others. Foremost is the question of whether certain fields of science can reasonably be expected to accurately predict the consequences of particular problems. The coral reef and deforestation case studies are perfect examples of this question. Can coral reef and forest scientists be expected to accurately predict the precise consequences of not acting on the causes of coral reef degradation or deforestation? Further, can these scientists be expected to accurately predict the precise consequences for other countries when coral reef degradation occurs in Asia or deforestation occurs in Brazil? The scientific literature is replete with connections between the health of tropical forests and global climate, and between the health of coral reefs and the world's oceans. If the atmosphere and the oceans do not transcend boundaries, what does? As such, if policymakers continue to wait for precise answers, surely we will see the consequences soon enough.

The sources in the book are excellent, but might have benefited from fewer governmental scientific reports and more literature on scientific modeling. Several of the sources in the deforestation case study, for example, stated that there is little scientific information about the importance of forests (pp. 120-122). This, along with terms such as "incomplete scientific information" and "lack of knowledge" would likely be rejected by many scientists who have published articles on the subject in scientific journals.[1] If anything is lacking, it is the plausibility of applying forward modeling to complex systems. The number of unknown variables in such a model allows for a seemingly endless number of possible outcomes. [2] Just knowing what the possibilities are should be enough to invoke liberal use of the precautionary principle, as Dimitrov so justly concludes.

This book provides an illuminating look into a previously unexplored realm: that of nonregime formation, which provides valuable insight into not only what we *do* know about scientific information, but also what we do *not* know (the latter being all too often confused with scientific uncertainty). This book would be a great addition to a graduate course in environmental and/or natural resource policy, supplemented with natural science sources. It would be equally useful for graduate seminars in the earth, life, and physical sciences.

Notes

[1]. Wolfgang Cramer, Alberte Bondeau, Sibyll Schaphoff, Wolfgang Lucht, Benjamin Smith, and Stephen Stitch, "Tropical Forests and the Global Carbon Cycle: Impacts of Atmospheric Carbon Dioxide, Climate Change and Rate of Deforestation," *Philosophical Transactions: Biological Sciences* 359 (2004): 331-343; A. Mosseler, J. E. Major, and O. P. Rajora, "Old-Growth Red Spruce Forests as Reservoirs of Genetic Diversity and Reproductive Fitness," *Theoretical and Applied Genetics* 106

(2003): 931-937; and M. A. McFadden, H. T. Mullins, W. P. Patterson, and W. T. Anderson, "Paleoproductivity of Eastern Lake Ontario over the Past 10,000 Years," *Limnology and Oceanography* 49 (2004): 1570-1581.

[2]. Daniel Sarewitz, Roger A. Pielke Jr., and Radford Byerly Jr., eds., *Prediction: Science, Decision Making, and the Future of Nature* (Washington: Island Press, 2000); Marten Scheffer, Milena Holmgren, Victor Brovkin, and Martin Claussen, "Synergy between Small- and Large-Scale Feedbacks of Vegetation on the Water Cycle," *Global Change Biology* 11 (2005): 1003-1012; and Naomi Oreskes, "Science and Public Policy: What's Proof Got to Do with It?" *Environmental Science and Policy* 7 (2004): 369-383.

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