

The Practices of Adaptive and Collaborative Environmental Management: A Critique

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1. An Introduction

Adaptive and collaborative environmental management (ACEM) is an important new approach to solving serious ecological problems. Today, it is touted by many experts as the best answer for a number of intractable challenges to effective environmental policy-making. The on-going scientific monitoring of policy practices in adaptive management as well as the inclusion of many different stakeholders in collaborative management responds to the most bothersome drawbacks in traditional management practices. Yet, this response may not be enough to correct the ills of traditional environmental management; and, it may, in fact, introduce new disruptions into society's dealings with Nature.

ACEM is a relatively new approach to applied conservation.¹ It began in the 1980s and 1990s in response to localized resistances around the world that actively opposed poorly conceptualized environmental and economic development initiatives imposed from above and without. ACEM's proponents recognized such projects could not succeed without strong local "buy-in," so they tested a variety of new adaptive managerial practices and collaborative organizational values to smooth the implementation of new ecological auditing, management, and oversight schemes. These projects are very commonly

¹Hanna J. Cortner and Margaret A. Moote, *The Politics of Ecosystem Management* (Washington, DC: Island Press, 1999); Jean Yves Pirot, Peter-John Meynell, and Danny Elder, eds., *Ecosystem Management: Lessons from Around the World: A Guide for Development and Conservation Practitioners* (Gland, Switzerland; Cambridge: International Union for Conservation of Nature and Natural Resources, 2000).

found in Africa, Asia, and Latin America, as well as some underprivileged areas of North America and Western Europe where ethnic minority, working class or racial minority communities have experienced some severely adverse ecological fall-out.² This approach to resource managerialism tries to mobilize those people most immediately effected by, and those most aware of, pressing environment challenges, to participate extensively in their eventual remediation.

At one level, ACEM is an artifact of outreach policies by non-governmental organizations, which usually reflect local, national, and global pressure to engage those most directly “impacted” by poor environmental management in determining their own fate. At another level, ACEM crystallizes the professional skills, political agendas, and personal attitudes of a new generation of environmental scientists and development consultants intent upon seeing more democratic, equalitarian, and participatory forms of local engagement. On a third level, however, ACEM is perfectly adapted to today’s neoliberal mythologies of personal empowerment and collective choice. In the guise of local participation, a new form of outside expert control can be imposed through self-administered rules of collaborative management.³ At the same time, overall administrative costs can decrease as localities co-produce their own environmental management, big businesses are given new and more organized markets to conquer (thanks to professionally minded ACEM activists), and environmental monitoring often shows better air/water/soil quality, wiser soil use, and sounder overall management. Nonetheless, Nature continues to be degraded, and its resources still are despoiled, albeit now perhaps at much more risk-averse and reasonable ways.

Clearly, the big flaws in conventional environmental management approaches are pushing many environmental activist groups and governmental regulatory agencies to rethink most prevailing practices in natural resources management. For many people, ACEM approaches often are regarded as the best alternatives to existing policies. Despite their popularity, do these efforts to move from “command and control” approaches of management to “coping and consenting” styles of administration represent a real advance for popular involvement, community participation, or public oversight in environmental management? Or, do these new schools of managerial thought and action only refine existing practices to suit new economic and political agendas? This study will review these trends, and then consider the

²Pirot, Meynell, and Elder, *op. cit.*

³*Ibid.*

drawbacks that ACEM styles of ecomanagerialism are bringing with them.

To accomplish these goals, this analysis first will argue that the underlying ontic assumptions of liberal capitalist society “resourcify” Nature, turning the planet’s stock of original endowments into “natural resources.” Second, it explores how resourcification then enables the ecomanagerialist impulse to come into sway as the mix of environmental policy-making and implementation divides largely into one of four practical engagements — resource managerialism, restoration managerialism, risk managerialism, or recreationist managerialism. Third, it reconsiders how the command and control methods of “sustained yield” environmental practices are evolving into the coping and consenting methods of sustainable development with the shift to ACEM. Finally, it points out some of the drawbacks of ACEM, and speaks in favor of a new set of environmental practices that stress social justice over economic growth.

To make these points, this analysis critically reappraises a vision of ACEM as it has been articulated by one of the world’s oldest and most respected environmental policy organizations, The World Conservation Union (IUCN). Its recently published handbook on ecosystem management, *Ecosystem Management: Lessons from Around the World — A Guide for Development and Conservation Practitioners*,⁴ is becoming a benchmark for ACEM in many places around the world. This evaluation of the IUCN’s handbook searches for any internal limitations, practical inconsistencies, and performative contradictions that constrain ecomanagerialism. This reconsideration, in turn, uses the IUCN’s vision of ACEM to ascertain what ACEM stands for, and ask if there are other alternatives that are not being tested or tried because of ACEM’s many political attractions.

2. The “Resourcification” of Nature

Most mainstream social science actively is engaged at writing, and then the wrighting of, liberal capitalist ontographies, or the scripts of what is regarded as both real and rational.⁵ Ecomanagerialism more or less presumes the role of Nature in these scripts is one of rough and ready “resourcification” for the global economy and national society.⁶

⁴*Ibid.*

⁵Timothy W. Luke, *Ecocritique: Contesting the Politics of Nature, Economy and Culture* (Minneapolis: University of Minnesota Press, 1997).

⁶Timothy W. Luke, “Training Eco-Managerialists: Academic Environmental Studies as a Power/Knowledge Formation,” Frank Fischer and Maarten

That is, the Earth must be reimagined to be little more than a standing reserve, a resource supply center, and a waste reception site. Once cast in this fashion, nature then can provide human markets with many different environmental sites for the productive use of resourcified flows of energy, information, and matter as well as the sinks, dumps, and wastelands for all the by-products that commercial products leave behind. Nature is always a political asset. Still, its fungibilization, liquidification, and capitalization in ecomanagerialism cannot occur without expert intellectual labor whose resourcifying activities prep it, produce it, and then provide it for the global marketplace.⁷

ACEM is attractive to many environmental activists and local stakeholders because it moves beyond conventional efforts to manage just one resource. All resources are put on the managerial ledger in ACEM, but they are marshaled in this fashion to rationalize the many manners in which resources can be managed. The trick here is to appear conservationist, while moving, in fact, very fast to fungibilize, liquefy and capitalize natural resources for more thorough, rapid, and intensive utilization.

The Nature we now have, and are enjoined to protect by environmentalists, is one whose root ontographies have been shaped by both artists and scientists around mathematical formalization.⁸ From the Renaissance through the present-day,⁹ one finds that the mathematical abstractions of single point perspective painting and heliocentric astronomical theorizing both have propounded “a purely abstract realm which the viewer would discern as a world of order” that reshaped Nature such that “it functioned according to the immutable laws of God.”¹⁰ Today Nature is “resourcified” as an ensemble of

Hajer, eds., *Living with Nature: Environmental Discourse as Cultural Politics* (Oxford: Oxford University Press, 1999a).

⁷Timothy W. Luke, “Environmentality as Green Governmentality,” Eric Darier, ed., *Discourses of the Environment* (Oxford: Blackwell, 1999b).

⁸Don Ihde, *Technology and the Lifeworld: From Garden to Earth* (Bloomington: Indiana University Press, 1990); John Young, *Sustaining the Earth* (Cambridge, MA: Harvard University Press, 1990); Kate Soper, *What is Nature?* (Oxford: Blackwell, 1997).

⁹Ernst Cassirer, *The Individual and the Cosmos in Renaissance Philosophy* (Philadelphia: University of Pennsylvania Press, 1972); Lorne Leslie Neil Evernden, *The Social Creation of Nature* (Baltimore: Johns Hopkins University Press, 1992); Edmund Husserl, *The Crisis of European Sciences and Transcendental Phenomenology: An Introduction to Phenomenological Philosophy* (Evanston: Northwestern University Press, 1970),

¹⁰Samuel Y. Edgerton, Jr., *The Renaissance Rediscovery of Linear Perspective* (New Haven: Yale University Press, 1975), p. 30.

rapidly formable spaces and places, brimming with primary resources that only await humanity's secondary extraction and tertiary use.

Environmentalism has been used for over a century at many advanced modernized sites to define and display two paradoxical principles. These ideas are critically important, even though they occlude the ellipses of modernity; namely, a) "even though we construct Nature, Nature is as if we did not construct it;" and, b) "even though we do not construct Society, Society is as if we did construct it."¹¹ By these precepts, modern individuals inhabit a civic social order that allegedly protects some of the freedoms once held in the state of Nature, while it supposedly alleviates many of the liabilities raised by living in a purely natural condition. Nonetheless, this contract myth requires that a domain of pristine natural givenness also must be constituted by human beings as "wilderness," "nature," or "the environment" to define where and how such social freedoms might thrive.¹² Nature and Society, or the biological and the historical, can thereby be kept conceptually pure and distinct in these ontographies, although their continuous remediation in commerce, industry, and science is the daily work of professional-technical experts in modernity.¹³ With the division of space by the modern world system's industrial flows into rural periphery and urban center, almost all animals, plants and soils are classified in a fashion, but they are also hidden by modernity's ellipses that evince the supposed unconstructedness of Nature and the ungivenness of Society.

After two centuries of industrial revolutionization, the domain of Nature — as vast expanses of untamed wildness arrayed all around the planet — mostly has vanished into modernity's markets. Enmeshed in complex networks of scientific rationalization, commercial exploitation, and aesthetic celebration, Nature obviously becomes an even more contingent cluster of conceptual constructs.¹⁴ Whole regions of the planet now are increasingly either a "built environment" or a "planned habitat." From various sites of "economic development," experts and managers still rely upon wilderness to define the spaces of

¹¹Bruno Latour, *We Have Never Been Modern* (New York: Harvester Wheatsleaf, 1993), p. 32.

¹²John S. Dryzek, *Rational Ecology: Environment and Political Economy* (Oxford, UK: Blackwell, 1987).

¹³Latour, *op. cit.*, pp. 30-33.

¹⁴Klaus Eder, *The Social Construction of Nature: A Sociology of Ecological Enlightenment* (London: Sage, 1996); Luke, 1997, *op. cit.*; Catriona Sandilands, *The Good-Natured Feminist: Ecofeminism and the Quest for Democracy* (Minneapolis: University of Minnesota Press, 1999).

“yet-to-be-built” or “never-to-be-built” environments, allowing the operationalization of resourcification to reveal the ever more productive “built environment” of commodity production and consumption.¹⁵

Safeguarding the environment is a worthy goal, and adaptive, collaborative, and participatory means for realizing this outcome usually are welcomed warmly by everyone. Yet, these strategies also entail more control over Nature, and greater supervisory oversight for the communities accepting this approach. Still, like welfare economics, which work to enhance collective goods while they make the underlying problems that merit welfare responses much more intractable, ACEM carries latent costs along with its manifest benefits. These costs, along with its intrinsic downsides as a managerial style, must be assessed.

3. Nature’s Resourcification and Ecomanagerialism

Various human beings observe natural patterns differently, and then they choose to accentuate some, while deciding to ignore others. Consequently, Nature’s meanings always will be multiple and unfixed. Moreover, all the outcomes of this activity will be indeterminate, or at least, they remain a culturally contingent product of who reads which signs when, and how they find whatever decisive meaning they might discover there. Such interpretive acts, then, construct contestable textual fields that must be re-read on several levels of interpretation for their manifest and latent meanings.¹⁶ Before scientific disciplines or industrial technologies turn its matter and energy into products, Nature already is being transformed by discursive interpretation into “natural resources.”¹⁷ Once such “resourcification” occurs, Nature can be used to legitimize many political projects.

These resourcifying maneuvers are now routinely produced by professional-technical workers with specific sets and systems of knowledge — as these knowledge bases have been scientifically articulated — and with the operational authority — as it is always being institutionally constructed — to grapple with “the environmental crisis” on what are believed to be some semblance of sound scientific and technical grounds. Still, Nature’s resourcification has become a precategory imperative as the world economy increasingly leaves

¹⁵Timothy W. Luke, “Worldwatching at the Limits to Growth,” *CNS*, 5, 2, 1994.

¹⁶Soper, *op. cit.*

¹⁷David Rothenberg, *Hand’s End: Technology and the Limits of Nature* (Berkeley: University of California Press, 1993); Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (New York: Vintage, 1970); Husserl, *op. cit.*

little room for any other social objectives beyond the rationalizing performativity norms embedded at the core of the current global market. To find these norms, as Lyotard asserts, “the State and/or company must abandon the idealist and humanist narratives of legitimation in order to justify the new goals: in the discourse of today’s financial backers of research, the only credible goal is power. Scientists, technicians, and instruments are purchased not to find truth, but to augment power.”¹⁸ Moreover, the rules of economic performativity for creating greater growth now count far more materially in managerial interventions than do rules tied to ecological preservation, even though they bring capitalist growth front and center in the environmental crisis.¹⁹

The initial professionalized efforts to resourcify Nature in the United States began with the Second Industrial Revolution and the original conservation movements that emerged over a century ago as progressively-minded managers founded Schools of Agriculture, Engineering, Forestry, Management, and Mining to master Nature and transform its materiality into “goods” and “services.” By their lights, the entire planet was reduced by resourcifying assumptions into a complex system of interrelated “natural resource systems,” whose ecological processes were left, in turn, for certain human beings to operate — efficiently or inefficiently — as the would-be managers of a vast terrestrial infrastructure.²⁰ Directed toward generating greater profit and power from the more rational insertion of nature into the machinery of global production, the discourses of resource management work continuously to redefine the Earth’s physical and social ecologies as sites where environmental professionals can operate many different open-ended projects of ecosystem management.

The scripts of ecosystem management embedded in most approaches to environmental policy are rarely rendered articulate by existing scientific and technical discourses. However, a logic of

¹⁸Jean Francois Lyotard, *The Postmodern Condition: A Report on Knowledge* (Minneapolis: University of Minnesota Press, 1984), p. 46.

¹⁹Robert Gottlieb, *Forcing the Spring: The Transformation of the American Environmental Movement* (Washington, DC: Island Press, 1993); Tim Hayward, *Political Theory and Ecological Values* (New York: St. Martin’s Press, 1998).

²⁰Samuel P. Hays, *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890-1920* (New York: Atheneum, 1959); Samuel P. Hays, *Beauty, Health, and Permanence: Environmental Politics in the United States 1955-1985* (Cambridge: Cambridge University Press, 1987).

resourcification has woven the technocratic creed of “sustained yield” managerialism in and out of mainstream environmental science and traditional natural resource policy-making for decades.²¹ In these practices, four foci of eco-managerialist intervention are dominant today: resource, restoration, risk, and recreationist managerialism.

A. Resource Managerialism

Resource managerialism can be read as the essence of today’s “environmentality.”²² While voices in favor of conservation can be found in Europe early in the 19th century, the self-reflexive establishment of this operational stance comes in the United States with the Second Industrial Revolution. From the 1880s through the 1920s, including the closing of the Western Frontier in the 1890s,²³ whether one looks at John Muir’s preservationist programs or Gifford Pinchot’s conservationist codes, there was a spreading awareness of modern industry’s power to deplete Nature’s stocks of raw materials in the US, which sparked widespread worries about the need to find systems for conserving their supply from unchecked exploitation.

Consequently, Nature’s stocks of materials are rendered down to “resources,” and the presumptions of resourcification become conceptually and operationally well-entrenched in conservationist philosophies by the early 1900s. The fundamental premises of resource managerialism have not changed significantly over the past century. At best, this code of practice only has become more formalized in many governments’ bureaucratic applications and legal interpretations. Working with the managerial visions of the Second Industrial Revolution, which empowered technical experts, like engineers and scientists, on the shop floor and professional managers, or corporate executives and financial officers, in the main office, resource managerialism casts corporate administrative frameworks over Nature in order to find the supplies needed to feed the economy and provision society through national and international markets.²⁴

To even construct the problem in this fashion, however, Nature must be reduced — through the encirclement of space and matter by national as well as global economies — to a system whose flows of material and energy can be dismantled, redesigned, and assembled anew to produce “resources” efficiently when and where needed in the modern marketplace. As an essentially self-contained system of biophysical

²¹Cortner and Moote, *op. cit.*

²²Luke, 1999b, *op. cit.*

²³Hays, 1959, *op. cit.*

²⁴*Ibid.*

systems, Nature's energies, materials, and sites are repositioned by resource managerialism as stocks of manageable resources. Human beings, in turn, can realize great material "goods" for sizeable numbers of some people if the managerialists succeed. Even though greater material and immaterial "bads" will be inflicted upon even larger numbers of people who do not reside in or benefit from the advanced national economies, some truly remarkable benefits will accrue at a handful of highly developed regional and municipal sites.²⁵

B. Restoration Managerialism

The recognition that resource managerialism is at the root of many environmental problems often sparks a reaction among some that calls for a return to the status quo ante. The call is, first, to stop exploiting Nature's endowments, and then to move toward restoring those sites and systems that have been most abused. Ecological restoration is a very tricky proposition because what is to be restored, how it will be reclaimed, who must rehabilitate what has been damaged, and which prior state of existence is to be privileged with a "restoration" all add up to a series of very difficult choices. Most appeals for restoration are made on aesthetic grounds, but restoration managerialism also has developed more macrological engagements for maintaining the integrity of the Earth's carrying capacities.²⁶

In this respect, restoration managerialism focuses upon mobilizing the biological, physical and social sciences to address the major economic and political effects of current and future anthropogenic environmental problems. Their resourcifications allow ecosystemic managers to infrastructuralize the Earth's ecologies in the name of complete restoration for some biomes, bioregions or biosystems. The Earth becomes, if only in terms of contemporary technosciences' operational assumptions, an immense terrestrial engine. Serving as the human race's "ecological life-support system," it has "with only occasional localized failures" provided "services upon which human society depends consistently and without charge."²⁷ As the environmental infrastructure of technoscientific production, the Earth can continue to generate "ecosystem services," or those derivative

²⁵Luke, 1997, *op. cit.*

²⁶Hays, 1987, *op. cit.*

²⁷John Cairns, "Achieving Sustainable Use of the Planet in the Next Century: What Should Virginians Do?" *Virginia Issues & Answers*, 2, Summer, 1995, p. 3.

products and functions of natural systems that today's human societies perceive as valuable.²⁸

This complex system of systems is what must survive and its outputs include: the generation of soils, regeneration of plant nutrients, capture of solar energy, conversion of solar energy into biomass, accumulation/purification/distribution of water, control of pests, provision of a genetic library, maintenance of breathable air, control of micro and macro climates, pollination of plants, diversification of animal species, development of buffering mechanisms in catastrophes, and aesthetic enrichment.²⁹ Because it is the true capital stock of transnational enterprise, the planet's ecology requires highly disciplined engineers and continuous adaptive management, or terrestrial re-engineering, to restore its original capacities and then guide its subsequent sustainable use. Restoring as many as possible of those ecosystems that have been damaged is critically significant, so restoration managerialism may even try to bring back almost extinct ecosystems in order to enlarge existing carrying capacity.

C. Risk Managerialism

As Beck suggests, risk managerialism is now an integral part of the self-critical production and reproduction of globally thinking, but locally acting, capitalism.³⁰ Environmental science trains experts to conceptually contain, actuarially assess, and cautiously calculate the many dimensions of ecological risk in the disciplines of ecotoxicology, environmental assessment, or ecoremediation. Yet, the assumptions of such modeling techniques only constitute a scientized first take for the sweep of reflexivity. Combining practical laboratory experiences and field studies, risk managerialism suggests that all areas of ecological oversight must become risk analysis-centered concerns, like integrated resource management, conservation biology, and environmental risk analysis. This quantitative approach to surveillance and evaluation focuses risk analysis on probabilistic models of most preferred futures, outcomes or practices.

Risk management presumes its calculations "are based on a (spatially, temporally, and socially circumscribed) accident definition" or that its analyses truly do "estimate and legitimate the potential for

²⁸W. E. Westmen, "How Much are Nature's Services Worth?" *Science*, 197, 1978, p. 960.

²⁹Cairns, *op. cit.*

³⁰Ulrich Beck, *The Risk Society* (London: Sage, 1992).

catastrophe of modern large-scale technologies and industries.”³¹ Superfund site after supertanker spill after superstack bubble, however, indicate that this degree of scientific knowledge is precisely what risk management studies fail to adduce, “and so they are falsifications, and can be criticized and reformed in accordance with their own claims to rationality.”³² This trend toward developing a fully self-conscious risk managerialism grounded in economic trade-offs also surfaces in adaptive and collaborative management.

Such visions of environmental science recapitulate the logic of technical networks as they work for the world’s states and markets. Rather than the environment surrounding humanity, the friction-free global marketplace of transnational capital now is what envelops Nature. From its metabolisms, humanity produces ecotoxins, biohazards, hydrocontaminants, aeroparticulates, and enviropoisons whose impacts generate inexorable risks. Such policy problematics are unfolding now on the global scale, because transnational markets have colonized so many more sites on the planet as part and parcel of global businesses’ vision for sustainable development. Well-trained environmental professionals must measure, monitor or manage these risks, leaving the rational operations of fast capitalism wholly intact as “risks won” for their owners and beneficiaries, while risk analyses performed by environmental practitioners cope with all the victims of “risks lost.”

D. Recreationist Managerialism

Environmental science also must prepare society for tertiary uses of Nature as recreational resources. As the US Department of Agriculture (USDA) says about its managed public lands, the natural environment is “a land of many uses.” Consequently, mass tourism, commercial recreation, and park administration all require special knowledges and powers in order to be conducted successfully. Instead of appraising Nature’s resources as reserves for industrial production, recreationist managerialism frames them as resource preserves for recurring consumption as service amenities, positional goods, scenic assets, or leisure sites. The entire idea behind national parks or protected areas is “to park” certain unique sites or particular undeveloped domains beyond the continuous turnover of industrial exploitation for primary products or agricultural produce. The recreational pursuits of getting to, using,

³¹Ulrich Beck, “Risk Society and Provident State,” Scott Lash, Bronislaw Szerszynski and Brian Wynne, eds., *Risk, Environment, and Modernity: Towards a New Ecology* (London: Sage, 1996), p. 32.

³²*Ibid.*, p. 33.

and appreciating such ecological assets then can be mass produced through highly organized sets of commercialized practices.³³

The obligation to supervise human recreationists rightly in “the conduct of their conduct” within the natural environments turns environmental studies into almost another mode of police work. Discourses of environmentality in ecosystem management give dedicated professionals the best disciplinary paths for leading others to the right kind of information produced by other professional technicians about the environment. This power/knowledge, in turn, authorizes and legitimates the acts taken by recreationalist professionals whose policing of natural beauty in public parks will bring the right amenities to the public’s recreational experiences.

Ecosystemic managers activate their command over the Earth’s spaces and places as well as operationalize a measure of operational discipline over environmental resources, risks, restorations and recreationists as they reconstruct contemporary governmentality as environmentality.³⁴ Like governmentality, the disciplinary articulations of environmentality now center upon establishing and enforcing “the right disposition of things” by policing humanity’s “conduct of conduct” in Nature and Society.³⁵ Nature loses all of its transcendent qualities as its material stuff appears preprocessed in the adaptive science practices as mere “environments” full of exploitable, but also protectable, “natural resources,” which the right managers can manipulate as they get down to the business of administering global capitalism’s “natural resource systems.”

4. Rethinking ACEM

Given these diverse tendencies in the overall project of ecomanagerialism, which all tie to policy responses predicated upon resourcification, why has ACEM become so popular and widespread? On the one hand, it has gained popularity because the available alternatives are so much worse. Few openly tout the merits of command-and-control environmental management these days, and most targets of managerial intervention refuse to be treated in this manner. Also, ACEM offers political pay-offs to both scientific experts and local communities, making it easier to establish what is still a

³³Hays, 1987, *op. cit.*; John M. Meyer, *Political Nature* (Cambridge, MA: MIT Press, 2001).

³⁴Luke, 1999b, *op. cit.*

³⁵Graham Burchell, Colin Gordon and Peter Miller, eds., *The Foucault Effect: Studies in Governmentality: With Two Lectures and an Interview with Michel Foucault* (Chicago: University of Chicago Press, 1991).

resourcified style of ecomanagerialism at many different natural resource use sites.

Despite all of the attractive qualities in adaptive and collaborative environmental management, this style of administrative action is not without its limitations. The current consensus about its many positive pay-offs of necessity ignores more troubling qualities that do not move very far past the older command-and-control methods that ACEM is meant to replace. The practices of ACEM can concede a great deal to authoritative experts as they concede other things to local community participants. Yet, this all happens while perpetuating other positions that abridge the prerogatives of both experts and local communities. Furthermore, the rhetoric of ACEM is spreading more quickly than its actual implementation, so there is a considerable range of variance in practitioners' use of ACEM techniques.

The IUCN is a good place to start, because it is a uniquely positioned organization that draws together many non-governmental organizations, government offices, and nation-states to tackle the world's most serious ecological challenges. With more than 900 members working in 138 countries, the World Conservation Union forges global, national, and local alliances to conserve natural resources. By preserving the integrity and diversity of the world's ecosystems, it also seeks to guarantee that any human uses for natural resources will be equitable, economically efficient, and environmentally sustainable. The longstanding prestige and strong record of real success that the IUCN enjoys, then, makes its handbook for ACEM an authoritative source that merits a careful review. While other initiatives may approach ACEM differently, the IUCN's worldwide membership basically guarantees that its recommendations will be closely and broadly followed.

A. The Rise of Ecosystem Management

Ecosystem management, as Cortner and Moote assert, is "in large part a social movement that embraces a new philosophical basis for resource management."³⁶ As scientific forestry, range management, and mineral extraction took hold across the US during the Progressive Era, an ethos of battling scarcity guided professional training, corporate profit-making, and government policy.³⁷ Consequently, the operational agendas of "sustained yield" were what directed the resource managerialism of the 20th century. In reviewing the enabling legislation of key federal agencies, one quickly discovers that the values

³⁶Cortner and Moote, *op. cit.*, p. xi.

³⁷Hays, 1959, *op. cit.*

and practices of resourcification anchor their institutional missions. Again, as Cortner and Moote observe,

The statutory mandates of both the Forest Service (the Multiple-Use Sustained-Yield Act and the National Forest Management Act) and the Bureau of Land Management (the Federal Land Policy and Management Act), for example, specifically direct these agencies to employ a multiple-use-sustained-yield approach to resource management. More often than not, however, these agencies adjusted the multiple-use concept to correspond to their primary resource production objective: timber in the case of the Forest Service and grazing in terms of the Bureau of Land Management. Although sustained help is not specifically mentioned in the legislative mandate of agencies such as the National Park Service or the Bureau of Reclamation, they too have traditionally managed for maximum sustained yield of a single resource: visitor use in the case of the parks, and water supply in the case of water resources.³⁸

This ethos of resourcification imagines Nature as a vast input/output system, and the mission statements of sustained yield have pushed natural resource management toward realizing maximum maintainable outputs.

Up through the 1970s, the key stakeholders in this process were mostly professional resource managers, technical experts, industrial producers, sectoral trade associations, local boosters, and the relevant government agencies whose individual and collective interests were tied to raising quantitative measures of resource production. The first inroads into this bloc of vested interests were made during the new environmental movements' emergence in the 1960s and 1970s. Many of the administrative agencies and legislative initiatives that developed during the Johnson, Nixon, Ford, and Carter administrations, like the many reforms tied to National Environmental Protection Act (NEPA), brought explicitly ecological worries and openly environmental commitments into the policy process in order to limit the activities of traditional vested interests. Nonetheless, these environmentalists focused on Washington-based decision-making, or state capitol-centered regulation, and often ignored local sites, regional ecosystems, and global environments. Consequently, most of the environment

³⁸Cortner and Moote, *op. cit.*, p. 17.

movements that gained any legitimacy in the 1960s and 1970s did so not by beating the vested interests of sustained yield but rather by joining them. And, as Gottlieb concludes, this interest group engagement “for mainstream environmentalism seems more entrenched than ever.”³⁹

The politics of public comment, public interest, and public participation, which evolved with NEPA and other environmental reforms in the 1970s, soon was twisted into “a set of techniques designed to secure administrative compliance with statutory and regulatory requirements.”⁴⁰ The vested institutional interests were not willing to forsake multiple use or sustained yield as basic operational values, so a continuing political struggle between resource extraction and resource preservation has marked environmentalist actions in the 1980s and 1990s. And, a stalemate between traditional economic interests and more contemporary environmental values has often led to policy gridlock.

Nevertheless, this arcane process of bureaucratic wrangling has moved the thinking and actions of many people away from “sustained yield” and more toward “sustainability.” At the same time, the root commitment to resourcification has not been abandoned in the sustainability project. Instead, it only has been shaped to meet other long-range and larger scale requirements. That is,

Sustained yield focuses on outputs and views resource conditions as constraints on maximum production, sustainability makes resource conditions the goal and a precondition for meeting human needs over time. Outputs, then, are interest on resource capital....Three increasingly integrated themes began to emerge: a concern for the health of ecosystems; a preference for both landscape-scale and decentralized management; and a new kind of public participation integrating civic discourse into decision making.⁴¹

These changes in resourcification’s outline and tone do not break its links to meeting output goals; instead it simply shifts to monitoring the level of outputs, the rate of meeting the goals, and the scale of sustained use. Sustainability is definitely another style of sustained yield, so the evolution from the original visions of sustained yield to today’s notions of sustainability in many ways is a win/win situation

³⁹Gottlieb, *op. cit.*, p. 317.

⁴⁰Cortner and Moote, *op. cit.*, p. 19.

⁴¹*Ibid.*, p. 20.

for both economic and ecological interests. Ecosystem management only departs modestly from the original credos of sustained yield, as they were spun up in the early twentieth century. Enlightened ecomanagerialism is not a radical revolutionary reinvention of everything.

B. Adaptive Management

Adaptive management is a fairly conventional set of expert-anchored ecomanagerialist practices, which has been made more open to popular participation while becoming self-certain about its own infallibility. As a normative ideal, according to the IUCN, many ecosystem managers hope to base their efforts,

on thorough knowledge of the physical, chemical, and biological structure of the system and the functional interactions between the different components. Included would be information on the human components and their interactions, that is, information on socioeconomic factors as well as legal and administrative factors and their boundaries of jurisdiction.... However, it is rare to be able to assemble all of the necessary information to develop conceptual models or to formulate different options for courses of action before launching an ecosystem management project. By the time all of the necessary information is available, it may be too late. Therefore *ecosystem management projects should incorporate a knowledge-based adaptive management approach.*⁴²

This open admission about incomplete information, underdeveloped models, unclear management goals, and ill-defined management constraints makes this approach to management “adaptive.”

The IUCN handbook plainly eschews “top-down” or “imposed from the outside” approaches, so it finds “a better option” in the inclusion of “information gathering as an integral part of the projects (including local and traditional knowledge)” and the adaptation of managerial interventions to “the activities accordingly over time through an iterative process.”⁴³ Basically, adaptive management assumes a measure of self-reflexivity can be added into all of the managerial efforts being exerted as a continuous reappraisal of the management is made through data-driven research, traditional knowledge scans, and open evolving

⁴²Pirot, Meynell, and Elder, *op. cit.*, p. 35.

⁴³*Ibid.*

research. Data collection is critical, but adaptive management requires that “the types of information to be collected must be carefully chosen since gathering irrelevant information is wasteful of resources and does not contribute to decision-making.”⁴⁴ On this count, adaptive management readily valorizes “local and traditional knowledge,” if its insights add to decision-making, because this openness “can save years of detailed scientific study.”⁴⁵

While ACEM has much working in its favor, it is not without some drawbacks. Even when its practitioners push for a creative use of adaptive scientific techniques, one must ask by whom and for whom are they adapted? Similarly, as collaborative understandings of ecosystems and their management evolve again one must ask collaboration by whom and for whom? The iterative processes of communication, negotiation, and understanding that make all of this possible also must be studied: who communicates, negotiates, and understands, and for whom do they do it?

Supporters of ACEM often make much out of their openness to traditional knowledges, indigenous understanding or native lore. Yet, it is very unclear if traditional “knowers” and “knowledges” are merely resourcified themselves as new original sources and framed content or if traditional authorities, roles, and statuses as well as indigenous epistemologies are given full and equal respect. All too often, native lore and lore-rich natives are dismissed as sources of occult understandings held by quaint prescientific shamans, which allows positivist epistemics to turn this side of ACEM into acts of “epistemo-piracy” in the commission of other biopiratical or ethnopiractical activities in local communities they allegedly are sustainably developing.

Unfortunately, then, adaptive management seems caught in a performative contradiction. Its fetishization of continuous data-gathering and information-assessment almost necessarily makes its effective implementation a “top down” or “imposed from the outside” style of management. Bringing local and traditional knowledge into the mix does not obviate these dangers; instead it simply drags them into other relations of oversight from above and without, while resourcifying hitherto noninstrumentalized ways of knowing. The iterative process of adaptive management still rests with ecosystem managers, and their sense of ecomanagerialism directs which data will be gathered, how information will be assessed, who will decide what on the basis of

⁴⁴*Ibid.*, p. 36.

⁴⁵*Ibid.*, p. 37.

which data resources, and who will incur which costs and benefits in the reflexive cycles of adaptive management

Expertise in ACEM is not eliminated. It simply is instead privatized as outside experts in the employment of transnational agencies or businesses advance many different programs at the local level. Science, in turn, is not removed from the equations of ecosystem management. Rather it is allegedly opened up to more civic, public or social co-production in the communities within which it is being suspended. Yet, this is not the case: control remains in place, but its articulations are far more deconcentrated, decentered, and privatized as less institutionalized forms of collaborative governance replace the traditional instrumentalities of coercive government. In turn, these maneuvers often only expropriate traditional forms of knowing and bodies of knowledge in epistemo-piratical campaigns of adaptive managerial action.

The alternative to ACEM is not necessarily another style or strategy of management, but rather no management at all. ACEM, like most programs for sustainable development, ultimately sees Nature as a standing reserve rather than as something that should always stand in reserve. ACEM poses as a kinder and gentler approach to environmental management, and, in many ways, its vision for ecological managerialism is, in comparative terms, much kinder and gentler than conventional resource extraction approaches. Nevertheless, it mostly remains a resource extraction program, albeit unconventional in scope and method, whose adaptive and collaborative qualities cushion and diffuse some of resource extraction's traditionally most destructive qualities.

C. Collaborative Management

Collaborative environmental management recognizes that ecosystems rarely map out neatly into discrete economic, political or social units. The competing concerns of ecological effectiveness and economic equity leave ecosystem managers mediating the concerns of science with those of law, government, and the market. Collaborative ecosystem managers must acknowledge that “the need to integrate the knowledge and values for a broad array of organizations and individuals implies a need to blend organizations and community (i.e., public and private) planning through collaboration among resource owners, managers, and users.”⁴⁶

⁴⁶Cortner and Moote, *op. cit.*, pp. 44-45.

Collaborative management techniques often draw upon NGOs to act as intermediaries between local commodities and national governments as well as between external stakeholders and interests inside the affected areas needing new interventions. As the IUCN asserts, collaborative management is a partnership in which *government agencies, local communities and resource users, NGOs and other stakeholders agree on the responsibility, authority, rights and duties they each have for the management of a specific area or set of resources.*⁴⁷ Collaboration in this register, then, quickly becomes a new mode of control. Once all the environmental scientists intervene to test water, sample the soil, gauge air quality, and audit overall biodiversity, everyone's life is put on hold and/or put under surveillance. The local residents, small landowners, village notables, and outside companies are called together to collaborate, and then they are jawboned to adapt the new demands of management. To assure this sort of environmental management, it is necessary to impose, and enforce, more pervasive forms of social control.

The IUCN and many other NGOs believe that government cannot guarantee sustainability on its own, even though it must safeguard each nation's natural resources. Consequently, they urge governments to decrease "their involvement in the extensive day-to-day responsibility of resource management at the community level through collaborative management agreements. In many cases devolving resource management authority and responsibilities to communities may be the most effective and efficient means of achieving a sustainable level of resource use."⁴⁸ Here governments partially accept an abridgement of their sovereignty, while deputizing international NGOs, third sector not-for-profits, and local communities with the authority to manage resources as economically and ecologically as the collaborative partnership sees them.

ACEM, then, is a very uneasy alliance of natural science, normative theory, and managerial practice that tends to accentuate the negative aspects of all three activities, while, at the same time, not leveraging the positive qualities that each one could bring to the policy process. Such confusion, however, is quite useful. Indeed, this style of ecosystem management can be endorsed by industrial trade groups as easily as it can be approved by local environmental site defense committees. So, on the one hand, the American Forest and Paper Association can claim ecosystem management is a unique managerial approach "designed to maintain or enhance ecosystem health and

⁴⁷Pirot, Meynell, and Elder, *op. cit.*, pp. 53-54.

⁴⁸*Ibid.*, p. 54.

productivity while producing essential commodities and other values to meet human needs and desires within the limits of socially, biologically, and economically acceptable risk,”⁴⁹ even though well-respected scientists assert, on the other hand, that ecosystem management requires humanity to maintain “viable populations of all native species in situ” as well as to “represent, within protected areas, all native ecosystem types across their natural range of variation.”⁵⁰

ACEM might represent a slight advance against the older traditions of sustained yield ecosystem management. Rather than replacing entirely the logic of command-and-control ecomanagerialism, ACEM seems instead only to deflect a bit of its traditional tone and tenor. As the IUCN’s guidebook suggests, command and control approaches to ecosystemic management are broken down by good ACEM practitioners into the old confuse and coerce school of statistical sustained yield practices, which should be left behind, and a new cope and consent school of adaptive, collaborative, and integrative managerial give and take, which needs to be taken up, on the road to sustainability. Professional experts still are in a position to command-and-control through their superior scientific skills and access to outside material resources, but they now must collaborate with extended networks of local stakeholders, international agencies, foreign donors, and global markets to softly command and lightly control the management of ecosystems.

ACEM in this respect seems to be another expression of the transnational networks of governance that are displacing older entities, like national economies and territorial governments, in favor of new registers of surveillance, control, and accounting, like ecosystems and localities. The command, control, and communication imperatives of national economic/political/social order are fragmenting in the flows of complexity, collaboration, and coping running into and out of global networks of exchange. Local multitudes rather than national peoples are the focus of service, and ACEM sees the best service for them coming in the forms of ecosystemic sustainability.

5. Conclusion

Practices like ACEM come into being because almost everyone continues to desire the goods and services made possible by the global

⁴⁹American Forest and Paper Association, *Ecosystem Management: A New Approach to Federal Forest Management and Planning* (Washington, DC: Forest Resources Board American Forest and Paper Assoc., 1993), p. 1.

⁵⁰R. E. Gumbine, “What is Ecosystem Management?” *Conservation Biology*, 8, 1994, p. 31.

economy's burgeoning productivity, even though these material outcomes are getting more difficult to realize because of either mass resistance to many industries' by-products or actual physical scarcities caused by resource depletion.⁵¹ At this point in the world's postmodern condition, then, new dangers emerge, and some of most fascinating, and virulently dangerous, are those which acknowledge how these self-reflexive observations about why science and technology, like the IUCN's vision of ACEM, actually can work in impure, subjective, and mediated ways to degrade, displace, or destroy Nature as such. Still, far too many environmentalists refuse to deal with these nagging worries about their strategies.⁵²

Since there is no pure, objective, unmediated Nature, many ask why should human beings not coevolve with a Nature whose impure subjective mediations always will be driven by market forces? After making this admission, they slip directly into self-interested efforts to reconstruct Nature such that those now heavily marketized moments of degradation, displacement, and destruction always will benefit them as producers and consumers.⁵³ Such new departures are not easy to imagine, but their proponents ultimately seek nothing less than a refabrication of all the material registers by which place is fixed, power defined, and property accumulated.⁵⁴ Environmentalists should not stand by idly as these dangerous claims are made. Even worse, they must not try to articulate how it is allegedly in everyone's best interests to facilitate these truly disruptive transmogrifications of the planet's ecology, perhaps even in the name of ACEM's "sustainability," to rationalize further the reproduction of capital on a truly global scale.

Each of these wrinkles in the managerial record of ACEM, then, must give its supporters pause. The adaptive and collaborative dimensions of ACEM suggest that its advocates truly are seeking to develop a post-extractive approach to ecosystem management that can respect the worth and value the survival of nonhuman life and its environments. Nonetheless, it would appear the commitments of ACEM to sustainability are such that its agenda is not far removed from the sustained yield of previous managerial regimes. Thus, ACEM is not as much post-extractive in its managerial stance as much as it is

⁵¹Lyotard, *op. cit.*

⁵²Douglas Torgerson, *The Promise of Green Politics: Environmentalism and the Public Sphere* (Durham, NC: Duke University Press, 1999).

⁵³John Barry, *Rethinking Green Politics: Nature, Virtue and Progress* (London: Sage, 1999); Sandilands, *op. cit.*; Meyer, *op. cit.*

⁵⁴Berry Commoner, *Making Peace with the Planet* (New York: Pantheon, 1990).

instead proving to be a far more attractive form of ecological exploitation. Therefore, ACEM kicks ecomanagerialism into a new register: one in which a concern for environmental renewability or ecological reintegration only opens a new register for ecomanagerialists to operate within. Emergent communities of experts and lay persons then can articulate their agendas in terms of “renewability management” or “reintegration management” to exert their impact on local, regional, and global economies.

To conclude, preserving and protecting a Nature posed as serviceable to “Humanity” is, as it has been for several centuries, a fraud. Humanity does not usually mean, in fact, all human beings. It means, in truth, those “we’s” with the capital, technology, expertise, and power to efficiently use, and thereby effectively threaten Nature. These “we’s” usually are “us” — North Americans, careerist professionals, urban people, car owners, meat-eaters, air travelers, service workers, pension holders, college graduates, Caribbean vacationers, and oil burners. Others exist, who are biologically human, but Nature is much less, or even not at all, serviceable for all of “them” — Africans, street people, rural folks, donkey owners, rice eaters, place-bound peasants, goat herders, pensionless unemployed, illiterates, Caribbean chamber maids, and manure burners. This distributive disjunction must be addressed by any ecosystem management worth its salt, but it mostly continues to be ignored by ACEM.

Not giving in before the totalitarian economic vision of today’s neoliberal order, and not accepting the settled modern ontology of Nature, Society, and Technology that all the other underworking canons of science and technology continue to buttress in ecosystem management, must lead to another very different sort of environmentally-minded political action. Working to improve the lives for all of “us,” including those billions silently shunted off to the ranks of the anonymous “thems,” while preserving and protecting nonhuman lives that always are being poised to be made more serviceable to liberal humanity’s modernity, is something more than adaptive and collaborative environmental management. This new alternative engagement for environmentalism should speak to very different audiences, write from quite varied standpoints, and work decisively toward more important ends. ACEM perhaps could help to make this change, but it mostly has not delivered thus far.