Integration among Global Environmental Regimes: Lessons Learned from Climate Change Mitigation

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Introduction

The topic of integration was one of so many topics Douglas Johnston thought and wrote about long before the terms became common place in international law circles.¹ As far back as 1985 Douglas was contemplating the need for a systemic response to a range of global environmental challenges. He saw then what has in the interim become abundantly clear, that treating individual symptoms of our troubled relationship with nature is inadequate, and that the global community has to find ways to develop a more integrated approach that uses individual symptoms of the problem to collectively address the root causes.²

Few symptoms make the case for integration as effectively as climate change, an issue Douglas described in 1985 as one that “may be beyond human capability to deal effectively with.”³ This contribution will look back at the evolution of the international response to climate change from

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³ Ibid., p. 258.
the early resolutions of the U.N. General Assembly to the implementation of the Kyoto Protocol to consider how successful the international community has been in developing an integrated approach to mitigating human interference with the climate system. Specifically, the linkages between climate change and other issues are considered to determine to what extent the climate change regime has evolved in isolation and to what extent it has been successful in integrating selected other issues into the chosen approach to climate change mitigation.4

Integration is used in many different ways in various contexts. Perhaps the most well known use of the concept of integration in the environmental context is that contained in Principle 4 of the Rio Declaration. It states that “in order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.”5 Integration is used in many other contexts. It is used for integration among levels of government, encouraging federal, provincial and local levels of government to work together. It is used similarly to describe inter-departmental cooperation and coordination. An interdisciplinary approach to problem solving is yet another form of integration that has received considerable attention in literature and practice alike. Regional integration has been the focus of much attention with respect to trade. In short, there is a long list of uses of the term integration that are considered in the literature. In this essay, integration is primarily used in one sense, integration of international efforts to address a range of global environmental challenges in an overall context of sustainability.6

4 This paper builds on an assessment of integration conducted using Canada’s Kyoto implementation plan as a case study. See M. Doelle, “Linking the Kyoto Protocol and other Multilateral Environmental Agreements; From Fragmentation to Integration?” Journal of Environmental Law and Practice 14 (2004): 75.
The focus of this contribution is on the substantive outcomes of the climate change regime. The following section will briefly consider linkages between human activities responsible for greenhouse gas emissions, the atmosphere, the climate system, natural systems, and human systems. This will be followed by a review of the evolution of the climate change regime to determine to what extent it has identified and integrated appropriate linkages to other environmental issues. Using the assessment of the regime and missed opportunities for integration as a starting point, the essay then discusses how international integration of global environmental challenges may be improved.7

Integration in the Climate Change Context

The starting point proposed for understanding the relationship between the human influence on the climate system and environmental, social and economic sustainability is to identify human activities that result in the release of greenhouse gas emissions. There are two categories of human activities that contribute to greenhouse gas emissions, energy use and non-energy activities. On the energy side, the main culprit is the burning of fossil fuels. For non-energy sources, key activities include deforestation, forest management, various agricultural practices, and disposal of organic material in landfills. Key drivers of these activities are population and economic growth. Other factors include a range of issues dealing with the use of energy, such as the sources of energy available, technologies, transportation choices, energy efficiency and conservation, and land use choices.

These are some of the key factors that influence the release of greenhouse gases from human activities. These human activities each contribute

significantly to the concentration of greenhouse gases in the atmosphere, but they also have a range of other impacts on natural and human systems. A full discussion of these links is not possible here, but an exploration of the links in the context of the use of fossil fuels as a source of energy illustrates the process.

Consider the impact of fossil fuels on natural systems. The exact nature and significance of the impacts will, of course, vary with the fuel, the manner of extraction, and the care with which it is refined, transported and used. Nevertheless, the extraction of fossil fuels clearly has some negative impacts on natural systems in terms of habitat loss, pollution and other impacts. Similarly, the refinement process has land-use implications and involves pollution in the form of air emissions and effluent. The end use again involves air emissions that contribute to air pollution and will in other ways impose stresses on natural systems. In addition to these direct impacts on natural and human systems, the emission of greenhouse gases from the burning of fossil fuels affects the climate system through changes in temperature, precipitation, wind patterns, ocean currents and sea level. These changes to the climate system in turn affect natural and human systems through floods and droughts, and by affecting species health, ecosystems and habitats.

An integrated approach to climate change mitigation would consider the range of impacts, the various interactions between human activities, the atmosphere, the climate system, natural and human systems. It would similarly consider all these impacts and interactions for any mitigation strategy to ensure the solution proposed not only is effective in addressing climate change, but also enhances human and natural systems. An integrated approach would minimize any adverse consequences of mitigating climate change and maximize enhancement of natural and human systems.

8 These processes also impact on humans and human systems. The extraction, refinement, transportation and use of fossil fuels contribute to the economies of many States. Transportation and energy choices have social and health implications.

For purposes of the review of the evolution of the climate change regime, it is important to be clear about the evaluation criteria to be applied. Taking the outcomes of the Rio Conference as a guide, sustainable development is offered as a reasonable test for whether climate change mitigation measures promoted through the international regime offer an integrated solution to climate change.\(^\text{10}\) For purposes of this study, the following criteria are offered as key indicators of sustainability:

- Does it increase or decrease biodiversity?\(^\text{11}\)
- Does it increase or decrease the amount of pollution in natural systems?
- Does it generate or reduce waste?
- Does it increase or decrease the carrying capacity of renewable resources?
- Does it decrease the availability of non-renewable resources?
- Does it increase or decrease the equitable distribution of access to resources?

The basic premise of this review of the climate change regime is that how climate change is mitigated is at least as important as when or how quickly it is addressed. Therefore the central question posed here is whether climate change mitigation commitments under the climate change regime offer integrated solutions, particularly with respect to the six environmental criteria offered as a test for sustainability. Does it encourage, enable or discourage integration? Does the climate change regime address climate

\(^\text{10}\) Given that sustainable development has been the underlying principle for international environmental law since the early days of the climate change regime, it would appear reasonable to expect integration efforts to be consistent with the concept of sustainable development. For a discussion of the relationship between integration and sustainable development, see D. Barstow Magraw and L. D. Hawke, "Sustainable Development," in Bodansky et al., \textit{supra} note 6, at p. 628. The debate over what it means and over its utility is, of course, ongoing. See, for example, B. Stark, "Sustainable Development and Postmodern International Law: Greener Globalization?" \textit{William and Mary Environmental Law and Policy Review} 27 (2002): 137.

change in isolation without considering these other environmental issues or does it embrace opportunities to address these other issues at the same time? Does it give adequate weight to the risk of creating new problems in the course of solving climate change? In answering these questions, the following mitigation options for climate change are considered to be available:

• energy conservation and improved efficiency12
• solar energy13
• wind energy14
• energy from biomass, including wood and ethanol15
• hydropower16
• nuclear power17
• use of forests as sinks18

12 This is also referred to as demand side management. It includes any measures that reduce the consumption of energy. For a discussion of the feasibility of a mitigation strategy focussed on demand side management, see R. Torrie, R. Parfett, and P. Steenhof, *Kyoto and Beyond: The Low-emission Path to Innovation and Efficiency*, Report prepared for the David Suzuki Foundation and Climate Action Network Canada (Vancouver: David Suzuki Foundation, October 2002), <www.davidsuzuki.org/files/Kyoto_Beyond_LR.pdf>, 31 March 2008. The same principle can be applied to non-energy sources of greenhouse gas emissions by focussing on reducing or eliminating human activities that lead to emissions. A good example would be the diversion of organic waste from landfills as a way to reduce or eliminate methane emissions resulting from the anaerobic decomposition of organic material in landfills.

13 Solar energy options include photovoltaic solar energy, or electricity from solar, thermal solar energy (or the collection of heat from solar energy), and passive solar (or the direct use of the sun’s energy for heating).


15 Ibid., pp. 65–66.

16 Ibid., p. 66.

17 Eligibility of nuclear power is limited for the Clean Development Mechanism, but not for domestic emission reductions. Thus Canada is free to use nuclear power in Canada to meet its Kyoto obligations, but has agreed not to use emission reductions achieved by supporting nuclear power in developing countries.

• use of soils, such as cropland and grazing land, as sinks
• deep sea ocean storage of carbon
• carbon injection in oil wells and other geological formations for long-term storage

As a starting point, it is important to note the limitation of this kind of general assessment of these mitigation options. Much will depend on their implementation in a particular geographic, ecological, social, and economic context. The focus here is on the potential for desired and undesired consequences beyond climate change mitigation, leaving aside the opportunity to mitigate negative and enhance positive consequences in the manner a particular mitigation option is implemented in a given location.

Of the measures listed, conservation and efficiency clearly offer effective ways to address climate change without risk of contributing to the loss of biodiversity, the generation of waste and pollution, the depletion of resources and the inequitable distribution of resources. The focus is on directly reducing the human activity that leads to the emissions rather than finding a replacement process. This means that as long as the conservation and efficiency gains are achieved responsibly, these mitigation options make a net contribution to sustainability. To the extent that the energy sources eliminated or reduced as a result of conservation and efficiency have biodiversity, waste, resource and distributive impacts in addition to their climate change impacts, these measures can make a significant contribution to sustainability. This is particularly true if decisions about where to reduce energy supply to reflect reduced demand are made based on what sources of energy are most problematic from a combined climate change and sustainability perspective.

The fundamental benefit of the use of energy efficiency and conservation as a climate change mitigation strategy is that it reduces the level of human

19 Ibid., pp. 61–63.
20 This offset option is generally recognized not to be eligible under Kyoto rules, see ibid., p. 63.
21 Ibid., p. 64.
interference with natural systems overall. As a result, it has the potential
to contribute to the mitigation of numerous environmental challenges,
including climate change, resource depletion, air and water pollution, and
loss of biodiversity.\(^\text{23}\) Reducing greenhouse gas (GHG) emissions with the
use of other sources of energy instead of reducing the demand for energy
can lead to similar results. The main difference here is that we have to
consider the impact of producing the energy from these alternate sources.
In other words, the overall benefit can only compete with energy conserva-
tion if the alternative source of energy has no negative impact on other
sustainability criteria. Otherwise, the net impact is the difference between
the impact of traditional sources and these alternative sources.\(^\text{24}\)

In case of solar energy, the two main areas of concern would be the
range of impacts of production of the solar panels and the space required
to operate the panels. In case of wind power, there are similar consider-
ations. In both cases, the net impact clearly points to these options being
a net contribution to solving both the climate change and biodiversity
problems, but because of the impact of production and siting, reducing
energy consumption where possible is still a preferable option.

The next group of mitigation measures includes the use of biomass,
hydropower, and nuclear energy. In each case, the switch from the use of
fossil fuels would reduce GHG emissions, but the reduction would come
at a cost. In case of the use of biomass, there are two issues to consider.
One is the potentially competing land use between fuel production from
biomass and protection of biodiversity. The other is the pollution from
the burning of biomass.\(^\text{25}\)

In case of hydropower, there are again significant reductions in GHG
emissions possible compared to the use of fossil fuels for power generation.
At the same time, hydropower is a “competing land use,” and therefore
a threat to biodiversity. In addition, hydropower leads to mercury and
other water contamination.\(^\text{26}\) Nuclear power also results in much lower
GHG emissions than power production using fossil fuels. It carries with
it a significant threat to human health and biodiversity from accidents
and from the waste generated by nuclear power plants.

\(^{23}\) See Torrie, et al., \textit{supra} note 12.
\(^{24}\) For a discussion of the biodiversity impacts of wind and solar energy, see IPCC, \textit{supra}
note 11, at p. 40.
\(^{25}\) \textit{Ibid.}, p. 38.
\(^{26}\) For an overview of impacts from hydro-power, see \textit{ibid.}, p. 39.
The last category is a group of climate change mitigation measures to offset emissions by taking greenhouse gases back out of the atmosphere. They include the use of forests, soils\textsuperscript{27} and oceans\textsuperscript{28} to take CO\textsubscript{2} out of the atmosphere and store it in the form of carbon. They also include measures to capture the CO\textsubscript{2} during combustion of fossil fuels and storing it in oil wells and other geological formations. This group of mitigation measures has the potential to contribute to solving the climate change problem, but is subject to the issue of permanence. To the extent that the storage is temporary, these measures delay the problem rather than solve it. With respect to biodiversity and other sustainability criteria, the answer is mixed. On the one hand, mitigating climate change through storage of carbon in living things provides an incentive to protect life. Done properly, this can clearly contribute to biodiversity. On the other hand, if the storage of carbon is pursued in isolation from the need to protect biodiversity, climate change mitigation through carbon storage in forests, soils and oceans can be a significant threat to biodiversity. Much again turns on whether countries choose to consider climate change in the form of carbon storage and biodiversity as two separate issues, or whether they become two motivations toward the objective of ensure the health of forests, soils and oceans. In other words, do we look at each service nature provides separately and try to manage that service, or do we protect natural systems overall in the general recognition that overall ecosystem health provides the best hope for nature to continue to perform these services, including biodiversity protection and climate change mitigation.

Applying the above assessment of the range of mitigation options would lead to a conclusion that as much of the mitigation effort as possible should focus on reducing energy consumption through conservation and efficiency. The next obvious choice appears to be fuel switching to solar, wind, and geothermal energy. Beyond these measures, we must at best acknowledge that other mitigation measures carry with them a significant risk of creating other environmental problems. At worst, we may find that they make a


\textsuperscript{28} \textit{Ibid.}, p. 41.
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net negative overall contribution to efforts to become sustainable in that they may result in substantial undesirable consequences.

This would lead to a conclusion that climate change mitigation efforts should focus on reducing energy demand and the promotion of solar, wind and geothermal energy as alternatives to fossil fuels. A consideration of other mitigation measures would have to precede a further analysis of whether and how these measures fit into an overall sustainability strategy. A detailed consideration of criteria that might be applied to such an analysis is not possible here, but considerable thought has been given to the issue of sustainability criteria elsewhere.²⁹

Having briefly considered how human influence on the climate system and efforts to mitigate this effect relate to key sustainability criteria, such as biodiversity, waste pollution, resources and access to resources, the next section considers the key steps in the climate change regime in light of these links. Specifically, the focus of the next section will be on acknowledgements of these links, and any sign of preference for climate change mitigation options that offer integrated solutions to sustainable development.

Integration and the Evolution of the Climate Change Regime

Breaking the evolution of the climate change regime into stages is inevitably arbitrary. The steps selected here are driven mainly by the documentation of developments in the regime. The stages that are relatively well documented are the initial U.N. General Assembly resolutions, the negotiating mandate, the United Nations Framework Convention on Climate Change (UNFCCC), the Berlin mandate, the Kyoto Protocol, and the Marrakech Accords on the implementation of the Kyoto Protocol.

The first phase of the climate change regime considered is the pre-convention phase, consisting of resolutions of the General Assembly of the United Nations from 1988 to 1990 that collectively provided the context

²⁹ See C. George, “Testing for Sustainable Development through Environmental Assessment,” Environmental Impact Assessment Review 19(2) (1999): 175. This article lists 18 criteria to test the sustainability of proposed development, including equity in various contexts, social impacts, public participation, precaution, biodiversity, climate change, and overall local and global impacts.
for the negotiations that lead to the framework convention in 1992. The first resolution in 1988 recognized that climate change posed economic and social consequences resulting from environmental impacts such as sea level rise. The link between climate change and ozone layer depletion was identified in the 1988 resolution, and the identification of links to other existing international instruments was encouraged.\(^{30}\)

Follow-up resolutions in 1989 quickly identified the need for a new international regime to deal with climate change, to be developed in parallel with preparations for the Rio Conference on the Environment and Development in 1992.\(^{31}\) The principle of common but differentiated responsibilities was introduced, and the resolutions otherwise encourage States and existing institutions to cooperate in seeking solutions to climate change without much direction from the General Assembly. Similarly, resolutions dealing with preparations for the Rio Conference in 1992 mention climate change, but do not directly address linkages between climate change mitigation and other environmental issues. Interestingly, the following are listed as environmental issues of major concern:

- climate change
- quality and supply of freshwater resources
- protection of the oceans
- land protection against deforestation, desertification and drought
- conservation of biological diversity
- biotechnology
- sound management of waste
- living and working environments of the poor
- human health and quality of life\(^{32}\)

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In 1990, the General Assembly then passed a resolution to initiate negotiations for a framework convention on climate change to be ready for signature at the Rio Conference. The negotiating mandate incorporates previous resolutions, and generally recognizes links between climate change and the social and economic well-being of current and future generations of humans. There is little indication in any of these early resolutions of any direction on how to identify appropriate mitigation measures to address climate change. Other than a reference to the need for developed States to take the lead as a result of their capacity and their contribution to the problem to date, the choice of mitigation measures is not discussed. In short, there is nothing in the initial negotiating mandate for the framework convention that would restrict or prevent an integrated solution to climate change mitigation, but there is little to encourage it either. By default, it is left to negotiators to determine whether and how to pursue integrated solutions to climate change.

The end product of these negotiations initiated in 1990 was the UNFCCC. The convention carries forward the themes identified in the negotiating mandate, notably the concept of common and differentiated responsibility, and the basic notion that unmitigated climate change will have adverse consequences for human and natural systems. The preamble does recognize the importance of ensuring that climate change is addressed in a manner that is environmentally, socially and economically most effective. The preamble also specifically recognizes that some climate change mitigation measures have economic and other environmental benefits and can therefore be justified regardless of whether they are needed for climate change mitigation. Finally, the preamble to the convention recognizes that climate change mitigation may have adverse social and economic consequences, particularly in developing States.

What is missing is the recognition that climate change mitigation can cause other environmental challenges either in the preamble or the text

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of the convention. Even Article 3.3, dealing with the application of the precautionary principle, makes reference to the potential socio-economic consequences of climate change mitigation, but not possible environmental consequences. Article 4 includes a commitment by developed States to return to 1990 levels of greenhouse gas emissions by 2000, but does not direct them to select or give priority to mitigation measures based on their environmental, social or economic consequences. In short, the UNFCCC does not prevent an integrated approach to climate change mitigation, but it does not require it, and only identifies it as an issue with respect to the social and economic consequences of climate change mitigation in developing States. Otherwise, it is left to parties to decide how to implement the voluntary commitment to return to 1990 levels of greenhouse gas emissions.

In fairness, the focus up to this point in the development of the climate change regime was not on mitigation measures but on building the basic infrastructure and on objectives and principles. Serious negotiations on mitigation measures got under way after the UNFCCC came into force in 1994. While identification of this form of integration in the UNFCCC could have sent a clear signal to the negotiators, there was certainly nothing in the framework convention to prevent negotiators from giving priority to integrated solutions to climate change.

The next phase of the climate change regime was initiated with the Berlin Mandate in 1994 and concluded with the Kyoto Protocol in 1997. There is little new in the Berlin Mandate to direct parties to the negotiations on the social, environmental and economic consequences of climate change mitigation.35 There are, however, clear signs in some of the Articles of the Kyoto Protocol that parties considered some of the links. Others are surprisingly silent on the issue. 36 The treatment of climate change mitigation in the Kyoto Protocol can only be understood in the context of the overall obligation it imposes on developed nations to reduce greenhouse gas emissions based on country specific targets that are relative to 1990

levels of emissions. The key issue for purposes of this essay is therefore what restrictions are imposed on developed nations in terms of mitigation measures to meet their individual targets.

Article 2 of the Kyoto Protocol makes a general link between climate change mitigation and sustainable development, but it offers no guidance on how this link is to be implemented. It lists a range of mitigation options without either prioritizing them or directing any further work to identify which mitigation option should be given priority under what circumstances to maximize desired and minimize undesired environmental, social and economic consequences of climate change mitigation. The options listed include energy efficiency, identified above as one of the most likely measures to offer desirable consequences with minimal risk of undesirable ones. Also include are some that clearly have a significant risk of undesired consequences, such as greenhouse gas sinks and reservoirs and carbon dioxide capture and storage. Article 2.3 then specifically assigns responsibility to strive to minimize adverse social, environmental and economic impacts on other parties, particularly developing States.

Articles 3.3. and 3.4 are also of particular interest. These provisions collectively provide for the use of sinks as a climate change mitigation option for the first commitment period under the Kyoto Protocol. Article 3.3 is relatively uncontroversial in that it essentially discourages land use changes that deplete natural carbon stocks in the form of forests.

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38 The reference to sustainable development was in fact a later addition to the text by the Group of 77 and China. See J. Depledge, *Tracing the Origins of the Kyoto Protocol: An Article-by-Article Textual History* (Bonn: UNFCCC, 2000) (FCCC/TP/2000/2), pp. 18–29. There was also considerable pressure from the European Union for certain policies and measures to be mandatory, which would have been an opportunity to require States to give priority to policies and measures more likely to offer integrated solutions. The idea was rejected by other developed States.

39 Kyoto Protocol, supra note 36, at Art. 2.1(a)(ii) and (iv). For similar language, see also Art. 10(d).

40 The issue was therefore clearly in the minds of negotiating parties, however, there was no collective will to require parties in any meaningful way to focus mitigation efforts on solutions that have desired consequences beyond climate change mitigation.

41 For the negotiating history of these provisions, see Depledge, supra note 38, at p. 48.
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is an opportunity for afforestation in a manner that may be a threat to biological diversity, but otherwise there are no obvious undesired consequences. Article 3.4 is different. It provides for credits resulting from an increase carbon uptake in forests and soils as a result of changes in their management. While there may be compatibilities between forest management for carbon storage and forest management for biodiversity and sustainable yields, Article 3.4 clearly introduces a potentially competing use for forests, creating the real risk of undesired consequences.

Articles 6 and 12 are the other two key provisions in the Kyoto Protocol dealing with the range of mitigation measures available for parties to meet their emission reduction obligations. These provisions deal with Joint Implementation (JI) and the Clean Development Mechanism (CDM) respectively. Given their similar design, only the CDM is considered here. The basic concept behind the CDM is to allow developed States to fund emission reduction projects in developing nations to offset emissions within their own territory. A stated objective of the CDM is to help developing States to develop sustainably while assisting developed States to comply with their emission reduction obligations. Other than this general statement indicating a desire to encourage sustainable projects in developing States, there is nothing in Article 12 to restrict projects to those with desirable environmental, social and economic consequences.

The bottom line on Kyoto itself appears to be that it did not require, did little to enable, but also did not prevent, an integrated approach to mitigation. There is considerable uncertainty in the Kyoto Protocol itself on how the emission reduction obligations would be implemented as much of the detail on mechanisms such as sinks and the clean development mechanism was yet to be negotiated. To more fully appreciate whether the Kyoto approach offers a path toward integrated mitigation solutions, it is necessary to consider the detailed rules for its implementation, most

42 For an overview of the negotiating history of JI, see Depledge, supra note 38, at p. 61. For the history of the CDM negotiations, see Depledge, ibid., p. 75.
43 For a more detailed discussion of JI and CDM, see Doelle, supra note 37, at p. 30.
44 For a general discussion of linkages between the Kyoto Protocol and MEAs, see The United Nations University Institute for Advanced Studies, Global Climate Governance: Inter-linkages between the Kyoto Protocol and other Multilateral Regimes, Final Report (Tokyo: United Nations University, 1999), p. 62.
of which are contained in the Marrakech Accords adopted in 2001 and formally implemented in Montreal in 2005.  

The Marrakech Accords continue the trend established in the UNFCCC and the Kyoto Protocol, of placing the burden mainly on individual parties to ensure that mitigation measures chosen offer the best possible combination of minimum undesirable and maximum desirable consequences. Little is done through the Marrakech Accords to limit the use of Article 3.4 to management practices for soils and forests that also protect biodiversity. Ensuring CDM projects make a net positive contribution to sustainable development in the host country is left to developing countries often desperate for any development, no matter how short term, and no matter what the environmental cost. In short, in spite of clear recognition of the issue certainly since the lead up to the Kyoto Protocol, the international regime has done little to ensure that climate mitigation offers integrated solutions taking into account a range of social, environmental and economic consequences. The international regime does not enable, nor does it prevent, an integrated approach to climate change mitigation.

**Taking Stock: Opportunities for Integration**

Assuming the evolution of the climate change regime is representative of other environmental regimes, it is safe to conclude that international

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46 Efforts to encourage integration among MEAs is ongoing, but with few concrete results. At the 9th Session of the Conference of the Parties to the UNFCCC, for example, the IUCN, the Deputy Secretary General to the Ramsar Convention, and the Executive Secretary of the Convention on Biological Diversity (CBD) each submitted letters encouraging cooperation and exploration of linkages with the climate change regime. Copies of these letters were distributed at the 9th Conference of the Parties and are on file with the author. More recently, efforts have focused on integrating climate change into U.N. activities outside the climate change regime. See United Nations, “Overview of United Nations Activities in Relation to Climate Change,” General Assembly Report A/62/644 (10 January 2008).
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Environmental law is still mainly developing on an issue-by-issue basis. Significant efforts to integrate have been made, but essentially in the form of soft law, through instruments such as the Rio Declaration as well as non-binding principles in treaties designed to encourage parties to integrate at a domestic level. Clearly, there is a case to be made for integration at the domestic level, and there are limits to what can be done at a global level to maximize the benefits of integration. A more integrated approach to climate change at the international level would have required more work up front to identify integrated solutions. The result, if successful, would have been a more focused approach both to the international response and national investments in climate change solutions. Assuming therefore, that better integration internationally is desirable, the questions posed in this section are what is preventing this from taking place, and how international integration might be improved.

The review of integration at key stages of the development of the climate change regime suggests a number of possible reasons for the lack of integration internationally. It is certainly possible that some nations simply took the view that integration was a domestic implementation issue. Whatever the underlying reasons, the lack of attention to the issue in the negotiating mandate from the General Assembly in 1990 set the stage for the issue never making it to the top of the agenda in the evolution of the regime. Certainly, the UNFCCC itself was an opportunity lost. Its purpose was to put into place the infrastructure and the context for the future development of the regime. If a principle, such as the need to ensure integrated mitigation strategies, was to guide the more substantive negotiations in the form of Kyoto, the UNFCCC was perhaps the opportunity to ensure integration would be taken seriously internationally. Having missed the opportunity to make integration a central principle of the regime, it is not surprising that the issue was not a focus on the negotiations leading up to Kyoto or the follow-up negotiations on how to implement the Kyoto Protocol.

A number of factors work against effective integration internationally. First, it can only work in combination with domestic implementation

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47 See Doelle, supra note 4, at p. 98, on the effectiveness of integration at the domestic level. See also, M. Nilsson and K. Eckerberg, eds, Environmental Policy Integration in Practice (London: Earthscan, 2007).

48 Ibid.
efforts. Secondly, the absence of agreed upon criteria and principles for integration make it difficult to agree on what can and should be achieved internationally. Institutions with a motivation to encourage integration, such as the secretariats of existing international environmental regimes, generally do not have the necessary means to improve integration. Integration among environmental regimes is complicated by the difference in membership. While the difference in membership is often small, even a few countries can veto the implementation of effective integration based on the fact that they are not party to all regimes involved.

As was apparent with the Kyoto Protocol, once substantive obligations are negotiated without taking an integrated approach, it may be difficult for parties to meet their obligations in an integrated manner. For example, once a party has a GHG emission reduction target that assumes that it will use all mitigation measures available to the fullest, it may not have the luxury to only choose mitigation measures that make sense from an integrated perspective. Time may also be an issue here; the luxury of choosing mitigation measures which are associated with more desired than undesired consequences may have existed in the 1990s. As time has passed, the threat of climate change may be forcing the international community to choose more and more mitigation measures that are creating other environmental, social and economic problems.

There are clearly opportunities to enhance integration by placing the issue on the negotiating agenda from the start. The basic idea is that links between issues should be identified on an ongoing basis, starting with the negotiating mandate. This would mean the initial mandate, such as the General Assembly resolution in 1990 to initiate negotiation for a climate change convention, identifies the expectation that parties work toward integrated solutions. The question is how? Can it be left to parties to bring it forward within the U.N. process? Can it be left to secretariats of existing regimes to identify and bring forward links? Is it the responsibility of the General Assembly, or the United Nations Environment Programme (UNEP)? Can the Office of the U.N. Secretary-General play a constructive role?

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role in improving integration? Is a new World Environment Organization needed to ensure effective integration?

Assuming integration is on the negotiating agenda from the outset, the next step is to ensure integration is given sufficient weight by parties in the heat of the negotiations on a specific issue. The need for integrated solutions was clearly recognized in the Kyoto negotiations, but the issue tended to be drowned out by more immediately pressing issues, such as the cost of mitigation and efforts to minimize the cost of meeting emission reduction targets. Perhaps secretariats from existing regimes can play a more significant role in the negotiations? It may also be possible to develop general principles that will encourage or require these issues to be taken seriously in the negotiation process. An important question is whether existing institutions such as UNEP play this role in the negotiations, or whether new institutions are needed.

Once the obligations are negotiated, international efforts to ensure integration are likely to be limited to education, awareness raising and other forms of motivation. In the end, integration is now in the hands of the parties. Where nations are parties to multiple regimes that provide opportunities for integrated implementation, secretariats can facilitate this through targeted education efforts. Otherwise, opportunities for international efforts to encourage integration at this stage appear limited. There have been some efforts to establish links among various marine environmental agreements in recent years. However, it is not clear that they are able to accomplish much other than to educate on the value of integrated approaches and to encourage States to take an integrated approach to implementation domestically.50

This leaves integration at the domestic level. Clearly, this is where much of the work on integration has been and will continue to be. Up to now, integration has almost exclusively been left to individual States.51 These efforts will continue to be essential, both in light of limited success internationally to date and the fact that many opportunities for integration are specific to the local social, environmental and economic conditions. If all nations took this responsibility seriously, there would be little need for

50 See, for example, UNEP/CBD/COP8/31, p. 270, where parties to the CBD encourage States to integrate biodiversity into national policies on issues such as climate change.

51 Doelle, supra note 4, and Nilsson, et al., supra note 47.
integration at the international level, and individual States would be free to integrate in a manner most appropriate under local conditions. At the same time, it is clear that there is insufficient motivation for individual States to seek integrated solutions, given that there is often an additional cost associated with such solutions and the benefits are often distributed geographically and inter-generationally.

Assuming therefore that the status quo is inadequate, and that more effective integration requires increased focus on the negotiation phase, integration can still be championed by parties, by the various existing U.N. institutions from UNEP to the General Assembly, or by a new World Environment Organization. Individual nations can make a difference by giving priority to integration in their negotiating positions for any future agreements. Examples, such as attempts by the European Union in the negotiations leading up to the Marrakech Accords to link UNFCCC and the Convention on Biological Diversity (CBD) teach us that efforts by individual parties can make a difference, but diplomacy is critical. The United States and other non-CBD parties reacted strongly against efforts by the European Union to formally link the CBD and the UNFCCC, and the effort failed.52 A more subtle approach of incorporating objectives into negotiating positions may have been more effective.

A step could formally be added to the process to invite secretariats of all existing regimes to provide input into how the negotiations on the new problem should be framed to ensure it is addressed in an integrated manner. Beyond the negotiating mandate, secretariats of relevant or existing regimes could have some formal involvement in negotiations under other regimes. For example, the biodiversity regime could have been given a formal voice in the climate change negotiations. Similar connections would be possible during the implementation stage, but their effectiveness would depend on the appropriate context having been set through the negotiation phase.53

52 Ibid.
53 See, for example, Options for Enhanced Cooperation among the three Rio Conventions, FCCC/SBSTA/2004/INF.19 (2 November 2004). See also efforts under the United Nations Convention to Combat Desertification (UNCCD) to explore relationships with other MEAs. See, for example, UNCCD, Committee for the Review of the Implementation of the Convention, Review of Activities for the Promotion and Strengthening of Relationships with Other Relevant Conventions and Relevant International Organizations, ICCD/CRIC(1)/9 (15 October 2002), and the follow-up report to the 6th Conference
If secretariats of existing regimes are not in a position to sufficiently influence the negotiation mandate, the process or the outcome, other institutions to affect this influence could include UNEP or a new global environmental governance structure. In either case, to be effective, the institution would have to have some power to ensure that the issue of integration was taken seriously throughout the negotiations by all parties involved. Whether UNEP or a new institution should be equipped with such powers is beyond the scope of this discussion, and has been the subject of much debate and consideration elsewhere. What appears clear is that UNEP’s current influence is inadequate to ensure effective integration.\textsuperscript{54}

One of the critical barriers remains the differences in membership among treaties. This is a fundamental problem for integration at an international level because only parties to a treaty are generally bound to comply with its terms and obligations. There is, however, one exception. When important principles within treaties reach the status of customary international law, those principles are binding on all States, not just those who have ratified the given treaty. A formal mechanism that clearly identifies when treaties have been followed by a significant number of nations for a sufficient amount of time for its substance to have attained the status of customary law would at least allow for better integration with those well


Conclusion

The need for better integration seems difficult to dispute. If there is one conclusion to be drawn, it may be that all participants in the process of negotiating obligations to address a particular environmental issue must rethink their role in that process to identify how they can ensure more effective integration. 56 The participating States clearly have a crucial role to play, as have those involved in existing international regimes responsible for addressing issues that are in some way linked to the issue under negotiation. The roles of UNEP and other possible institutional structures of the United Nations system such as the General Assembly, and the office of the Secretary General also may have to be rethought if integration is to improve internationally. There is a critical need for the establishment of principles and criteria for integration to guide the negotiation and implementation of international environmental agreements. The potential roles of the full range of international institutions need to be explored to ensure the development and effective application of such principles and guidelines.

One alternative or complementary way to move at least some of these issues forward would be through a separate treaty on integration that would address issues on how parties should behave internationally and domestically to improve integration. Such a treaty could provide the impetus to resolve a range of unanswered questions on how to encourage the global community to move forward on integration. A treaty could formalize obligations to implement treaties in an integrated manner to the extent possible. It could establish a general duty on all States to take


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an integrated approach to treaty obligations.\textsuperscript{57} It could establish principles for integration; it could clarify the relationship among interrelated regimes during negotiation and implementation stages. Such a treaty could consider the powers and responsibilities to be allocated to secretariats of existing regimes to enable them to play a more effective role. Finally, a separate treaty on integration could clarify the roles and responsibilities of existing institutions such as UNEP and the General Assembly of the United Nations.

\textsuperscript{57} The Aarhus Convention (\textit{Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters}, Aarhus, 25 June 1998) has demonstrated that global acceptance is not always essential for the effective global penetration of the substance of a treaty. If enough States ratify a convention on integration and incorporate its principles into their negotiating positions, the treaty would achieve its objective of becoming an international norm on integration, much like the Aarhus Convention is becoming an international norm on public access to information and justice.