

# A Greener Revolution in the Making?

## Environmental Governance in the 21st Century



Our ways of governing the environment are undergoing a revolution. The most salient feature of this revolution is that the primary actor that had been responsible for governing the environment for much of the post-World War II period—the state—is steadily becoming less important. In many instances, it is even being completely sidelined. This revolution is likely to gather steam as environmental problems become more urgent, connect in unforeseen ways, and create unexpected impacts. The profound implications of ongoing transformations require more careful, systematic, and thoughtful consideration than they have received in the past.

The importance of the state has declined for three big reasons. The most general reason is captured well in the notion of the “shrinking state” that is characteristic of the rise of neoliberal economic reforms and the associated prescriptions of tax cuts, smaller government, and privatization. The collective effect of these prescriptions has been retrenched bureaucracies and lower state revenues. They have also led to lower budgetary and human resources to implement and

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enforce environmental policies. In less developed countries, budgetary crises can be particularly costly to environmental protection because they affect state capacity while they increase the motivation to accelerate the extraction of natural resources to support growth.

Many new actors, decisionmakers, and partnerships have come to play increasingly important roles in what happens to the planet's climate and to the water, forests, wildlife, air, and soils: in short, to everything that is meant by the word "environment." At the same time, there is an entirely new universe of ways to regulate the environment. These new strategies of regulation are replacing and supplementing older strategies of control that were typically based on laws and fines.

The signs of our times are visible in seemingly unconnected events. New York City has paid landowners and local governments in upstate New York hundreds of millions of dollars to help improve water quality in the city.<sup>1</sup> The World Wildlife Fund is working with Chevron in Papua New Guinea's tropical forests to promote biodiversity conservation.<sup>2</sup> Hundreds of thousands of farmers in Nepal are working with each other to demand greater rights to protect and use local forests.<sup>3</sup> Corporate social responsibility has come to stand for a kind of voluntary restraint, a new way of doing business and a promising new direction for governance that attracts some of the best young minds to work out problems facing the environment. Corporations are buying and selling rights to sulfur-dioxide emissions in markets created through governmental action to reduce the overall levels of atmospheric pollution.<sup>4</sup> The list goes on. These disparate events are connected by the novelty of the solutions that a large variety of actors have identified to address environmental problems previously under the purview of state actors and agencies.

Consider one such example in greater detail. Organizations in one country paying private landowners in another country to leave their lands fallow or buying land directly to leave it fallow are scenarios that would have been hard to imagine 25

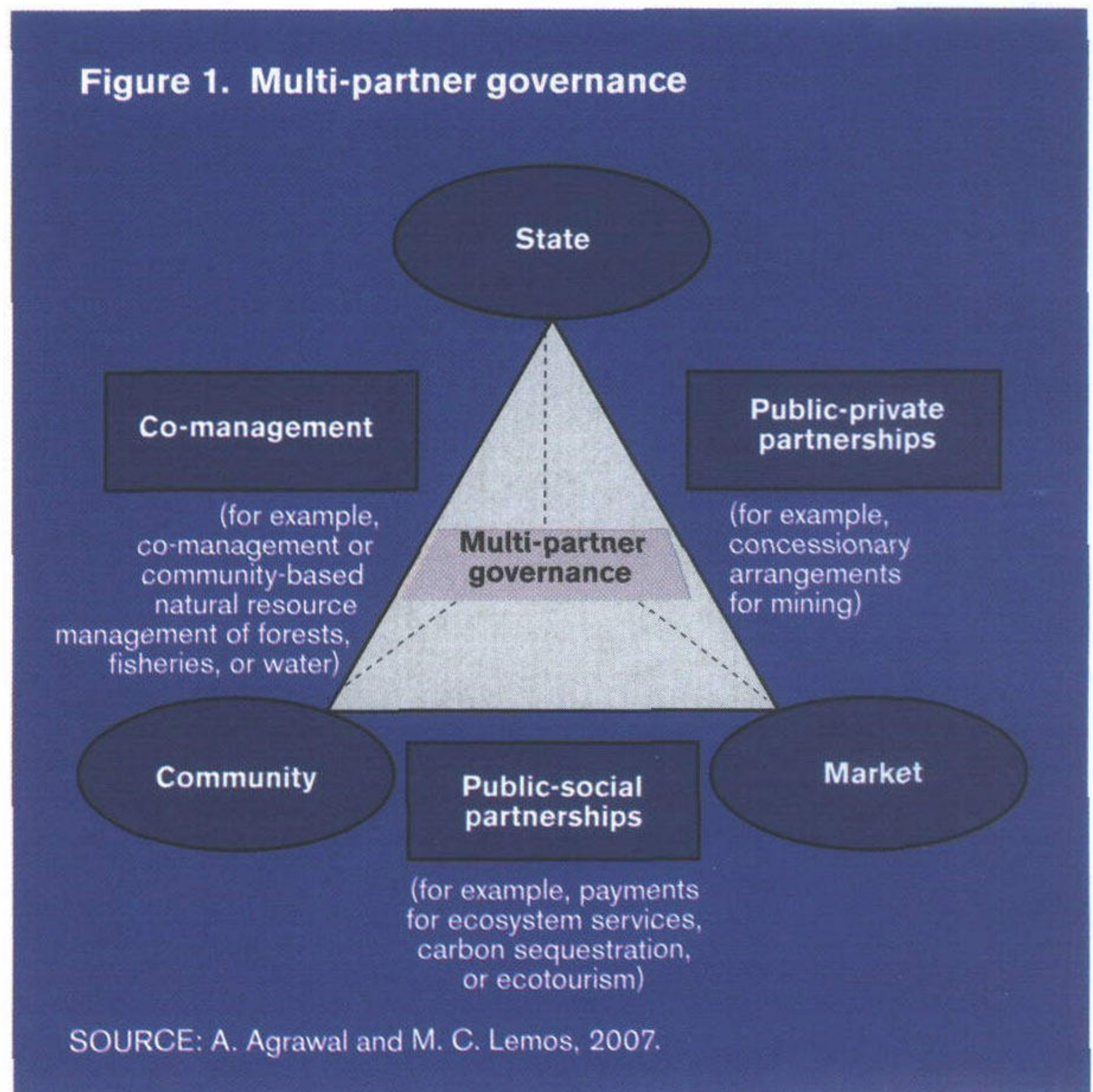
years ago. Today such efforts are pursued by a number of international conservation organizations. They represent the coming together of three different insights related to environmental governance: that a sustainable environment is a global common good, that positive environmental externalities exist at the global scale, and cross-national perspectives on environmental stewardship need to be valued in concrete material terms to protect the environment.

Under all of these diverse efforts lies a common story. Older ways of doing business—and in some ways, environmental governance has indeed become a kind of business as market-based incentives and monetary valuations of environmental resources become common features of governance strategies—are no longer sufficient. The complexity, immediacy, and ubiquity of environmental problems and crises demand novel and unusual human responses. Understanding such responses better and using them well is necessary if tomorrow's populations

are to inherit a sustainable planet. How can one best think about the multiplying types of collaborative environmental governance solutions to the problems that this planet faces? Figure 1 below offers a starting point.

Problems associated with exclusive reliance on a single agency have in part been responsible for the revolutionary shift toward more collaborative forms of environmental governance. In the past decade and a half, an exciting array of new approaches and research related to these approaches has come to the fore, prompting a debate on the significance of these developments and the future role of the state and its agencies.<sup>5</sup> The emergence of new forms of environmental governance has shown the importance of more nuanced thinking regarding hybrid forms of governance and regulation across the dividing lines represented by markets, states, and communities.

Figure 1 below identifies four major forms of hybrid governance: co-gover-





nance (between state agencies and communities), public-private partnerships (between state agencies and businesses), social-private partnerships (between businesses and nongovernmental organizations (NGOs) and/or communities), and multi-partner governance (incorporating actors from all three arenas). Each incorporates the joint action of at least two of the actors in the core triangle, and corresponds to literally hundreds of specific cases in which these actors play different roles.

For example, the decentralization of wildlife and forestry policies in literally all developing countries has led to initiatives such as the Joint Forest Management program in India, where the forest department finds common cause with village communities in identifying how the communities can improve the use (for livelihoods) and conservation of small patches of forests. Similar examples also abound in coastal fisheries. In addition, cap-and-trade schemes for carbon dioxide or sulfur dioxide represent instances in which industry actors work with governments to help limit emissions rather than being regulated through the imposition of strict quality controls. Also, in a number of certification schemes for timber and seafood, NGOs have worked with corporations to promote sustainable harvesting of forests and marine life. Again, such cooperation between non-state actors is a novel means of governing the environment. These examples illustrate the dynamic and fast-changing nature of contemporary environmental governance and the recognition that no single agent possesses the necessary capabilities to address the multiple facets, scales, and interdependencies of environmental problems that may appear at first blush to be quite simple.

## Learning from the Past

In addition to helping classify the diverse forms of contemporary environmental governance based on the underlying principles, Figure 1 also echoes some of the history of environmental governance, and the box to the right provides more context.

# The complexity, immediacy, and ubiquity of environmental problems and crises demand novel and unusual human responses.

The three main arenas of social interactions—states, markets, and communities—have been the staple of social theory since its very beginnings. They play a prominent role, for example, in the writings of such early thinkers as Adam Smith, Karl Marx, Max Weber, and Emile Durkheim, not to mention their latter-day descendents such as Talcott Parsons and other modernization theorists. Some of the most important social and political battles in contemporary times have been fought precisely over the question of which of these ways of organizing human social, economic, and political interac-

tions are the best for generating freer, more equitable, or organically more connected social orders.

Similarly, earlier writings on environmental governance typically focused on one of these three agents and associated strategies as providing the best chance of addressing the negative externalities resulting from the use and abuse of common environmental resources such as water, forests, pastures, fisheries, or clean air. To overcome these externalities, some scholars saw state action as necessary. Others, believing that states were ill-equipped to address market failures, advocated clearer

## A HISTORY OF ENVIRONMENTAL GOVERNANCE

The contemporary emergence of community-based and market-oriented efforts in environmental governance has occurred together with a similar increase in new forms of governance in other arenas of regulation. But in reality, all three of the actors and mechanisms of environmental governance—communities, states, and market agents—have been centrally involved in activities that affect environmental outcomes. Prior to the Industrial Revolution and the emergence of the modern nation state in the seventeenth and eighteenth centuries, community actors made most of the decisions that, in the aggregate, had an influence on environmental outcomes.

The very idea of environmental conservation and the need to protect resources through governmental action often emerged with the depletion of strategic resources such as forests and their timber. The state typically stepped in to regulate the perceived excesses of resource extraction by private actors, especially in Euro-

pean but also in colonial contexts. The state and its influence became particularly important in regulating environmental outcomes, starting from the 1970s. But prior to the dominant role played by state agencies in the post-World War II period, environmental outcomes were mostly influenced by the actions of industry and community actors. Forest and wildlife resources in the developing world, which came to be controlled by the colonial state as early as the late nineteenth century, are exceptions to this generalization.

The current resurgence of community and market actors is different in two ways from the roles they played earlier. There is a greater emphasis today on hybrid arrangements where coordination and clearer allocation of formal responsibilities becomes important. In addition, the goals of collaborative environmental governance—protection of environment and promotion of human welfare—tend to be spelled out more clearly today than they were earlier.



definition of property rights to allow functioning markets to emerge.<sup>6</sup> Arguments advanced by early scholars of common property identified communities as a third potential agent and mechanism of environmental governance.<sup>7</sup> These efforts, which championed states, markets, and communities, focused on perceived strengths of particular kinds of social agents: the capacity for authoritative action across jurisdictions by state officials, the mobilization of basic human incentives through market exchanges, or the deployment of solidaristic relationships and time- and place-specific knowledge represented by and in communities.<sup>8</sup>

Historical (and contemporary) examples of state-centric, market-based, and community-oriented environmental governance should be familiar to anyone who is interested in environmental governance. The massive appropriation of natural resources by colonial states during the latter half of the nineteenth and the first half of the twentieth centuries occurred in the name of better management and stewardship. Such appropriation was continued scarcely without a hiccup by many postcolonial states. Where forests, wildlife, and irrigation waters are concerned, governance by the state has often led to astonishingly high levels of exclusion, displacement, and pauperization of rural peoples—often those least equipped to cope with such marginalization. Even where state governance led to successful conservation, corollary adverse impacts related to equity, social and ecological resilience, and livelihoods have prompted widespread protests and analyses.

Market-based mechanisms such as prices, quotas, and taxes have been the staple of resource economists' prescriptions for more than four decades and have been used in a variety of environmental arenas. Individually transferable quotas for fisheries, taxes on pollution, and the use of prices to encourage recycling or reduce waste generation have been common ways to promote environmentally positive outcomes. Some problems in using market signals concern the difficulties in assessing the physical nature of the resource, monitoring envi-

ronmental outcomes and their causes, and the distributive aspects of environmental outcomes.

Communities, many scholars would argue,<sup>9</sup> have responsibly governed their natural resources for millennia. The importance of community-oriented forms of governance cannot be denied. These forms of governance may appear to be invisible because they are embedded in normal everyday forms of resource use by community members. They may appear subtle because they seldom rely on explicit force or material incentive-based sanctions. For all such invisibility and subtlety, however, many communities have been able to conserve resources such as forests, pastures, irrigation waters, and fish through governance arrangements that evolved over hundreds of years and performed well even in the face of scarcities. However, it has been difficult to achieve successful community-based governance because of the problems of scaling up and adapting the lessons from successful cases in one set of circumstances and generalizing to other contexts.

## Hybrid Environmental Governance

The hope embodied in mixed forms of environmental governance is implicit in each of the four types represented in Figure 1. They seek to address the weaknesses of a particular agency or arena (whether it is the state, the market, or the community) by drawing upon the strength of its potential partner.

The addition of community and local voices to environmental governance by the state is viewed as providing two kinds of benefits. Communities possess unique time- and place-specific information that may help solve complex environmental problems that distant state agencies often do not possess. At the same time, the formal involvement of community members in governance can allow for a more equitable allocation of benefits from environmental resources, because community members have a better standing from which to pressure state officials

to distribute benefits more equitably.<sup>10</sup> When civil society organizations work with corporate partners, each partner can get benefits that advance environmental goals. Corporate partners can benefit as their actions receive greater societal legitimacy, whereas NGOs can benefit through new sources of finance to support their conservation efforts. Finally, the involvement of state agencies can lend greater authority and coherence to the decentralized actions of community and market actors.

The revolution in current ways of thinking about environmental governance is, however, most clearly visible in the new attention that market-based approaches have received. The involvement of market actors in environmental collaborations has always been seen as having the potential to address the inefficiencies of state or community action, often by injecting competitive pressures in the provision of environmental services or through the use of price signals. But the excitement over market-based mechanisms is evident in discussions related to payments for environmental services (see the box on page 41) and cap-and-trade schemes for reducing carbon emissions.

The basic principle upon which market-oriented mechanisms rely—the activation and mobilization of agent incentives—has become increasingly common even in those hybrid strategies of environmental governance that do not explicitly involve market actors. Consider, as an example, co-governance strategies. In contrast to historical efforts to decentralize governance, contemporary partnerships between governments and communities rely on explicit calculations about how individuals will respond to environmental governance interventions. Individuals and households rather than communities or collectives are the bearers of specific rights and responsibilities. It is the actions of individuals—actions based on calculations of material costs and benefits—that environmental decisionmakers seek to influence.

In focusing on individual responses and modulating the regulation of resource use so as to suit the needs of households, the new goal of environmental governance is



to elicit the willing cooperation of those subject to governance.<sup>11</sup> This emphasis on voluntary cooperation in hybrid governance approaches has prompted some scholars of incentive-based governance strategies to call them “governance without government.”<sup>12</sup> The objective of such approaches is to transform individuals into the instruments of their own governance.

The focus on the individual’s response to governance strategies can rely on institutional changes to motivate behaviors that are environmentally more sustainable. Self-interest plays a role here because new institutional arrangements can sanction behaviors that create environmental harms and change the costs and benefits associated with a particular course of environmental action. New taxes, higher prices, better enforcement, and stronger

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penalties are examples of such institutional innovations. Actions change, but orientations remain the same.

Far more successful are those governance strategies that succeed in taking advantage of and changing the environmental attitudes and values of individuals

over time.<sup>13</sup> A greater societal concern for the environment plays at least some part in the emergence of greener corporate strategies. At the same time, the reinvention of business and market agents as “green” has the capacity to transform them into friends rather than foes of the environment and legitimize their position as partners in environmental governance.<sup>14</sup> The popularity of private-social and public-private partnerships for pursuing environmental goals holds the lure of greater efficiency but also of greening the market.

Hybrid forms of environmental governance also include multi-actor partnerships in which all three types of agents are involved. Such systems are common in the governance of water and forests but also for climate change.<sup>15</sup>

In terms of water management, Brazil’s experience serves as one such example. There, many multi-party resource management councils and policy advisory bodies have emerged as alternatives to state action. These groups include multiple representatives from civil society, public officials, and private and corporate water users. They exist in more than 100 of Brazil’s river basins and have adopted, at differing levels of success, state-of-the-art integrated watershed management mechanisms such as stakeholder participation, water permit and charging systems, and the adoption of the watershed as the management jurisdiction. In many ways, they are an improvement over the earlier, state-centric, hierarchical approach.<sup>16</sup>

However, the system of integrated watershed management in Brazil through the collaborative efforts of multiple actors

### PAYMENTS FOR ENVIRONMENTAL SERVICES

Payments for environmental services (PES) are voluntary transactions in which environmental service producers receive compensation for the provided service from an interested buyer. PES initiatives thus explicitly aim to improve sustainable development outcomes by promoting voluntary market-based exchanges between producers and potential buyers of specific services. Although nothing inherently orients PES initiatives toward equitable outcomes, enthusiasm has been building in development circles for PES strategies that emphasize payments to poor resource users, thus jointly addressing environmental conservation and poverty alleviation.<sup>1</sup>

A variety of PES schemes have been adopted, ranging from self-organized private transactions to government payments for ecosystem services. The latter can be more closely viewed as government interventions to shape market functioning or even public provision of public goods through market transactions. Although PES experiments have been implemented for a range of services, including carbon sequestration and biodiversity,<sup>2</sup> the most common PES schemes are built around watershed services.<sup>3</sup>

Watershed environmental services include water purification and maintenance of a reliable water supply, both of which are usually achieved by maintaining forest and other vegetation cover in a watershed or through more careful and systematic treatment and disposal of waste and sewage. Common producers of watershed services are landowners in the upper reaches of a watershed; buyers are often city residents and governments located in the lower reaches. Monitoring and valuing environmental services is difficult and can often prevent voluntary exchanges from occurring.

1. S. Pagiola, J. Bishop, and G. Platais, “Can Payments for Environmental Services Help Reduce Poverty? An Exploration of the Issues and the Evidence to Date,” *World Development* 33, no. 2 (2005): 237–53; and S. Wunder, *Payments for Environmental Services: Some Nuts and Bolts*, CIFOR Occasional Paper (Bogor: Center for International Forestry Research, 2005).

2. P. Ferraro and A. Kiss, “Direct Payments to Conserve Biodiversity,” *Science* 298, no. 5599 (2002): 1718–19; and S. Wunder, *ibid.*

3. N. Landell-Mills and I. T. Porras, *Silver Bullet or Fool’s Gold? A Global Review of Markets for Forest Environmental Services and Their Impact on the Poor* (London: International Institute for Environment and Development, 2002).



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stands in some contrast to a similarly collaborative effort: logging in the Congo Basin. The widespread selective felling of valuable hardwood species represents the coming together of the profit motive on the part of international logging com-

panies, the appetite for hardwood timber on the part of consumers, and the many forms in which corruption allows industry actors to sidestep formal legislation. Nonetheless, some reason for hope may lie in the new ways in which interna-

tional environmental NGOs have become involved in the monitoring of logging activities in the past five years, often with support and help from international donor organizations (the box on this page provides further details).

## An Imperfect Revolution?

The reconfiguration of environmental governance so that the state is no longer the only or even the most important actor responsible for addressing environmental externalities has enormous implications. Many find market-inspired mechanisms and actors as the most promising avenues to address simultaneously the goals of growth, sustainability, and even equity. Others believe that the reliance on market mechanisms will only exacerbate the many inequalities (of political, economic, and social power) that are at the root of environmental degradation to begin with. According to these critics, those who have greater access and expertise are more likely to derive greater benefits from the new market mechanisms.<sup>17</sup>

In addition, an excessive reliance on market mechanisms can lead to what many scientists, including Diana Liverman, director of Oxford University's Environmental Change Institute, have called the "commodification of nature."<sup>18</sup> Rather than enhanced sustainability, greater efficiency in the utilization of natural resources is likely then to lead to higher rates of extraction and an unfair use of natural resources in relation to non-humans and future human generations.

For others, especially those coming from a radical political economy perspective, hybrid forms of governance, especially those that include market actors, perpetuate a state of affairs in which the less powerful continue to lack the means and resources to influence environmental governance. Even if there is broader participation in environmental governance because more actors are now included, it is not more meaningful, because some actors continue to be unable to influence policy processes or shape environmental outcomes.<sup>19</sup> (The box on page 43 illustrates

### MULTI-ACTOR GOVERNANCE: LOGGING IN CENTRAL AFRICA

The Congo Basin is home to more than 10,000 plant species (about 3,000 of which are endemic) and more than 1,000 bird species and 400 mammal species. Central Africa's forests harbor much of this biodiversity. This astonishing diversity is being threatened by the great variety of ways in which logging occurs in the region today. The vast forests of the Democratic Republic of Congo (DRC) are likely to be stripped of some of the most important aspects of their biodiversity as the international logging industry operates without restraint in the country. In neighboring Cameroon, Republic of Congo, and Gabon, however, the story may turn out differently. As in the DRC, hundreds of logging companies have entered into different kinds of concession agreements with governments. These agreements vary in area coverage, purpose, age, duration, formality, administrative capacity of the concessionaire, logging methods, and the number and types of partners involved. With the help of international donors, a number of conservation non-governmental organizations (NGOs) are working with governments and industry actors to promote information sharing, effective monitoring, and local involvement.<sup>1</sup>

The concession agreements in the four countries vary in terms of the explicit or implicit involvement of national or international environmental NGOs, other civil society organizations, and donor governments.<sup>2</sup> Variations in these agreements, evolutions in their provisions over time, differences in logging practices within the same concession types, and emerging monitoring and enforcement efforts interact with system-level shifts in trade, international currency and commodity price fluctuations to shape logging, forest cover, and other forest-related outcomes. The result is a difficult-to-categorize patchwork of governance forms in which a large number and variety of actors play important roles. It is evident, nonetheless, that in areas where international civil society actors have not been able to moderate logging efforts, the partnerships between governments and industry actors have typically led to extremely high intensities of selective logging.

1. M. R. Perez et al., "Logging in the Congo Basin: A Multi-Country Characterization of Timber Companies," *Forest Ecology and Management* 214, no. 1-3 (2005): 221-36.

2. E. Lambin, "Spatial Modelling of Deforestation in Southern Cameroon: Spatial Disaggregation of Diverse Deforestation Processes," *Applied Geography* 17, no. 2 (1997): 143-62.



this in the context of community-based carbon forestry initiatives in Mexico.)

The more skeptical reading of these new forms of hybrid governance suggests that they are part of a broader corporate agenda to promote economic globalization, restrict the ability of NGOs and nation-states to regulate corporate action, and reframe environmental action so as to legitimize a neoliberal model of economic development.<sup>20</sup> The dominance of market-oriented approaches favors problem solving at the expense of equitable access, valorizes corporate involvement at the expense of community participation, and promotes sustainability at the cost of justice.

### The State Is Dead; Long Live the State

The defining feature of the contemporary revolution in environmental governance is the decline of state agencies and a greater role for market-oriented actors and instruments. The emergence of market actors, mechanisms, and incentives adds significantly to the arsenal of ways environmental problems and crises can be addressed. This phenomenon is undoubtedly critical and in many ways a salutary corrective to the overreliance on state action as the only path to sustainability.<sup>21</sup> The greater attention that community and local government-based strategies have received is also a positive development for those interested in innovative approaches to environmental governance.

However, the shift also has profound implications for the objectives of environmental governance to which a well-functioning state is central. The efficient performance of markets requires that a large number of conditions related to information, property rights, competition, externalities, transactions costs, and product characteristics to be satisfied. Although some of these conditions can be met by market organizations, corporate actors and consumers usually rely on state agencies for the definition of property rights and reduction of externalities, provision of many forms of infrastructure, and leg-

islation to ensure greater competition as well as freer access to information. The creation of new markets is neither trivial nor possible without strong and effective action by the state. The emissions-

trading scheme in the European Union (EU) that began in early 2005 saw a collapse of carbon prices within a year. The volume of emissions allowed under permits issued to industry actors was much

## CARBON FORESTRY IN MEXICO

The emergence of carbon markets in the wake of the United Nations Framework for Climate Change (UNFCCC) and the Kyoto Protocol has raised the possibility of a common solution to two of Earth's most pressing environmental problems: climate change and loss of biodiversity. The implementation of community-based forestry projects that replant and/or conserve forests while allowing the trading of carbon offset certificates in the global market hold the promise of a win-win situation that goes beyond its positive environmental outcomes to benefit livelihoods.<sup>1</sup>

Such projects span the range of actors and the mechanisms of hybrid governance. Communities in poorer countries plant and tend to the trees that will serve as sinks for the carbon that in turn will be traded at the carbon market. Public agencies and officials may contribute with financial or in-kind resources (such as seeds and technical support) that enable communities to join the project. National and international nongovernmental organizations may provide technical support, incubator grants, monitoring, and management skills to bridge the forestry projects with the carbon market. Businesses around the world buy carbon certificates from these countries to offset their usually more expensive carbon emissions in their countries of origin.

Many of these initiatives have been implemented all around the world with the support of some heavy hitters such as the World Bank.<sup>2</sup> One project that has called particular attention has been the *Fondo Bioclimatico*, in Chiapas, Mexico. The project was created by the local coffee credit union Pajal Yakac'tic and researchers at the Edinburgh Center for Carbon Management and Mexico's El Colegio de la Frontera Sur. It was registered as a United States Initiative for Joint Implementation in 1997.<sup>3</sup> The majority of participants in

*Fondo Bioclimatico* are subsistence and semi-subsistence farmers. In more than 10 years, it has been relatively successful in providing extra income for the participating households and attracting a few substantive clients for its carbon. The total amount of estimated carbon contracted has varied from 14,025.2 tons of carbon in 1998 to 2,657.5 tons of carbon in 2000.<sup>4</sup>

While community forestry for carbon sequestration offers a diversity of actors, mechanisms, and organizations across the state-market-community divide, there is also a downside. Technical concerns include difficulties related to monitoring and measuring carbon offsetting capacity of different projects and leakage—or the potential for the project to encourage deforestation in other areas where curbing institutions are not present. There are additional concerns that the way these projects have been set up has done little to minimize inequalities between communities and more powerful actors such as nongovernmental organizations and state agencies.<sup>5</sup>

1. E. Boyd, M. Gutierrez, and M. Chang, *Adapting Small-scale CDM Sinks Projects to Low-income Communities*, Tyndall Centre Working Paper (Norwich, UK: Tyndall Centre for Climate Change Research, 2005).

2. E. Corbera, "Bringing Development into Carbon Forestry Markets: Challenges and Outcomes of Small-Scale Carbon Forestry Activities in Mexico," in D. Murdiyarto and H. Herawati, eds., *Carbon Forestry: Who Will Benefit?* (Bogor, Indonesia: Center for International Forestry Research, 2006), 42–56.

3. K. Nelson and B. J. H. de Jong, "Making Global Initiatives Local Realities: Carbon Mitigation Projects in Chiapas, Mexico," *Global Environmental Change* 13, no. 1 (2003): 19–30. For more on the Chiapas forestry project see also E. Corbera, *ibid.*; and D. Klooster and O. Masera, "Community Forest Management in Mexico: Carbon Mitigation and Biodiversity Conservation through Rural Development," *Global Environmental Change* 10, no. 4 (2000): 259–72.

4. Boyd, Gutierrez, and Chang, note 1 above.

5. E. Corbera et al., note 2 above; and K. Nelson and B. J. H. de Jong, note 3 above.



higher than what they expected. However, it is governments that determine what volume of emissions to permit and whether to allocate the permits freely or to auction them: In this case, the EU, under pressure from carbon producers, issued far more permits than necessary for the market to function well.

Markets only serve to enhance those values that can be exchanged through voluntary contracts using the price mechanism. A greater role for markets in environmental governance must go together with effective advocacy and safeguarding of the stakeholders, interests, and values that may not be easily priced—future generations, endangered ecosystems, and threatened species among them. The determination of how they are to be “priced” is less an economic than a social, political, and cultural process. The state and its agencies must play a basic role in such determination, at least to the extent of formulating a process through which it can occur (the box on this page provides an example of such a process in Brazil’s water pricing structure).

While celebrating new, hybrid forms of environmental governance, one cannot afford to lose sight of a basic question: What is the best way to address the potentially egregious shortcomings of governance mechanisms, especially those concerning the distribution of costs and benefits of environmental change? Current hollowed-out state configurations may presage future inability of state actors to design and implement policies that curb environmental degradation and promote the sustainable use of natural resources.<sup>22</sup>

Globalization and subnational challenges have led to the emergence of a re-scaled state that has simultaneously been forced to cede power upward to supranational agencies and downward to regional and local levels.<sup>23</sup> The concurrent emergence of hybrid modes of environmental governance with greater emphasis on market actors and forces suggests that, over time, pressures may increase even further to marginalize state agencies under the premise that when state agencies do not function well, new actors should sub-

stitute for them. But it is worth keeping in mind the three essential roles of the state: creating the rules that shape markets and allow them to function, guiding the political processes through which non-traded goods and values are priced, and

crafting redistributive policies that guard against the worst effects of efficiency-driven market dynamics. These roles can best be performed by decisionmakers whose decisions are made transparently and through a process that is subject to

## WATER PRICING IN BRAZIL

In the 1990s, water management in Brazil went through a profound reform that replaced the country’s old centralized, sectoral, and hierarchical system with one in which a new set of decentralized governance bodies—the River Basin Committees—became the main organizational unity at the watershed level.<sup>1</sup> These committees are composed of representatives of bulk water users in the private and public sectors (defined by the volume of water they consume), public officials across different scales of government (usually municipal and state but also federal in the case of rivers that cross one or more states) and representative of organized civil society (such as labor unions, nongovernmental organizations, professional associations, and social movements). To date, more than 100 of these committees have been created, and their implementation and authority has varied considerably across different basins and regions. The composition of the committees across state-market-community lines is supposed to not only enhance representation of the diverse interests around water use and management but also to foster buy-in and stewardship toward more integrated and sustainable water use and conservation.<sup>2</sup>

An especially controversial and politically charged aspect of Brazil’s water reform has been the implementation of a bulk water permitting and charging system—the *cobrança*—which challenged users to change their deeply ingrained belief that water is a public common good to the belief that water is a commodity for which users should pay. The rationale behind charging for water is that the *cobrança* will encourage sustainable water use and allow for the valuation of different aspects of water as a public good with economic value. While tariffs for piped water have existed for a long time, this is the first time that the

commodification of bulk water was placed in Brazil’s water policy agenda. And although there is considerable resistance among users to pay for bulk water, a few river basins have succeeded in implementing the *cobrança*. One of those basins, that of the Paraíba do Sul river that crosses Brazil’s most developed states (Rio de Janeiro, São Paulo, and Minas Gerais), has succeeded in negotiating and implementing a *cobrança* system that has been quite successful in encouraging compliance—especially from the industrial and water utility sectors—and has generated income for basin infrastructure projects. The long negotiation process for the base water tariff was marked at the same time by incredible cooperation and entrenched resistance across different sectors of water users and society actors. The final formula accounts for water withdrawal and pollution, but it falls short of including ecosystem services costs. Supporters of the tariff system argue that the price is right because it is high enough to curb wasteful water use, including pollution, but not too high to be beyond the capacity of lower-grossing sectors such as agriculture. However, although it is an improvement over the old system, the price maybe still too low to encourage true sustainable consumption and generate resources for the implementation of water restoration programs.

1. R. N. Abers and M. E. Keck, “Muddy Waters: The Political Construction of Deliberative River Basin Governance in Brazil,” *International Journal of Urban and Regional Research* 30, no. 3 (2006): 601–22; and M. C. Lemos and J. L. F. Oliveira, “Can Water Reform Survive Politics? Institutional Change and River Basin Management in Ceará, Northeast Brazil,” *World Development* 32, no. 12 (2004): 2121–37.

2. For a detailed account of the pricing negotiation process, see R. M. Formiga-Johnsson, L. Kumler, and M. C. Lemos, “The Politics of Bulk Water Pricing in Brazil: Lessons from the Paraíba do Sul Basin,” *Water Policy* 9, no. 1 (2007): 87–104.



checks and balances from those influenced by decisions.

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## NOTES

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