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Expanding the "Geography" of Policy Options to Reduce Greenhouse Gas Emissions: A Commentary on Hari Osofsky's The Geography of Solving Global Environmental Problems

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I. INTRODUCTION

Professor Hari Osofsky[1] is to be lauded for her efforts to expand the "geography" of international law and policy to encompass multiple levels of municipal, county, state, national, and international jurisdictions.[2] She provides important insights into the nonformal collaborations that enhance the potential for subnational efforts to rein in greenhouse gas (GHG) emissions. My commentary builds on her insights, and presents some modest proposals on how to extend her analysis to encompass additional approaches to gain commitments to reducing GHG emissions.

Osofsky's basic premise is that the "global" problem of climate change due to GHG emissions must be addressed on multiple levels, in large part because efforts at the international and national levels (of at least some countries) have fallen far short, and she expects this will continue. Cities—even small cities in suburban areas—need to make commitments to reduce GHG emissions within their jurisdictions. One could add to her argument the observation that jurisdictions at all levels can also attend to the other side of the GHG equation: maintaining or expanding forests to sequester carbon. Both reducing emissions and increasing carbon sequestration can be done through regulation, incentives, public works, and land purchases.

Osofsky emphasizes that multilevel networks are crucial in providing the means to overcome the collective action problem. Her case study on the Minneapolis-Saint Paul metropolitan region demonstrates the remarkably complex arrangements, and is a very promising start to assessing the motivations and mechanisms for voluntary local actions (i.e., not mandated by state or federal rules) to reduce GHG emissions.

In Part II of this essay I explore the implications of the potential incentives for greater action to address global climate change that go beyond the obvious moral imperative to encompass other value categories including wealth, well-being, and power. In Part III I address the consequences of the greater complexity of the system. In Part IV I present conclusions.

II. EXPLORING OTHER VALUE CATEGORIES: GHG EMISSION REDUCTIONS ALONG FOR THE RIDE

The set of values that can be tapped into may go beyond the values of rectitude (i.e., righteousness in conforming with ethical behavior) and respect (i.e., being held in high regard by others) that are assumed, if only implicitly, to be people's primary motivations to reduce GHG emissions. Impulses can be categorized according to the Freudian distinctions of id, ego, and superego, which are roughly equivalent to raw impulse, instrumental reason, and conscience, respectively. One of the most insightful psychological aspects of the policy sciences framework is the "triple-appeal principle."

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1. Hari M. Osofsky is a Professor at the University of Minnesota Law School; 2013–14 Fesler-Lampert Chair in Urban and Regional Affairs; Director of the Joint Degree Program in Law, Science & Technology; Faculty Member of the Conservation Biology Graduate Program; Adjunct Professor of the Department of Geography, Environment and Society; and Fellow of the Institute on the Environment.

2. Hari M. Osofsky, *The Geography of Solving Global Environmental Problems: Reflections on Polycentric Efforts to Address Climate Change*, 58 N.Y.L. Sch. L. Rev. 777 (2013–2014).

That is, policy appeals can be based on any combination of id, ego, and superego.[3] Of the three types of appeals, Osofsky's essay (and the bulk of the writings on restraining GHG emissions) seems to emphasize the superego appeal rather than id or ego. In the spirit of conscience and altruism, Osofsky's essay is framed in terms of opportunities and obstacles regarding cooperation rather than competition. To be sure, one can well imagine that "doing the right thing," and gaining respect for doing so, may be the impulse that has moved some community leaders to embrace emission-reduction measures. And the camaraderie of working with counterparts to establish these coalitions of altruists probably provides some affection rewards. Yet a fuller exploration of other value categories may be a useful next step toward discovering additional incentives for more jurisdictions to join these efforts, possibly based on well-being, wealth, and power.

A. The Well-Being Value

Let us first consider the well-being value, which entails health and physical security. For a small jurisdiction, reducing its own contribution to the global load of GHGs has no significant impact on the health of the local community. However, reducing automobile and factory emissions, because of the conventional pollutants they contain, could have significant health benefits. This could be accomplished through caps or higher taxes on these emissions.[4] Concomitantly, some, but not all, means of reducing conventional air pollution entail reducing hydrocarbon combustion that produces GHG emissions. For example, a limit on the amount of sulfur dioxide (a conventional pollutant) that can be emitted would, in some circumstances, induce greater efficiency in the combustion of hydrocarbons, thus reducing GHG emissions. A switch to renewable power sources would similarly reduce conventional pollutants and GHG emissions.

Requiring higher gas mileage in automobiles would also reduce both conventional pollutants and GHG emissions per mile driven. Impressive strides in reducing air pollution in the Los Angeles area have simultaneously reduced the consumption of hydrocarbon fuels and thereby the emission of GHGs.[5] The substitution of liquid natural gas for diesel fuel for ships at the Los Angeles ports is projected to drastically reduce GHG emissions and virtually eliminate particulate emissions.[6] Yet another example is the expansion of mass transit to reduce automobile use in general.

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3. *See* Harold D. Lasswell, *The Triple-Appeal Principle: A Contribution of Psychoanalysis to Political and Social Science*, 37 Am. J. Soc. 523 (1932).

4. How large a community would have to be to benefit from a reduction in air pollution emissions from within its own boundaries varies according to numerous factors including, but not limited to, wind, its baseline pollution load, whether there is pollution from upwind area swamps, and the impact of internally generated pollution, etc.

5. *See generally* U.S. Dep't of Energy, Transportation Energy Future Series: Potential for Energy Efficiency Improvement Beyond the Light-Duty-Vehicle Sector 64–67 (2013), *available at* http://www.nrel.gov/docs/fy13osti/55637.pdf.

6. *See id.* at 62 ("Ports, which tend to be high pollution areas, will strongly benefit from the CO_2 [carbon dioxide] reductions, as well as from LNG's [liquid natural gas's] sulfur-free power, which eliminates

Similarly, developing alternatives to driving, such as improved walkways or bike paths, can contribute to greater levels of exercise and thereby to reductions in the incidence of comorbidities to obesity, such as heart disease and diabetes.[7] In Victoria, British Columbia, a study estimated that, in addition to considerable health improvements due to physical exercise, the monetized value of energy conservation is C$400 for each 1,000 miles walked, biked, or otherwise shifted to nonmotorized transport.[8]

B. The Wealth Value

Regarding the wealth value, if homebuyers and renters have sufficient information about the amenities that often come in tandem with a community's efforts to reduce GHG emissions, it is possible that the property values (and thereby the tax base) of a community will increase along with its emission-reduction initiatives. This is especially true if (as discussed below) these initiatives include other community-enhancing objectives that have the effect of reducing GHG emissions. Some of the same initiatives that improve health (well-being) can also enhance property values (increase wealth). For example, bike paths and improvements in "walkability"[9] that enhance recreation can also increase the attractiveness of a neighborhood. A broad survey of research on bike trails in the United States found generally positive, though mild, increases in property values of homes near the trails.[10] In their own more

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SO_x [sulphur oxides]; [there will also be a] 90% reduction in NO_x [nitrogen oxides] and [a] virtual elimination of PM [particulate matter]."). The nitrogen oxides, sulphur oxides, and particulates are conventional pollutants rather than greenhouse gases. Nitrogen oxides and sulphur oxides pose respiratory risks such as asthma and bronchitis. Both contribute to the formation of particulates; small particulates can penetrate deeply into the lungs, posing risks to both lung and heart health. *See* Alan H. Lockwood et al., Coal's Assault on Human Health 2 (2009), *available at* http://www.psr.org/assets/pdfs/psr-coal-fullreport.pdf (noting that nitrogen oxides, sulphur oxides, and the pollutants they give rise to pose the greatest health risks).

7. James F. Sallis, Robert B. Cervero, William Ascher, Karla A. Henderson, M. Katherine Kraft & Jacqueline Kerr, *An Ecological Approach to Creating Active Living Communities*, 27 Ann. Rev. Pub. Health 297, 303–04 (2006), *available at* http://www.rolandpark.org/documents/SallisEtAl.pdf.

8. Todd Litman, Quantifying the Benefits of Nonmotorized Transportation for Achieving Mobility Management Objectives 29 (2010), *available at* http://artshenkman.com/cs/groups/content/@webottawa/documents/pdf/mdaw/mdy3/~edisp/con056214.pdf.

9. It is significant that Osofsky cites urban studies scholar Reid Ewing's work on urban development and climate change. In other circles, Professor Ewing is deservedly prominent for his work on making cities more "walkable" for the sake of the physical health benefits from walking rather than riding in vehicles. *See* Reid Ewing et al., *Identifying and Measuring Urban Design Qualities Related to Walkability*, 3 J. Physical Activity & Health S223 (2006), *available at* http://activelivingresearch.org/files/JPAH_15_Ewing.pdf.

10. *See* David P. Racca & Amardeep Dhanju, Project Report for Property Value/Desirability Effects of Bike Paths Adjacent to Residential Areas 11 (2006), *available at* http://128.175.63.72/projects/DOCUMENTS/bikepathfinal.pdf ("The majority of studies indicate that the presence of a bike path/trail either increases property values and ease of sale slightly or has no effect. Studies have shown that neighbors of many bike paths/trails feel that the quality of life of their neighborhood has been improved, that the trails were a good use of open space, and in the case of abandoned railways were an improvement from before the trails went in. There is definitely a large portion of the population that sees bike paths as an

rigorous hedonic pricing estimate prepared for the Delaware Department of Transportation, policy analysts David P. Racca and Amardeep Dhanju found that the proximity to bike paths was associated with an $8,000 premium for the median $200,000 house in their sample.[11]

Similarly, mass transit that relieves automobile congestion can increase property values. In Seoul, South Korea, auto traffic was reduced by dismantling an elevated highway and substituting it with dedicated bus lanes.[12] This not only reduced pollution and the ambient temperature in the area, but also increased the value of buildings along the former highway.[13]

C. The Power Value: Shifting from Cooperation to Competition

It is worth noting that efforts to attract home-buyer dollars are intrinsically competitive—communities compete with one another for those who can afford to pay more. The thrust of Osofsky's efforts—and the bulk of the efforts addressing global climate change—have been focused on fostering cooperation rather than harnessing competition.[14] The appeal to rectitude is a superego appeal to set aside one's own pursuit of advantage for the sake of cooperating with the broader community. As laudable as voluntary cooperation may be, it is typically hampered by the collective action problem that provokes defections.[15] The lack of cooperation on the part of national governments (e.g., the United States[16]) to require reductions in GHG emissions is an instance of defection from the international initiative to cooperate for the "selfish" interest of the citizenry of the country.

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amenity and seeks out residences near trails, parks, and other natural resource areas. Some studies express that those recently moving into areas near bike paths are generally more favorable to the paths than those who have lived in neighborhoods before the construction of a trail. In some areas a large majority of neighbors are happy with the trails, even some who were originally opposed to their construction.").

11. *Id.* at 21–22. "Hedonic pricing" is a pricing model that estimates the impact of a particular variable, such as proximity to a bike trail, by "predicting" the value of a dependent variable (such as housing prices) through a multiple regression model that includes the variable of interest and other variables that are believed to influence the dependent variable. The focus is then on the constant associated with the variable of interest: this constant (or parameter) represents the change in the dependent variable predicted by a unit change in the variable of interest, controlling for other, confounding variables. Thus, in the Racca and Dhanju study, being near a bike path "predicts" an $8,000 higher home price, controlling for variables such as size of house, age of house, and number of rooms, and so on. *Id.*

12. Robert Cervero, *Urban Reclamation and Regeneration in Seoul, South Korea*, *in* Physical Infrastructure Development: Balancing the Growth, Equity, and Environmental Imperatives 187, 190, 192 (William Ascher & Corinne Krupp eds., 2010).

13. *Id.* at 195–96.

14. *See* Osofsky, *supra* note 2, at 815–19.

15. *See id.* at 781–83.

16. *See* Robert L. Glicksman & Richard E. Levy, *A Collective Action Perspective on Ceiling Preemption by Federal Environmental Regulation: The Case of Global Climate Change*, 102 Nw. U. L. Rev. 579, 582, 627 (2008).

1. Voluntary Efforts

Recognizing the potential for competition as a driving force for reductions in GHG emissions opens up a broader examination of civil society rankings and certifications as an element of "soft power" with potentially harsh economic consequences for weak compliance. Yale Law School professor Daniel Esty and Harvard Business School professor Michael Porter have developed an "Environmental Regulatory Regime Index" that can be used to make decisions on foreign direct investment or regional headquarters locations, thus affecting those locations' competition for such investment.[17]

The Forest Stewardship Council (FSC) certifies timber that has been harvested in a sufficiently sustainable way to meet the FSC's standards, which are more stringent—and more outcome-oriented—than those of other standards.[18] The FSC was founded by major environmental nongovernmental organizations after the failure of the 1992 Rio Earth Summit to spur action against deforestation. The absence of government involvement has allowed the FSC to take more aggressive stands in terms of sustainable forest management.[19] The impact of FSC certification is that some manufacturers, retailers, and consumers will buy only FSC-certified lumber, putting timber operations that cannot gain certification at a competitive disadvantage, and possibly raising the concern of their governments.

Note that the effectiveness of these efforts requires awareness of the certification and its virtues. In February 2008, the British marketing firm GfKNOP, commissioned by the FSC, found that only 23% of a random sample of British consumers recognized the FSC logo, though this was up from 19% in March 2007. Awareness of the FSC logo on paper products was only 9%.[20] However, by 2011 another FSC survey found that 36% of British respondents recognized the FSC logo, up from 25% in 2010.[21]

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17. *See* Daniel C. Esty & Michael E. Porter, *Ranking National Environmental Regulation and Performance: A Leading Indicator of Future Competitiveness?*, *in* The Global Competitiveness Report 2001–2002, at 78 (Michael Porter, Jeffrey Sachs & Andrew Warner eds., 2002).

18. Other standards, such as the broadly used International Organization for Standardization's ISO 14001 standards, certify whether the company has an environmental management system, but do not entail independent monitoring of timber harvesting per se. Still other standards have been developed by the timber industries in various countries, and have generally been less stringent even if they do rely on monitoring timber harvesting. However, these other certification schemes have become increasingly rigorous as they have competed with the FSC for acceptance by retailers and consumers. *See* Christine Overdevest, *Comparing Forest Certification Schemes: The Case of Ratcheting Standards in the Forest Sector*, 8 Socio-Econ. Rev. 47 (2010).

19. Even so, the FSC also has its detractors for not being stringent enough: FSC Watch and Greenpeace International have criticized the FSC for weak custody records, certifying poor logging practices, and accrediting incompetent accrediting entities. *See generally* FSC Watch, http://www.fsc-watch.org/ (last visited Mar. 27, 2014); Greenpeace Int'l, Holding the Line with FSC: Recommendations and Progress to Date on Certification Body and FSC Performance Following a Critical Analysis of a Range of "Controversial" Certificates (2008), *available at* http://www.greenpeace.org/france/PageFiles/266591/holdingtheline.pdf.

20. Forest Stewardship Council UK, Annual Report 2009–2010, at 12 (2010).

21. Forest Stewardship Council UK, *Significant Increase in Awareness of FSC in the UK*, GoForWood.info (Feb. 28, 2010), http://www.goforwood.info/en/news.php?id=29481.

Even so, many consumers likely do not know which stores carry FSC-certified products. In addition, wood products may be "certified" by programs of the timber industry that have far less rigid sustainability standards, and it is unlikely that many consumers would have the capacity to distinguish the rigorous FSC certifications from the others. In short, trying to harness competitive incentives through citizen cooperation has its limitations. Regulation would probably have greater impact.

2. Regulatory Efforts

On the global intergovernmental level, the pursuit of wealth through competitive trade has the potential to dovetail with reductions in GHG emissions, but governmental regulation may also be needed to draw out its competitive effect. This brings a focus on the looming battle between the need for stronger incentives to reduce GHG emissions and the benefits of free trade. On the one hand, a range of instruments exists to reduce the competitiveness of firms or nations that have more lax GHG emissions records, or more lax environmental standards in general. On the other hand, such instruments can be used as protectionism for less efficient domestic industries, reducing the benefits of free trade.

There are four regulatory areas that can promote GHG emission reductions by impairing noncompliant firms or nations. First, a state can prohibit imports that do not meet the same environmental standards as those prevailing in the importing country or trading bloc. Several internationally endorsed standards exist, perhaps most prominently the environmental and energy conservation standards of the International Organization for Standardization (ISO). After discussing the "reputational" advantages of a stringent environmental regime of a government wishing to enhance the partnership prospects with the European Union or specific EU nations, political scientists Kai Schulze and Jale Tosun assert that:

> The second type of reward that the EU can provide to third states is access to its attractive markets, which is likely to trigger "trading-up" dynamics . . . . The trading-up argument suggests that high-regulating jurisdictions may use environmental standards to restrict or even ban noncompliant imports. Such market access regulations therefore represent an economic incentive for third countries that wish to export goods to a high-regulating market to conform to that market's standards. In this perspective, the green markets of the EU can act as regulatory price makers, thereby compelling third states to follow European provisions. Failure to comply might result in punishment through import restrictions . . . . The trading-up argument has been widely confirmed in the literature with respect to both product and production process standards.[22]

Second, a state can favor nations (i.e., "most favored nation" trade status) with superior environmental regulations, in some instances by entering into multilateral environmental agreements. Schulze and Tosun "contend that the trading-up mechanism

22. Kai Schulze & Jale Tosun, *External Dimensions of European Environmental Policy: An Analysis of Environmental Treaty Ratification by Third States*, 52 Eur. J. Pol. Res. 581, 585 (2013). *See generally* Frank Schimmelfennig, *Europeanisation Beyond the Member States*, 8 J. Comp. Gov't & Eur. Pol'y 319 (2010); Daniel W. Drezner, *The Hidden Hand of Economic Coercion*, 57 Int'l Org. 643 (2003).

is also powerful enough to induce third states to join the EU's preferred MEAs [Multilateral Environmental Agreements]."[23] In their analysis of the likelihood that a non-EU nation would enter into a multilateral environmental agreement with the EU, they find that "the prospect of gaining access to the highly regulated and lucrative markets of the EU can produce an incentive for third countries to align their environmental regulations with EU norms."[24]

Third, a state can impose Pigovian taxes,[25] such as a carbon tax, on imports from nations that do not have such taxes, thereby causing the GHG-profligate firms to internalize the cost of excessive GHG emissions. Several European leaders have pressed for an EU-wide carbon tax on imports; thus far it has been resisted by the corporate sector and other European leaders.[26]

Fourth, a state can impose antidumping restrictions on nations with less stringent regulations, on the grounds that lax environmental regulations reduce the costs of production, and therefore constitute dumping.[27] Economists Marius Brülhart and Alan Matthews note:

> The imposition of anti-dumping measures is permitted under WTO rules, if dumping "causes or threatens material injury to an established industry . . . or materially retards the establishment of a domestic industry." Complex pricing policies and adjustment for indirect cost factors leave a degree of arbitrariness in the calculation of dumping margins and "material injury." WTO rules also permit countries to take *countervailing action* against exports which have benefited from subsidies in the exporting country provided such exports cause or threaten to cause material injury to a domestic industry.[28]

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23. Schulze & Tosun, *supra* note 22, at 585.

24. *Id.* at 596. Their analysis is based on the premise that nations more dependent on EU trade are more likely to enter into these agreements, controlling for other factors that might influence the motivation to enter into such an agreement.

25. A Pigovian tax is a tax that is imposed on a negative externality, such as pollution, that is generated by economic activity. *See generally Environmental Policy and Pigouvian Taxation*, Tax Found., http://taxfoundation.org/tax-topics/environmental-policy-and-pigouvian-taxation (last visited Mar. 27, 2014).

26. *See, e.g.*, Scheherazade Daneshkhu, *Sarkozy Fights to Save Flagship Carbon Tax*, Fin. Times, Dec. 31, 2009. (noting that Nicolas Sarkozy's efforts to enact a carbon tax on imports in France and in the European Union as a whole were opposed by the Socialist Party within France and by the German government); Ben Hall, *Recovery Fears Spur Sarkozy Attack on 'Currency Disorder'*, Fin. Times, Jan. 8, 2010.

27. *Technical Information on Anti-Dumping*, World Trade Org., http://www.wto.org/english/tratop_e/adp_e/adp_info_e.htm (last visited Mar. 27, 2014) ("Dumping is, in general, a situation of international price discrimination, where the price of a product when sold in the importing country is less than the price of that product in the market of the exporting country. Thus, in the simplest of cases, one identifies dumping simply by comparing prices in two markets. However, the situation is rarely, if ever, that simple, and in most cases it is necessary to undertake a series of complex analytical steps in order to determine the appropriate price in the market of the exporting country (known as the 'normal value') and the appropriate price in the market of the importing country (known as the 'export price') so as to be able to undertake an appropriate comparison.").

28. Marius Brülhart & Alan Matthews, *EU External Trade Policy*, *in* The European Union: Economics & Policies 473, 481 (Ali M. El-Agraa ed., 8th ed. 2007) (emphasis added).

All of these approaches would either favor nations and firms with more responsible GHG practices, or offset the existing competitive advantages of nations and firms with profligate practices.

However, regulatory intervention can also lead countries to adopt instruments that block imports in order to protect domestic industries. The many decades of free-trade efforts through the negotiating rounds of the General Agreement on Tariffs and Trade, and the role of the World Trade Organization (WTO) to enforce the agreements against tariffs and nontariff barriers, therefore challenge these instruments. The most commonly articulated concern is that invoking environmental standards to justify nontariff barriers would be used as pretexts for protecting domestic industry.[29]

Another concern is that banning imports that lack certification would disadvantage firms of developing countries because of the rather stiff costs of gaining and maintaining certification. Consider, for example, the costs of the aforementioned ISO standards, which are the most internationally prominent environmental practices certifications. ISO 14001 certification requires a firm to develop an environmental management system entailing mechanisms to trace the environmental impacts of its activities and outputs, assess its environmental performance, comply with environmental laws and regulations, and demonstrate continual environmental improvement.[30] The formal certification requires review and approval by a third party that has been qualified to undertake the certification review. In 2004, William Glasser of the U.S. Environmental Protection Agency estimated that "large facilities spend on average about $1 million in sunk transaction costs to pursue certification."[31] Among developing countries, some would also have great advantage over others. China is currently in a stronger position to move toward meeting more stringent GHG emission standards than many other developing countries. China has already installed more wind power than the United States; China's hard-currency reserves could finance the importation of alternative energy components to complement domestic technology and equipment; and Chinese research and development manufacturing clusters[32] have been impressively gearing up

29. *See, e.g.*, Jonathan M. Harris, Trade and the Environment: A GDAE Teaching Module on Social and Environmental Issues in Economics 12 (2004) ("WTO authorities tend to be suspicious of 'green protectionism'—the use of trade barriers to protect domestic industry from competition under the guise of environmental regulation.").

30. Int'l Org. for Standardization, *ISO 14001—Environmental Management Systems—Requirements with Guidance for Use* (2004).

31. Aseem Prakash & Matthew Potoski, *Racing to the Bottom? Trade, Environmental Governance, and ISO 14001*, 50 Am. J. Pol. Sci. 350, 352 (2006) (quoting a 2004 e-mail from William Glasser, U.S. Envtl. Prot. Agency).

32. These are facilities that undertake research and development for new products and processes, complimentary to and usually clustered in close proximity to facilities that manufacture the new products, use the newly developed processes, or both. *See, e.g.*, Douglas Zhihua Zeng, *How Do Special Economic Zones and Industrial Clusters Drive China's Rapid Development*, *in* Building Engines for Growth and Competitiveness in China: Experience with Special Economic Zones and Industrial Clusters 1, 5 (Douglas Zhihua Zeng ed., 2010), *available at* https://openknowledge.worldbank.org/bitstream/handle/10986/2501/564470PUB0buil10Box349496B01PUBLIC1.pdf.?sequence=1.

to use alternative energy. The question, though, is whether this ought to be seen as lamentable, for the sake of India, Bangladesh, Haiti, and other developing nations without deep pockets, or as an opportunity to lower GHG emissions by inducing Chinese firms and the Chinese government to accept more stringent emissions standards as a competitive advantage over such other developing nations. In a sense, the question is whether global climate change is dire enough to warrant greater inequality in the wealth of nations.

In addition, some analysts question the efficiency of import restrictions, even if they are sound in terms of excluding imports produced in environmentally problematic ways. Brülhart and Matthews argue that:

> The main trade policy issue in [the environmental] debate relates to the use of import restrictions on goods whose production creates negative transborder environmental externalities. Economic theory suggests that in such circumstances the most efficient remedy is to apply direct environmental policy at the source of the externality (e.g., through pollution taxes, eco-subsidies or regulation . . .). However, environmental policies are often difficult to enforce, so this first-best option may not be feasible. In that case, import restrictions may be the only practicable policy tool. The main drawback of import restrictions against polluting countries is that they provide protection to domestic producers of the importable good, and ecological arguments are therefore vulnerable to abuse by domestic protectionist lobbies. For this reason, trade measures should be temporary and accompanied by efforts to implement environmental policies in the polluting countries. Even if the externalities are dealt with by environmental policies adopted at the source, new problems can still emerge. Environmental policies affect the competitiveness of open economies. Thus, countries with lax environmental legislation are blamed for "ecological dumping," and import-competing industries in countries with stringent laws may lobby for protection to ensure a "level playing field" . . . . Even if an agreed way of eradicating "ecological dumping" could be found, it remains questionable if trade restrictions are the most appropriate remedy. Restricting imports can be counterproductive as it promotes the domestic activities which the environmental policy is attempting to restrain.[33]

Brülhart and Matthews conclude that:

> Trade policy is certainly not the best, and can often be an inappropriate, instrument to protect the environment. International dialogue and agreed domestic policy measures are a more efficient alternative. The main platform for such negotiations is the WTO Committee on Trade and Environment, which was established in 1995. Discussions in this committee have so far been a mere stocktaking exercise, and its reports rarely contained specific proposals. The EU, like everybody else, supports the case for multilateral environmental agreements, but the difficulty lies in getting countries to agree.[34]

33. Brülhart & Matthews, *supra* note 28, at 489–90.

34. *Id.* at 490.

Here again, the emphasis has been on fostering cooperation rather than harnessing competition. As the consequences of global climate change become more acute, the WTO Committee on Trade and Environment will likely come under increasing pressure to acknowledge the global costs of not permitting import restrictions based on GHG emissions.

One possibility is requiring ISO certification for imports into countries that also require ISO certification for domestically produced goods. The ISO (which China joined in 1997), has very recently formulated the certification standards for energy use—ISO 50001.[35] Like the ISO 14001 standards cited above,[36] the ISO 50001 certification requires a management plan, mechanisms to trace energy use and its impacts, a system for monitoring progress, and demonstration of continued progress. While the initiative, first begun by the U.N. Industrial Development Organization, has been led by the U.S. and Brazilian delegations, China has also been very active. And the ISO's environmental standards, first promulgated in 1996, do have "carbon footprint" and GHG reduction as part of the suite of management goals and criteria: ISO 14064 provides for quantification, monitoring, and reporting of GHG emissions,[37] and ISO 14067 provides a framework for measuring the carbon footprint.[38] Although the forestry standards have been criticized as insufficiently rigorous,[39] and compliance is often an issue,[40] the general assessment of the impact of ISO environmental standards has been quite positive. Thousands of firms have adopted ISO standards, and have

35. Int'l Org. for Standardization, *ISO 50001—Energy Management Systems—Requirements with Guidance for Use* (2011).

36. *ISO 14001—Environmental Management Systems—Requirements with Guidance for Use*, *supra* note 30.

37. Int'l Org. for Standardization, *ISO 14064—Greenhouse Gases—Accounting and Verification* (2006).

38. Int'l Org. for Standardization, *ISO 14067—Greenhouse Gases—Carbon Footprint of Products—Requirements and Guidelines for Quantification and Communication* (2013).

39. *See generally* Jennifer Clapp, *ISO Environmental Standards: Industry's Gift to a Polluted Globe or the Developed World's Competition-Killing Strategy?*, *in* Yearbook of International Co-operation on Environment and Development 27 (Olav Schram Stokke & Øystein B. Thommessen eds., 2001). First, ISO standards are weak in that they pertain to the quality of the environmental management systems that firms report that they have established, but not on actual performance. Second, the ISO environmental standards are directed at firms and their products, not at the upstream processes that provide inputs for those firms. Therefore, the volume of greenhouse emissions of energy sources (electricity, hydrocarbon fuels, etc.), raw materials, agricultural inputs, etc., are not captured in the ISO certification criteria. Because a large proportion of China's GHG emissions are produced by "upstream" activities such as energy generation, mining, and raw-material processing, a manufacturing firm's environmental management system will not incorporate the volume of emissions of these activities. Third, some firms that receive certification nevertheless flaunt environmental regulations because of weak inspection by government agencies.

40. Haitao Yin & Chunbo Ma, *International Integration: A Hope for a Greener China?*, 26 Int'l Marketing Rev. 348, 348 (2009) ("[I]nternational trade does gear up the adoption of ISO 14001 standards in China through increasing pressures from international green customers. However, our analyses suggest that the adoption of ISO 14001 certification does not necessarily improve firms' compliance with existing environmental regulations in China. The actual impact depends on how stringently [an] environmental agency carries out inspections. We also find that in China, ISO 14001 certification motivates little, if any, environmental performance improvement beyond bottom-line environmental regulations.").

required their suppliers to do the same, despite the higher costs that one might imagine would be competitively disadvantageous.[41]

One could imagine that governments wishing to make ISO standards stringent enough to develop a broad approach to reducing GHG emissions could also be motivated by a desire to pose barriers to entry to competitors in other countries. This could be done by establishing performance standards requiring the reduction of GHG emissions, and specifying how to monitor and assess whether these standards are being met. More stringent standards could also require the exclusive use of inputs produced with relatively low emissions. Ensuring that management systems or actual performance criteria reflect the incorporation of a realistic carbon tax would, perhaps, capture the "carbon cost" of securing inputs entailing high GHG emissions. The competitive advantage of gaining ISO certification, if other firms or nations cannot, may provide adequate incentive for governments to adopt a carbon tax system, and overcome the current technical difficulties of assigning the carbon tax burdens where they are appropriate.

The obstacles to adopting considerably more stringent ISO standards begin with the ISO's decisionmaking process. The ISO's so-called "consensus process" requires a super-majority of two-thirds of the participating members of the relevant technical committee and subcommittee (comprised of representatives of national standards organizations), and no more than a quarter of the votes cast can be negative votes.[42] However, the bulk of the ISO technical committees have fewer than forty "participating members," and the average is roughly thirty, which means that the crucial technical work, and the voting, is dominated by the nations with the expertise and resources to qualify as "participating members." Environmental law scholar Stepan Wood argues that the developing countries have far less clout in the ISO than the apparently equitable processes seem to imply. He reports that over 90% of the leadership of the more than 2,000 technical working groups is made up of members from developed countries.[43] Yet China ranks highest, and is the only developing country among the top ten countries that hold the most committee and subcommittee secretariats.[44]

41. *See generally* Prakash & Potoski, *supra* note 31; Aseem Prakash & Matthew Potoski, *Investing Up: FDI and the Cross-Country Diffusion of ISO 14001 Management Systems*, 51 Int'l Stud. Q. 723 (2007); Andrew B. Whitford & Justin A. Tucker, *Focal Points in Public Policy: Evidence from Voluntary Regulation*, 29 Rev. Pol'y Res. 281 (2012).

42. *See Stages of the Development of International Standards*, Int'l Org. for Standardization, http://www.iso.org/iso/home/standards_development/resources-for-technical-work/stages_of_the_development_of_international_standards.htm (last visited Mar. 27, 2014).

43. Stepan Wood, *The International Organization for Standardization*, *in* Business Regulation and Non-State Actors: Whose Standards? Whose Development? 81, 90 (Darryl Reed et al. eds., 2012).

44. *Id.*

III. THE EVEN GREATER COMPLEXITY OF THE SYSTEM

Osofsky uses the images, popularized by Nobel-prize-winning political scientist Elinor Ostrom, of "concentric circles" and "nested systems."[45] These are useful images to convey the connections from the very local to the very global. However, they can be quite misleading: the Russian doll image of one jurisdiction embedded neatly in a larger one misses the reality of overlapping and crisscrossing authorities involved in overseeing the different but connected issues mentioned above, such as conventional pollution, transportation, physical activity promotion, forestry, and trade, just to name a few.

For example, there are bilateral intergovernmental international organizations that are not embedded within nearly global international organizations like the United Nations or WTO. The U.S.-Canadian Great Lakes International Joint Commission is concerned with, among other things, acidification and other aspects of water quality of the Great Lakes. Even subnational entities—states and provinces—hold positions as members of such bodies as the Great Lakes Water Quality Board.[46] The mission statement of the Joint Commission very clearly recognizes the potential for conflict over shared ecological systems: "The International Joint Commission prevents and resolves disputes between the United States of America and Canada under the 1909 Boundary Waters Treaty."[47]

Although the Russian doll model presumes that governance below the state level would be under the state government, there are governance authorities below the state level tied to counterpart authorities in bordering states that do not report to state governments. The Susquehanna River Basin Commission, which oversees the watershed management of the New York, Pennsylvania, and Maryland areas flowing into the Susquehanna River, has a commissioner for each state *and* a federal commissioner as well.[48]

On an even lower jurisdictional level, some border-county authorities do not report to the county governments or to the state in which the counties are located. For example, the North Coast Unified Air Quality Management District is a regional environmental regulatory agency with jurisdiction over Humboldt, Del Norte, and Trinity counties in Northern California.[49] This regional agency can enact regulations apart from the regulations formulated by the State of California.

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45. *See generally* Elinor Ostrom, Governing the Commons: The Evolution of Institutions for Collective Action *passim* (1990).

46. *See Members*, Great Lakes Water Quality Bd., http://ijc.org/en_/wqb/Members (last visited Mar. 27, 2014).

47. *IJC Mission and Mandates*, Int'l Joint Comm'n, http://www.ijc.org/en_/IJC_Mandates (last visited Mar. 27, 2014).

48. *See Susquehanna River Basin Commission Overview*, Susquehanna River Basin Comm'n, http://www.srbc.net/about/geninfo.htm (last visited Mar. 27, 2014).

49. *See District Information*, N. Coast Unified Air Quality Mgmt. Dist., http://www.ncuaqmd.org/index.php?page=district.info (last visited Mar. 27, 2014).

Finally, on the most "micro" level, many cities have multineighborhood associations that do not include all neighborhoods within the city. For example, Binford Redevelopment and Growth, comprised of certain Indianapolis neighborhoods, is an initiative that coordinates the redevelopment efforts of several neighborhood organizations.[50]

Moreover, the governance picture is even more complicated by the existence of both nongovernmental organizations and collaborations between governmental and nongovernmental entities. For the mixed collaborations, we need only note that, at the global level, nearly all global nongovernmental organizations may nonetheless have national-government agencies among their members. The ISO is in fact a nongovernmental organization,[51] in which the national standards bureaus comprise only part of its membership. However, unlike formal intergovernmental international organizations such as the WTO, World Bank, or International Monetary Fund, ultimate authority over ISO decisions is not held by representatives of nation-state governments. The World Energy Council also has a mix of governmental and nongovernmental member organizations, numbering more than 3,000, with a strong commitment to developing research and policies for energy sustainability.

IV. CONCLUSIONS

The examples briefly summarized above demonstrate the complexity of both institutional arrangements and potential motivations that, in principle, could be harnessed to make greater progress in addressing global climate change. The arrangements are not confined to just local, just national, or just international interactions; the dizzying array of mixed forms provides many nodes of environmental governance to address problems on multiple scales. This opens up opportunities to

50. *See* Binford Redevelopment & Growth, http://www.binford71.org/ (last visited Mar. 27, 2014).

51. *Structure and Governance*, Int'l Org. for Standardization, http://www.iso.org/iso/home/about/about_governance.htm (last visited Mar. 27, 2014) ("ISO is an independent, non-governmental organization made up of members from the national standards bodies of 161 countries. Our members play a vital role in how we operate, meeting once a year for a General Assembly that decides our strategic objectives."). ISO national members typically have, in turn, governmental agencies among their member organizations. For example, the member entity of the United States, the American National Standards Institute (ANSI), includes the National Institute of Standards and Technology within the Department of Commerce, along with more than fifty other governmental entities including city police departments, county departments, state-level agencies, and other federal agencies, but also hundreds of corporations, hundreds of professional associations and business associations, some academic institutions, and even over forty international non-U.S. members. *See ISO Members*, Int'l Org. for Standardization, http://www.iso.org/iso/home/about/iso_members.htm?membertype=membertype_MB (last visited Mar. 27, 2014); *United States (ANSI)*, Int'l Org. for Standardization, http://www.iso.org/iso/home/about/iso_members/iso_member_body.htm?member_id=2188 (last visited Mar. 27, 2014). Argentina's member entity, the Instituto Argentino de Normalización y Certificación (IRAM), "is a private non-profit body. Founded in 1935, it became a legal entity in 1937 and was shortly afterwards granted recognition by the Government as the Central Organization for the technical and scientific study of standards, with the object of developing and maintaining uniformity of systems and criteria." *See Argentina (IRAM)*, Int'l Org. for Standardization, http://www.iso.org/iso/home/about/iso_members/iso_member_body.htm?member_id=1520 (last visited Mar. 27, 2014). It also has member organizations of government, industry, and technical associations. *See id.*

develop coalitions of the willing across conventional boundaries. Yet the complexity of arrangements also provides the opportunity for governmental and nongovernmental actors to compete for well-being, wealth, power, and other values; this competition can be destructive, as the race to energy-intensive industrialization has become, but the key question is whether competition for such values can be harnessed to reverse this trend. The potential incentives for addressing the rise of GHG emissions are far less limited in scope than the conventional framing of "do the right thing" would imply. While the moral imperative of addressing global climate change is certainly compelling, other motives must be harnessed, even if they are not as self-sacrificing as the spirit of international cooperation would call for. As the weakness of international agreements to reduce GHG emissions, such as the Kyoto Protocol,[52] have demonstrated, cooperation, and the underlying appeal to rectitude, has not borne ample fruit. We need to harness the competitive spirit; on the local level, as communities discover that being green can raise property values and attract wealthier residents; to the international level, where governments may be induced to make GHG emission regulations more stringent in order to squeeze out competition. At some point—perhaps now—painful competition will have to be utilized to save the planet.

52. *See generally* Kyoto Protocol to the U.N. Framework Convention on Climate Change, *opened for signature* Dec. 11, 1997, 2303 U.N.T.S. 148 (entered into force Feb. 16, 2005).