

Heads in the Sand as the Tide Rises: Environmental Ethics and the Law on Climate Change

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I. INTRODUCTION

In 1992 the Preamble to Agenda 21 gave a clear definition of the magnitude of the environmental crisis together with a prescription for remedies. Article 1.1 states:

Humanity stands at a defining moment in its history. We are confronted with a perpetuation of disparities between and within nations, a worsening poverty, hunger, ill health and illiteracy, and the continued deterioration of ecosystems on which we depend for our well-being. However, integration of environment and development concerns, and greater attention to them will lead to the fulfillment of basic needs, improved living standards for all, better protected and managed ecosystems and a safer, more prosperous future. No nation can achieve this on their own; but together we can - in a global partnership for sustainable development.

Nonetheless at the new millennium we confront an accelerating environmental crisis. The tools we have developed to respond, over the last 30 years, are little more than a “weak patchwork” of laws, covering narrow and segregated sectors of international activity.¹ Many of these laws are treaties that have not been ratified or implemented by the world’s nations. Clearly, something more is needed.

This paper argues that the “something more” is the development, and the implementation in law, of an ecological ethic.² It begins by illustrating some of the benefits of implementing such

1. Nicholas Robinson, *The Draft Covenant on Environment and Development: A Sustainable Model for International Lawmaking*, in HUMAN RIGHTS ENVIRONMENTAL LAW AND THE EARTH CHARTER 32 (1998).

2. PRUE TAYLOR, AN ECOLOGICAL APPROACH TO INTERNATIONAL LAW: RESPONDING TO CHALLENGES OF CLIMATE CHANGE (1998); KLAUS BOSSELMANN, WHEN TWO WORLDS COLLIDE: SOCIETY AND ECOLOGY (1995).

an ethic, within the specific context of climate change. The particular focus is on the difference an ecological approach would make to our choice of response measures. In later sections, this paper makes reference to other examples of the development and legal implementation of an ecological ethic, including: the creation of a comprehensive, integrated and ethically guided global framework treaty for international environmental law; the Earth Charter and IUCN Covenant on Environment and Development initiatives; and the emergence of ecological rights.

Law is reflective of prevailing social attitudes, conventional thinking and values. They provide an important foundation for law, and are perhaps most clearly reflected in the environmental laws and policy of states.³ A close analysis of legal principles and doctrines, together with specific criteria and standards, reveal the values, or ethic(s), upon which they are based.⁴ An analysis of the 1992 United Nations Framework Convention on Climate Change ("FCCC")⁵ and the Kyoto Protocol,⁶ clearly reveals that the prevalent value is one of preserving current forms of economic prosperity, i.e., maintaining the economic status quo - "business-as-usual." This paper demonstrates how legal language sanctions the economic status quo, and why the economically driven measures in the FCCC and Kyoto Protocol are seriously inadequate as a response to the threats of climate change.

But how do we move towards the development and implementation of a new ecological ethic, one which values the environment above the economic status quo? And would its adoption lead to improvement? Would, for example, the response measures in the FCCC and Kyoto Protocol be any more effective in managing climate change? This paper explores these questions by applying an eco-centric interpretation of the "precautionary principle" to selected response measures. As will be seen, this would require a form of prior environmental impact assessment to ensure that the measures adopted will be effective in achieving the necessary levels of environmental protection or mitigation. Applying the "precautionary principle" to existing reduction

3. KLAUS BOSSELMANN, *IM NAMEN DER NATUR: DER WEG ZUM ÖKOLOGISCHE RECHTSSTAAT* 23 (1992).

4. TAYLOR, *supra* note 2.

5. FCCC, 31 I.L.M 849 (1992).

6. Kyoto Protocol to the United Nations Framework Convention on Climate Change, 37 I.L.M 22 (1992).

targets, the emissions trading concept, and the net approach, reveals very serious flaws in each.

Reaching the level of consensus needed for the genuine implementation of an ecological value in law is the most difficult problem. The *modus operandi* of most domestic political systems, together with the nature of international treaty negotiations, means that only a large scale and fundamental change in the attitude and behaviour of the world's civilian population (particularly those from developed states) will create the necessary political will for change. In the context of climate change, this requires nothing short of drastic restructuring of economies and industry away from fossil fuels. It also requires a major revolution in current patterns of human consumption. The final sections of this paper consider some of the efforts being made to generate this change of attitude and behaviour.

II.

THE EXAMPLE OF CLIMATE CHANGE

In the absence of a clearly defined and agreed ethical approach to climate change, which guides our legal responses, not only are we failing to avoid dramatic changes to our climate system, but we may well end up at the catastrophic end of the scale offered by the global climate change models, somewhere only computers and dooms-dayers anticipate.

Since the 1980s, when the prospect of radical change to our global climate system was first discussed, we have managed to build an international consensus for protection of this system. To a large degree, this consensus is based on an extensive and rigorous scientific debate, together with general adherence to the merits of taking a "precautionary approach." It is a testimony to both the quality of scientific debate, and the precautionary approach, that the FCCC even exists. But underlying this development of international consensus is a major disagreement or lack of consensus about *why* we should protect the global climate system. Should we protect it because of the almost incalculable havoc large scale climate changes are likely to wreak on our economic systems? Or should we protect it because it is one of the most fundamental features of our biosphere, in protecting it we are respecting the Earth and all life forms and ensuring a future for unborn generations? Or should we protect it for some other, as yet unarticulated, reason?

The FCCC's objective, which is to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system, within a time frame which allows ecosystems to adapt and enables economic development to proceed (albeit in a sustainable manner),⁷ suggests a mixture of both environmental and economic reasons for protecting the climate system. But as will be seen, the economic rationale has absolute dominance at the expense of the environmental objective.

The analysis which follows demonstrates that the FCCC values our continued economic prosperity, premised as it is on production and consumption of resources (in particular fossil fuels), more highly than it values protection of the Earth's global climate system. As a consequence, the various responses and commitments developed in the FCCC (and related instruments) are defined and limited by this fundamental value. Accordingly they:

- (i) do not go far enough or fast enough, i.e., the reduction targets are too small and the timetables too generous;
- (ii) lock us into the status quo, whereby we *repeat* the patterns of human activity which caused the threat of climate change;
- (iii) avoid, or at best, delay the fundamental social and economic restructuring necessary to address the causes of climate change;
- (iv) enable some nations to be economic opportunists;
- (v) fail to address important equity issues.

In valuing our current patterns of economic prosperity more highly than the environment, we also deny ourselves the opportunity to think more creatively about possible responses to the dangers of climate change.

These criticisms of the FCCC, and related instruments such as the Kyoto Protocol, are illustrated in detail in the following paragraphs.

How, if at all, would a different ethical approach be an improvement? If the FCCC was based on an ethic of "respect for all life," would our legal responses be more effective? In other words, would a different moral prescription for guiding conduct lead to a substantially improved legal regime for addressing climate change?

In addressing these questions it is useful to explore the current interpretation and use of the "precautionary approach" in the

7. FCCC, *supra* note 5, at 854.

FCCC, and compare this with the potential use of the “precautionary principle,” interpreted and applied in the context of an eco-centric ethic.

III.

THE PRECAUTIONARY APPROACH

While there is plenty of debate about the precise definition of the “precautionary approach,” one of the most classical formulations appears in Article 3 of the FCCC.⁸

Article 3: The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, *taking into account that policies and measures to deal with climate change should be cost effective so as to ensure global benefits at the lowest possible cost.*

Put simply, this means that states should not use the fact that there is not complete scientific certainty regarding the adverse environmental effects of activities to postpone putting in place measures to prevent those effects. There is considerable controversy also about the definition of the “precautionary approach” and the criteria to guide its implementation. It has variously been described as “fuzzy,” “vague” and “too general” to be of practical use.⁹ On the other hand, some commentators such as O’Riordan and Jordan have found a simple core concept being: “[t]he intuitively simple idea that the decision-makers should act in advance of scientific uncertainty to protect the environment (and with it the well-being interests of future generations) from incurring harm. . . In essence it requires that risk avoidance becomes an established decision norm where there is reasonable uncertainty regarding possible environmental damage or social deprivation arising out of a proposed course of action.”¹⁰

8. See also The Rio Declaration on Environment and Development, 31 ILM 881 (1992). For a helpful overview of many of the different strands contained within the concept, see INTERPRETING THE PRECAUTIONARY PRINCIPLE (Timothy O’Riordan & James Cameron eds., 1994).

9. David Hughes, *The Status of the Precautionary Principle in Law: Secretary for Trade and Industry ex parte Duddridge*, 7 J. ENVTL. L. 224, 238 (1995); Daniel Bodansky, *Scientific Uncertainty and the Precautionary Principle* 33 ENV’T 4, 5 (1991).

10. Timothy O’Riordan and Andrew Jordan, *The Precautionary Principle in Contemporary Environmental Policies*, 4 ENVTL. VALUES 191, 194 (1995).

The "precautionary approach" is recognition that scientific uncertainty and risks of environmental harm (i.e., harmful consequences), are frequently inherent aspects of environmental management, and that a normative response is required. As environmental law evolves at both the international and municipal level, the precautionary approach is rapidly becoming an accepted policy and legal tool. It is, in its basic form, a means of implementing the "as if" philosophy.¹¹ In the face of risks and uncertainties, we must act "as if" there were scientific certainty. It promotes acknowledgement of the links between human activity and environmental harm, and requires a response - the need to "do" something to prevent the potential harm eventuating.

The "precautionary approach" is also a response to some of the inadequacies of traditional environmental law doctrines such as state responsibility for harm. These doctrines are essentially reactive, waiting for the harm to occur to identifiable rights and then relying on the holder of those rights to pursue an action for damages.¹² While the "precautionary approach" is preferable to total reliance on traditional *delicts*, it is still firmly embedded in our traditional regime of state and territorial sovereignty (or at the municipal level, property rights). It merely attempts (in serious cases) to mitigate the full and unfettered exercise of sovereign rights, which enable states to exploit their own resources, provided they do not cause identifiable harm to the environment of other states or of areas beyond national jurisdiction.¹³

Given the fact that the "precautionary approach" is embedded in our traditional regime of rights, it is not surprising that it normally endorses only *minimal* intervention with the traditional sovereign right (freedom) of states to "exploit their own resources pursuant to their own environmental and development policies. . . ."¹⁴ As the wording of Article 3 of the FCCC reveals, the obligation to take precautionary measures/policies is qualified by the concepts of 'cost effectiveness' and 'global benefits at the lowest possible cost' and is limited by thresholds of "serious or irreversible damage." The FCCC need not have defined the "precautionary approach" in this way, but in doing so it has de-

11. GUNTHER ANDERS, *DIE ANTIQUIERTHEIT DES MENSCHEN*, Bd.2 (1980).

12. TAYLOR, *supra* note 2, ch. 3-4.

13. Principle 2 of the Rio Declaration on Environment and Development, 31 I.L.M 881; Principle 21 of the Declaration of the United Nations Conference on the Human Environment (Stockholm Declaration), 11 I.L.M 1416 (1972).

14. Rio Declaration on Environment and Development, *supra* note 8.

fined it in a manner consistent with the Convention's stated objective which includes enabling "economic development to proceed in a sustainable manner."¹⁵ As will be seen, it is this type of value laden economic terminology that enables states to take a "business-as-usual approach."

Thus the "precautionary approach" in the FCCC has been used to move forward consensus on the need to respond to climate change, but it has also significantly constrained and defined the nature of those responses. It says little more than that an uncertain but high-risk situation exists; it needs to be addressed within our traditional paradigm, with the usual economic criteria in mind. This situation may be understandable given the vested interests at stake in moving away from fossil fuel economies, as well as the nascent nature of international environmental law. Despite rapid development over the last 20-30 years, international environmental law retains many of the characteristics of early municipal environmental law, including the primitive economic cost/benefit analyses which favor economic values over environmental values.¹⁶

The "precautionary approach" helped bring the FCCC into existence, but its use has since been outpaced by scientific consensus. In 1995 the Intergovernmental Panel on Climate Change ("IPCC") issued its Second Assessment Report which contained the now famous words: ". . .the balance of evidence suggests that there is *discernable human influence on global climate*."¹⁷ Thus by 1995 it was possible to say that there is no longer significant scientific uncertainty about the existence of climate change.¹⁸ But there does remain considerable uncertainty about the consequences, or impacts of, climate change.

15. FCCC, *supra* note 5, Art. 2.

16. At the municipal level, environmental law is beginning to recognize the limitations of economic cost/benefit analysis and is developing more sophisticated methods. Of particular note are those which require the satisfaction of specific ecological bottom lines. Economic considerations are only relevant once the ecological parameters have been secured.

17. Contribution of Working Group I to the Second Assessment Report of the IPCC, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 1995: THE SCIENCE OF CLIMATE CHANGE, November 1995, 5 (emphasis added). IPCC scientists recently met in Auckland, New Zealand [February 2000]. This meeting was for the purpose of preparing the next IPCC report due for publication in 2001. Many of the participating scientists are unofficially predicting that the report will use more direct language to convey the threat of climate change. NEW ZEALAND HERALD, Feb. 21, 2000, at A15.

18. There remain a small number of vocal climate change skeptics.

IV.

THE PRECAUTIONARY PRINCIPLE

Progressive interpretations of the “precautionary approach” are sometimes referred to as the “precautionary *principle*.” These interpretations tend to be more eco-centric in nature, and are motivated by a need to move beyond a utilitarian view of nature. Again there are varying interpretations, however most include the following components:¹⁹

- (i) a threat of serious or irreversible harm (evidentiary threshold);
- (ii) scientific uncertainty;
- (iii) full or partial reversal of the burden of proof; and
- (iv) measures taken in response, sometimes referred to as “precautionary measures” (proportionality of response).

The precautionary principle essentially requires that initiators of activities, or of change, which involve serious risk and scientific uncertainty, must go some distance toward proving that their activities will not cause serious environmental effects. This process would include proving that any response measures or policies will also be effective to either prevent or mitigate environmental harm. This was made clear by the words of The Bergen Declaration, which states:²⁰

In order to achieve sustainable development, policies must be based on the precautionary principle. Environmental measures must anticipate, prevent and attack the causes of environmental degradation. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

More recently the European Commission has adopted a Communication of Precautionary Principle, which applies the precautionary principle to risk management and provides that:²¹

Where action is deemed necessary, measures based on the precautionary principle should be, *inter alia*: proportional to the chosen

19. For a more expansive list see INTERPRETING THE PRECAUTIONARY PRINCIPLE, *supra* note 8, at 17-18.

20. Ministerial Declaration of the Second World Climate Conference (1990). In the case *Leatch v. National Parks and Wildlife Service*, 81 L.G.E.R.A 270 (1993), Stein noted that the precautionary principle’s premise is “that where uncertainty of ignorance exists concerning the nature or scope of environmental harm (whether this follows from policies, decisions or activities), decision-makers should be cautious.”

21. Adopted by the European Commission on February 2, 2000.

level of protection, non-discriminatory in their application, consistent with similar measures already taken, based on an examination of the potential benefits and costs of action or lack of action . . . , subject to review in light of new scientific data and capable of assigning responsibility for producing the scientific evidence necessary for a more comprehensive risk assessment.

The “precautionary principle” requires both an assessment of the effects of the causal activities, *and* an assessment of response measures. It requires an element of precaution in policy choices. This is nothing more, and nothing less, than a requirement for a full impact assessment, which includes assessment of response measures which are *claimed* to be precautionary in nature.²² In the words of Article 3 of the FCCC, the measures which “anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects.”

Literature on the “precautionary principle” reveals considerable variance of opinion about its implementation. Frequently debated issues include: where should the burden of proof lie?; what is the required standard of proof?; where does the balance lie between risk management (as opposed to risk elimination) and paralysis (the status quo)?²³

One application of the principle frequently debated is to situations of high or low probability of harm, where the consequences could be severe in their magnitude and duration. Such situations are commonly held to require adoption of the most stringent prevention measures. The potential for harm to the Earth’s carbon cycle is a good example, given its importance in determining climate, its rather fragile balance, and the long term influence of

22. Environmental impact assessments are, of course, familiar tools in municipal environmental and planning law regimes, but they have not yet found a central place within the structure of international environmental law. The Protocol to the Antarctic Treaty on Environmental Protection, 30 I.L.M 1455 (1992), is one international agreement which incorporates an environmental impact assessment requirement. Regarding the status and implementation of the precautionary principle in international law *see generally*, James Cameron, *The Status of the Precautionary Principle in International Law*, in INTERPRETING THE PRECAUTIONARY PRINCIPLE, *supra* note 8, ch. 15. In 1983, Robert Quentin-Baxter argued for the place of impact assessments within the context of the International Law Commission’s topic: International Liability for Injurious Consequences arising out of Acts not Prohibited by International Law. *See* Taylor, *supra* note 2, ch. 4.

23. *See generally*, PATRICIA BURNIE AND ALAN BOYLE, INTERNATIONAL LAW AND THE ENVIRONMENT 98 (1992); James Cameron, *Environmental Law and Policy in Antarctica*, in GREENING OF INTERNATIONAL LAW 118 (Phillippe Sands, ed., 1993); PHILIPPE SANDS PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW: FRAMEWORKS, STANDARDS AND IMPLEMENTATION 212 (1995).

accumulated greenhouse gases ("GHGs"). A number of commentators have opined that in these situations the burden of proof must lie with the initiator of the activity.²⁴ In other words, they must demonstrate an acceptable level of risk. The rationale for this reversal of the burden of proof is that the law traditionally favors the free exercise of property rights over the interests of environmental protection. Thus in contests between the two, the environment is frequently the loser because advocates for the environment have the burden of proving environmental harm. To overcome this individualistic and libertarian bias of the law, the burden of proof must be moved to the initiator of change, as an essential element of implementing the precautionary principle.²⁵

More recently, the application of the precautionary principle to risk management reveals that policy and decision makers also bear a burden of establishing, via transparent and participatory processes, that response measures are (inter alia) based on an examination of the potential benefits and costs of action or inaction in both the short and long term. This *may* include an economic cost-benefit analysis where appropriate, but the scope of the analysis is much broader. It includes "non-economic considerations, such as the efficacy of possible options and their acceptability to the public."²⁶ Protection of health is to take precedence over economic considerations.

The "precautionary principle" is in part a procedural rule for the allocation of the burden of proof. When the burden of proof is shifted to the initiator of an activity and the decision/policy maker, then the "precautionary principle" is being applied in a manner which is consistent with an ecologically guided approach to international law, one which has as its primary objective ensuring ecological integrity. This approach recognizes that there is no unfettered freedom to exercise property rights; rather it is acknowledged that some human actions must now be exercised within an ecological context which preserves the ability of ecosystems to sustain themselves. In simple terms, ecological thresh-

24. INTERPRETING THE PRECAUTIONARY PRINCIPLE, *supra* note 8, at 17-18.

25. The European Commission Communication on Precautionary Principle notes that shifting the burden of proof to initiators may be appropriate in some cases, but not as a general rule.

26. Communication on the Precautionary Principle. *See also* Sonja Boehmer-Christiansen, *The Precautionary Principle in Germany: Enabling Government*, in INTERPRETING THE PRECAUTIONARY PRINCIPLE, *supra* note 8, ch. 2, at 31.

olds²⁷ replace those that are based solely upon economic analyses. Economic concepts like 'cost effectiveness' and 'global benefits at the lowest possible cost' are no longer the primary determinants of what is, or is not, an appropriate response measure. Ecological concepts like the carrying capacity of ecosystems are the appropriate measure. They are the criteria of determining the efficacy and veracity of response measures. This is not to say that there is no role for economic criteria, clearly they are relevant,²⁸ but they are no longer the *primary or sole* determinants.²⁹

As mentioned above, the shifting of the burden of proof has a significant effect on property rights. These rights are often considered immutable. This is a fiction; they are rights that have, over time, evolved in association with social, cultural and economic change. However, it is often difficult to attain societal acceptance of changes to property rights; yet this is essential. The shifting of the burden of proof, critical to an ecological approach, will only be attainable if there is broad acceptance and understanding that property rights can no longer be considered absolute rights. They are rights which must be exercised within an ecological context. In other words, the extent of these rights, and associated responsibilities, are to be determined by ecological factors. Experience to date has demonstrated how difficult it is to attain the necessary acceptance and understanding, together with political leadership.³⁰

The "precautionary principle" described here is also consistent with ecological values because it introduces a more developed notion of *prevention* than the "precautionary approach." One important aspect of this is the potential benefits for future generations. Economic criteria and the operation of the market are notoriously ill equipped to cater to long-term objectives, such as the interests of future generations.³¹ In contrast ecological criteria such as the maintenance of ecological carrying capacities are,

27. Ecological thresholds include social considerations.

28. To be successful, environmental law needs to take a precautionary approach while, at the same time, ensuring a stable framework of economic development. See ENVIRONMENTAL JUSTICE AND MARKET MECHANISMS: KEY CHALLENGES OF ENVIRONMENTAL LAW AND POLICY 13 (Klaus Bosselmann & Benjamin Richardson, ed., 1999).

29. An ecologically guided approach to international environmental law does not create a system of competing ethics; rather it seeks to expand the scope of ethical consideration and readjust the balance so that economic factors are not given overwhelming or preeminent, significance.

30. See generally ÖKOLOGISCHE GRUNDRECHTE (Klaus Bosselman, ed., 1998).

31. INTERPRETING THE CAUTIONARY PRINCIPLE, *supra* note 8, at 17.

by their very nature, long-term objectives. They will result in protection of the environment for the future enjoyment of both humanity and nature. Ecological criteria may also promote recognition and protection of intrinsic values in cases where these criteria focus on the functioning of ecosystems in the interests of all life on earth.³²

The “precautionary principle” is also an important means of implementing sustainable development, as it was originally intended.³³ Much of the early literature on sustainable development reflected a strong understanding of the perilous state of the environment and the centrality of economic growth or development as the primary cause of global degradation. This literature recognized that our responses need to be fundamentally re-oriented and that our notions of economic development need to be reformed to make them consistent with the ability of ecological systems to sustain themselves. However, the UNCED process enthroned sustainable development as a principle which defines the limits of ecological sustainability by what can currently be sustained economically.³⁴

To summarize, an important aspect of the “precautionary principle” is the requirement that response measures are, to some degree, proven to be an effective means of attaining the necessary levels of ecological sustainability. In comparison, the “precautionary approach” adopted by the FCCC, with its bias in favor of economic criteria, does not require an ecological assessment of response measures. As a consequence, the assumptions (both economic and scientific) upon which many responses are based have gone untested. Governments have not been accountable for their policies because they have not had to justify the courses of action adopted.³⁵ Thus the very measures which are advocated as appropriate responses may well be *contributing to the causes of climate change*.

Below, this analysis is applied to three specific provisions of the FCCC and Kyoto Protocol, reduction targets, emissions trading, and the net approach. Revealed are serious inadequacies of

32. *Id.* at 18.

33. The Bergen Declaration, *supra* note 20, was one of the first to highlight the centrality of the precautionary principle to the pursuit of sustainable development.

34. See FCCC, *supra* note 7.

35. The FCCC includes various obligations requiring monitoring and review of implementation of policies; however these obligations arise only after the policies have become operative. See Arts. 4, 9 & 10.

application of the “precautionary principle,” and the need for immediate adoption of ecologically appropriate measures.

V.

CLIMATE CHANGE RESPONSE MEASURES

a. *Reduction Targets*

In 1990, the IPCC released its First Assessment Report. It advised that to stabilize greenhouse gases (“GHG”), at 1990 levels, would require *immediate reductions in emissions from human activities of over 60%*.³⁶ Compare this with the current commitments in the Kyoto Protocol which aim to reduce the overall emissions of Annex I parties (listed developed countries) by at least 5.2 % below 1990 levels between 2008 to 2012.³⁷ This reduction target is nearly 12 times less demanding than recommended by an international scientific consensus process; furthermore it is to be attained some 20 years later.

The Kyoto Protocol targets have been variously described as “ecologically inappropriate,” “pathetic” and “minuscule” vs. “realistic and achievable” and “aggressive and appropriate.”³⁸ Different values clearly underlie these very different assessments of the targets.

Why is there this huge divergence between what the international scientific consensus has advised as necessary, and what states have, over the last several years agreed to?

The domestic and foreign climate change policies of most states are quite clearly economically driven. Take for example the United States of America (“USA”); per capita it emits five times the global average, more than any other country. It alone is responsible for nearly a quarter of total global GHG emissions.³⁹ Obviously, a strong US commitment to reductions is required for global regulation to be effective. This is however, far from the case.

The USA has pledged a 7% reduction above 1990 levels between 2008 and 2012, only a small fraction more than the mini-

36. CLIMATE CHANGE: THE IPCC SCIENTIFIC ASSESSMENT, at xi (J.T. Houghton, G.J. Jenkins & J.J., eds., 1990).

37. Kyoto Protocol Art. 3(1). This is an improvement on the commitment contained in the FCCC which required Parties to stabilise greenhouse gas emissions at 1990 levels by 2000. Art. 4.

38. Simon Retallack, *How US Politics is Letting the World Down*, 29 THE ECOLOGIST, 111, 112 n.2 (Mar/Apr. 1999).

39. *Id.* at 111.

mum requirement. However, the US Congress has not ratified the Protocol and does not look set to do so in the foreseeable future.⁴⁰ The *Byrd-Hagel Resolution* was passed unanimously by the Senate, in June 1997. It effectively prevents ratification of any United Nations Protocol on climate change which fails to mandate “new scheduled commitments to limit greenhouse gas emissions for developing countries within the same compliance period,” and which “would result in serious harm to the economy of the United States.”⁴¹ Given the enormous difficulty of dealing with the equity issues between developed and developing countries (i.e., developing states are refusing to consent to limits or reductions because they expect developed states to act first), this resolution has been described as “a perfect formula for international stasis that guarantees business-as-usual.”⁴²

Not only is the USA not going to ratify the Kyoto Protocol, its current domestic policies are producing run-away escalation of emissions. GHG emission rates are currently 13% above 1990 levels and are set to reach 30% above 1990 levels within 11 years. In other words, by the 2012 Protocol deadline, the US emissions look set to be 30% above 1990 levels, not 7% below.⁴³ Thus current federal policies such as the continued subsidization of the fossil fuel industry at \$18 billion per annum, and promotion of US oil exploration,⁴⁴ drastically undermine the modest GHG reductions achievable under the FCCC and Kyoto Protocol.

Furthermore, it would seem that the US pledge of a 7% reduction only means 3% in real reductions. A Government press release states that: “[t]he 7% target represents at most a 3% real reduction. . .” “[t]he remaining 4 percentage points result from certain changes [the US made at Kyoto] in the way gases and sinks are calculated and do not reflect any increase in effort. . .”⁴⁵ Again, this policy reveals a business-as-usual approach; these targets avoid both the economic consequences of drastic change, and enables current patterns of fossil fuel use, transportation, and trade to continue. The interests of oil, coal, utility and automobile industries are clearly served by this approach, not the interests of the environment or future generations.

40. The Kyoto Protocol came into force on 21 March 1994 with 169 signatures.

41. S. Res 98 105th Cong. (1997).

42. Retallack, *supra* note 38, at 115.

43. *Id.* at 112.

44. *Id.*

45. *Id.* at 113.

The USA is not, of course, alone in its economically driven target policy. Even a country such as New Zealand (the fourth highest per capita emitter of GHG)⁴⁶, often incorrectly perceived to be a nation with a good environmental record, has been driving down the reduction targets. In fact New Zealand has managed to maneuver itself into a position whereby it is not required to achieve reduction targets beyond the stabilization at 1990 levels, prescribed by the FCCC. New Zealand pleaded special treatment arguing at Kyoto that it faced comparatively higher marginal costs of abatement and thus deserved preferential treatment in the setting of emission targets. The former Minister for the Environment stated:⁴⁷

New Zealand supports a legally binding target for the reduction of greenhouse gases by Annex I countries. New Zealand believes a reduction of 5% below 1990 levels is achievable and realistic within a decade. . . . However, a number of factors make action by New Zealand more expensive than other developed nations. In a nutshell, some of the easy steps available to others aren't available to us. We can't cancel any subsidies for fossil fuel production because we don't have any subsidies. We don't have inefficient coal fired power stations that we can replace with efficient gas fired ones: over 80% of our electricity is already generated from renewable resources.

While the Minister's comments may be accurate, they do not mention two important facts. The first is that 40% of the New Zealand's CO₂ emissions come from the transport sector. As New Zealand commentators have pointed out, the nation's record on dealing with GHG emissions from the transport sector are woefully inadequate.⁴⁸ Second, like the USA, New Zealand's gross emissions of CO₂ are increasing at an alarming rate. It is predicted that by the year 2000, New Zealand's gross CO₂ emissions will have risen above their 1990 levels by between 22 and 25%.⁴⁹

Australia also argued for preferential treatment, on the basis of its substantial mineral processing and energy export indus-

46. NEW ZEALAND MINISTRY FOR THE ENVIRONMENT, *CLIMATE CHANGE MORE THAN JUST CARBON DIOXIDE*, vii (1998).

47. Simon Upton, *Statement on Behalf of the Government of New Zealand* (Dec. 8, 1997) available at <http://www.executive.govt.nz/minister/upton/>.

48. ALEXANDER GILLESPIE, *BURNING ISSUES* (1997).

49. NEW ZEALAND MINISTRY FOR THE ENVIRONMENT, *CLIMATE CHANGE AND CO₂ POLICY: A DURABLE RESPONSE* 59, 62 (1996).

tries.⁵⁰ Australia obtained consent to an 8% increase in GHG emissions.

The policies of all these countries are, of course, sanctioned by the terminology of the FCCC and the Kyoto Protocol previously referred to.⁵¹ They are also consistent with prevailing ideologies of market deregulation, free trade and globalization of markets. FCCC Article 3, paragraph 5 expresses the importance of these notions. It states:

The Parties should cooperate to promote a supportive and open international economic system that would lead to sustainable economic growth and development of all Parties, particularly developing country Parties, thus enabling them to better address the problems of climate change. Measures taken to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination of a disguised restriction on international trade.

Applying the "precautionary principle," as described above, how would the task of setting targets and timetables differ? We would end up with ecologically appropriate targets and timetables, i.e., those that are linked to the capacity of ecological systems to sustain themselves. Negotiations would be directly, and primarily linked, with the scientific consensus developed and represented by the IPCC. Therefore, when proposing targets and timetables, states would have to prove why those targets are considered to be effective for the prevention and/or mitigation of the projected climate changes and consequential environmental harm. This prior impact assessment of response measures would replace the present process whereby states are not required to prove anything in relation to target figures and timetables. They are based solely on economic analysis and modeling. Even then, they are not tested or reviewed in any thorough or independent manner. They are proposed and pushed by those states with the most fossil fuel dependent economies, to a point where the lowest common denominator is reached. There is no requirement that these targets and timetables will achieve the reductions scientific research has identified as necessary.

Applying this to the current situation, state parties would have to prove that current Kyoto Protocol targets and timetables will prevent and/or mitigate the environmental harm predicted as a

50. Press Release, Senator Robert Hill, Kyoto Agreement a Win for the Environment (Dec. 11, 1997) (on file with author).

51. FCCC, *supra* note 7.

consequence of climate change. This would require a direct comparison with the IPCC recommendation of a 60% reduction by 2020, and a justification as to why the current Kyoto Protocol measures fall a long way short of this.

Certainly government policy analysts involved in climate change policy and negotiations over recent years would balk at any dramatic increase in Kyoto Protocol targets, claiming that they are impossible to achieve. They would dismiss calls, such as cuts in CO₂ emissions by 70-80% below 1990 levels within 30 years and a near total phase out of fossil fuels within 50 years,⁵² as meaningless, destructive and illusionary. Perhaps these descriptors are accurate in the context of a business-as-usual approach, one aimed at avoiding any meaningful structural economic change. The reductions and readjustments that are required are now so immense that we have to give up our current fossil fuel driven economic development, because it is *the primary causal factor*.

In fact, if we are prepared to “remove our heads from the sand,” it is becoming increasingly clear that clinching to “business-as-usual” is, itself an illusionary and meaningless pursuit. The insurance industry offers an example. The Munich Reinsurance Corporation - one of the world’s largest underwriters - estimates that the bill world wide, for severe weather over the past three years, has topped 180 billion US dollars.⁵³ This is a consequence of attempting to maintain a state of infinite material based economic growth within a finite world, where the assimilative capacity of the biosphere has been reached. Entropy and environmental degradation are the result.⁵⁴

As noted above, there is also substantial scientific consensus in the form of the IPCC’s Second Assessment Report: “that the balance of evidence suggests there is discernible human influence on global climate.”⁵⁵ What’s more, the 0.6 degree Celsius per decade increase in global surface temperatures is in response to the increased levels of CO₂ emitted 50-80 years ago. We will not

52. See *The Ecologist's Declaration on Climate Change*, 29 *THE ECOLOGIST* 55, 56 n.2 (Mar./Apr. 1999) (signed by a large number of prominent scientists, politicians, and NGO representatives).

53. Simon Retallack & Peter Bunyard, *We're Changing Our Climate! Who Can Doubt It?*, 29 *THE ECOLOGIST* 60, 61 n.2 (Mar./Apr. 1999).

54. See N. GEORGESCU-ROGEN, *THE ENTROPY LAW AND THE ECONOMIC PROCESS* (1971); J. RIFKIN & T. HOWARD, *ENTROPY: INTO THE GREENHOUSE WORLD* (1989).

55. *Supra* note 17.

feel the impact of today's emission levels for another 50-80 years. Furthermore:⁵⁶

"The longer we delay reducing our greenhouse gas emissions, the more likely it is that the warming we have set in motion will increase to the extent that it causes new factors to come into play - such as the collapse of the planet's natural greenhouse-gas-absorbing sinks, which will in turn feed back on the warming process, causing climatic changes that are potentially catastrophic and effectively irreversible for centuries if not millennia to come."

The unaddressed emissions of developing countries further add to the challenge. They are not currently subject to Kyoto Protocol reduction targets. Yet, when the GHG emissions from "developing countries are added to those of the industrial countries, the global total is projected to increase to some 30 per cent above 1990 levels by 2010. Moreover, by 2020, emissions are projected to be up by 60 per cent,"⁵⁷ even after taking into account compliance with the Kyoto Protocol.

b. *Emissions Trading*

Article 17 of the Kyoto Protocol allows for a target-based emissions trading system, which is accounted for in Articles 3(10) and 3(11). Article 17 allows Annex I countries to participate in emissions trading for the purpose of fulfilling their commitments, but such trading is to be "supplemental to domestic actions." If, for example, a country risked exceeding its emission quota under the Protocol, it could purchase some or all of the unused quota of another country. In this way it could *increase* its total allowable emissions. The rules governing this trading system have not yet been formulated. They are expected to be clarified and agreed upon at subsequent Conferences of the Parties.⁵⁸

Emissions trading is another manifestation of the business-as-usual approach to climate change policy. For those states in a position to buy up credits, it could translate to an opportunity to *increase* emissions. While there is a requirement that this trading be "supplemental to domestic actions," the vagueness of this language opens up the possibility of avoiding substantial domestic

56. Retallack & Bunyard, *supra* note 53, at 63.

57. Charlie Kronick, *The International Politics of Climate Change*, 29 *THE ECOLOGIST*, 104, 106 (Mar./Apr. 1999).

58. *See infra* para. 5.5. Through early 2000, the Conference of the Parties had held two substantive meetings, COP-4 in Buenos Aires (1998) and COP-5 in Bonn (1999).

action to reduce emissions. Furthermore, if a large emitter like the USA avails itself of this mechanism, a very negative message is sent to the rest of the world: it is too costly to clean up domestically, and an easy option exists to buy most reductions abroad.

It is no surprise that emissions trading is enormously appealing to many states, so much so that some US policy analysts view it as the *only* effective idea or mechanism for reducing US greenhouse gas emissions.⁵⁹ This attitude, coupled with resistance to placing a cap on the amount of a country's reduction target that can be achieved through trading emission quotas abroad, and a push for a low price per carbon tonne, could see emissions trading become *the primary mechanism* for implementing reduction targets. New Zealand is also a keen advocate of emissions trading, viewing it as a flexible mechanism for implementing the "least-cost" principle (i.e., enabling the lowest-cost emission reductions to be made wherever they occur, rather than solely behind national boundaries).⁶⁰

In addition to the problems identified above, there is the serious question of equity between developed and developing nations. China and India, for example, are concerned that this mechanism could eventually enable industrialized states to purchase credits from developing states, impeding their development opportunities and avoiding the need to take meaningful domestic action.⁶¹

What we are observing then is the ascendance of an economic mechanism, and its gradual promotion, as *the primary mechanism* for implementing reduction targets. In effect we are being asked to trust the ability of market mechanisms to redress what the Vice-President of the USA has referred to as 'the most serious problem we have ever faced.'⁶² The crucial point is that there is very little empirical work that indicates the success of market mechanisms on a national, let alone an international, basis. In short, considerable controversy and uncertainty surrounds the use of market mechanisms as effective policy and legal responses to environmental problems. Some of the risks associated with their use range from implementation and enforcement deficits to

59. Retallack, *supra* note 38, at 113-14.

60. See Ralph Chapman & Liz Grey, *Slowing the Burning: New Zealand's Climate Change Policy Approach*, 2 N.Z.J. ENVTL. L 225 (1998).

61. 12 EARTH NEGOTIATIONS BULL., 15-17 (Dec. 13, 1997).

62. Retallack, *supra* note 38, at 114.

a complete failure to achieve or even identify, environmental objectives.⁶³

Any policy approach, which allows the biggest GHG emitters to increase emissions and avoid fundamental economic restructuring at home, must be subjected to the most rigorous scrutiny. Given the time frames needed for finding effective responses to climate change, we cannot afford any false starts. Application of the "precautionary principle" would require a convincing demonstration of the merits of emissions trading, prior to its adoption.⁶⁴ The defining parameters of its use would be the achievement of ecological sustainability.

c. *The Net Approach*

The net approach is a method of calculating emissions by subtracting the amount absorbed by trees (carbon sequestration) from the total amount of emissions released. States in favor of this approach, (namely New Zealand supported by Australia, Canada, Norway, Ireland and the Russian Federation) argue that the net approach is sanctioned by the FCCC and the Berlin Mandate.⁶⁵ Prior to the Kyoto Conference there was no agreement on whether, or how, the net approach should be included in the Protocol. Then New Zealand (and others) strongly advocated the issue. Opposing states saw it as a loophole for evasion and as being too uncertain for inclusion. New Zealand argued that omission of the net approach would create a loophole because by implication sinks could be used (for one billion tonnes of CO₂ per year); furthermore, omission would reduce the incentive to protect and enhance sinks. This argument was explicitly rejected by the European Union and Japan.⁶⁶

New Zealand's stance on the net approach is not surprising given that it intends to achieve 81% of its quota of emission re-

63. See generally Bosselmann & Richardson, *supra* note 28, at 1-18 (concluding that there is some role for the market in circumstances where the state maintains a controlling presence and there exists a firm and clearly defined environmental commitment).

64. Many of the same criticisms can be made in relation to the "joint implementation" provisions. *Supra* note 6, at Art. 3.1.

65. FCCC, Nov. 1997, Kyoto Protocol, Arts. 4.1, 4.2. See also United Nations Berlin Mandate, Art. II 2(a).

66. FCCC, *Response From Parties on Issues Relating to Sinks*, at 22, U.N. Doc. FCCC/AGBM/1997MISC 4, MISC 4 Add 1 & MISC 4 Add 2 (1997). (United Kingdom on behalf of the European Union) cited in Alexander Gillespie, *Defending the Irresponsible: A Reply to Chapman and Gray* (1998) 2 N.Z.J. ENVTL. L. 233, 235 & note 27 (1998).

ductions via the use of sinks, the highest rate of any Annex I country.⁶⁷ This is compared with an average of 8% reductions by sinks of national CO₂ emissions, adopted by other nations.⁶⁸

The use of the net approach was finally sanctioned by the Kyoto Protocol, as a concession to New Zealand and its supporters, but not without it being noted that its insistence on the inclusion of sinks amounted to “parochial self-interest, combined with sleight of hand.”⁶⁹ Article 3(3) provides for taking account of carbon sequestration from land use changes and forestry when calculating emissions. It requires parties to fulfill their obligations by reference to “the net changes in greenhouse gas emissions from sources and removals by sinks resulting from direct human-induced land use change and forestry activities, limited to afforestation, reforestation and deforestation since 1990, measured as verifiable changes in stocks in each commitment period.”

The problem is that this is another implementation mechanism that is untested and uncertain in terms of its ability to achieve sound environmental results. In fact there are some major scientific, methodological and equity problems.

Scientific problems include: the necessary planting rates and size of plantation forests; the absorption rates of mixed versus monoculture plantations; the function of existing indigenous forests (they may be emitters rather than absorbers); duration of carbon sequestration; and the impact of feedbacks. The IPCC has, on numerous occasions, recognized these considerable uncertainties.⁷⁰ In 1997, Professor Bolin, on behalf of the IPCC, specifically pointed out in relation to terrestrial ecosystems that: “. . .the error margins for the determination of sources and sinks are quite large” and “[b]ecause of our limited understanding and lack of observations simplified methods have been proposed by the IPCC and adopted by the FCCC for the assessment of sources and sinks by countries.” He went on to state the importance of analyzing “their possible shortcomings” in the context of

67. FCCC, *Methodological Issues: Synthesis of Information From National Communications on Sources and Sinks in the Land-Use Change and Forestry Sector*, U.N. Doc. FCCC/TP/1997/5, (Nov. 1997), tbl. 1.

68. Bosselmann & Richardson, *supra* note 28, tbl. 1.

69. XCVIII, No. 3, ECO NEWSLETTER: KYOTO, Dec. 3, 1997 at 2.

70. IPCC, Second Assessment Rep., 2 CLIMATE CHANGE (1995).

the IPCC's work.⁷¹ The uncertainty in this area, identified by the IPCC, was 60%.⁷²

Methodological problems include: disagreements about what does or should constitute a sink and lack of a common reporting framework for emissions from the sub-categories of land-use change and forestry categories. With these problems in mind, a 1997 Technical Paper on sinks concluded: "It is clear that further methodological work is necessary in order to ensure that the estimation and reporting of GHG inventory data for land-use change and forestry are consistent, transparent and comparable."⁷³

The Kyoto Protocol, via its definitions, has attempted to resolve some of the methodological problems. However, the considerable uncertainties identified with the net approach should *exclude*, or at least strictly limit, its use.⁷⁴ In the case of New Zealand, these uncertainties have been pushed aside and largely ignored because of the Government's commitment to the rhetoric of "least-cost options," and "market mechanisms." In the words of two of New Zealand's senior climate change policy analysts: "The least-cost principle includes. . . the availability of flexible mechanisms such as international emissions trading (so that the lowest cost emission reductions can be made wherever they occur, rather than solely behind national borders). New Zealand also strongly promote[s] the recognition of carbon removals (absorption by growing plantation forests) in a manner that allows absolute changes in carbon stock to be counted against reduction targets."⁷⁵

Application of the "precautionary principle," by requiring a proper impact assessment, would prevent nations such as New

71. Quoted in Gillespie, *supra* note 66, at 237 & n.31.

72. Vol. 1, REVISED 1996 IPCC GUIDELINES FOR NATIONAL GREENHOUSE GAS INVENTORIES (1996) at tbl. A1-1.

73. Bosselmann & Richardson, *supra* note 63, at 10.

74. See Gillespie, *supra* note 62, at 238-39. Examples of limitation include: restricting them to a specified percentage of the qualified emission limitation and reduction objectives (QELROs) (e.g., 8% or less), and limiting their use to within national boundaries.

75. See Chapman & Grey, *supra* note 60, at 226. See also Prue Taylor, *Is the Clean Green Image an Illusion?: New Zealand's Efforts to Implement the United Nations Framework Convention on Climate Change*, in *RIVISTA GIURIDICA ITALIANA DELL'AMBIENTE* 789 (1996); Klaus Bosselmann, *Power, Plants and Power Plants: New Zealand's Implementation of the Climate Change Convention* 12 *ENVTL. PLAN L.J.* 6 (1995) (explaining New Zealand's application of the net approach in the decision to grant emission permits to the Straford Power Station).

Zealand from championing such uncertain response measures, in the pursuit of national self-interest. It would also avoid the temptation to provide for such mechanisms as a negotiating "concession" to parties.

Further problems arise out of the inequities of the net approach. Only a few countries have the necessary geographic and demographic conditions to adopt it. The net approach provides an easy option for wealthy and sparsely populated nations like New Zealand and Australia,⁷⁶ which can plant trees thereby avoiding the necessary restructuring of their economies to achieve real reductions. Other countries face much tougher options.

An added dimension is New Zealand's push to include sink credits as part of the international emissions trading market. This could lead to the felling of old growth forests, with the associated problems of biodiversity loss and social dislocation, to create space for financially poor countries to obtain credit for the planting of fast growing forests to sequester carbon. This scenario would bring climate change policies into direct conflict with other international environmental treaties and cause even greater environmental harm.

The fundamental problem, underlying New Zealand's heavy reliance on the net approach, is that real reductions require government regulation and the government wishes to avoid controlling markets. The New Zealand Government, which has over the last 15 years conducted the most aggressive campaign of market deregulation and liberalization of any OECD nation, has resisted any intervention in the operation of markets.⁷⁷ A clear preference for the operation of free markets is evident in the former Minister for the Environment's comment that:⁷⁸

At the end of the day, it will be technologies not targets that reduce emissions. Those technologies could emerge quickly or slowly depending on how we signal the risk of climate change. Harnessing

76. See Taylor & Bosselmann, *supra* note 75. See V. Cusack, *Perceived Costs Versus Benefits of Meeting the Kyoto Target for Greenhouse Emission Reduction or Simply Marking Time?*, 16 ENVTL. PLAN L.J. 53 (1999); C. Parker *The Greenhouse Challenge: Trivial Pursuit?* 16 ENVTL. PLAN L.J. 63 (1999) (regarding Australia).

77. JANE KELSEY, *THE NEW ZEALAND EXPERIMENT: A WORLD MODEL FOR STRUCTURAL ADJUSTMENT?* (Auckland University Press eds, Bridget Williams Books 1995).

78. Hon. Simon Upton, Minister for the Environment, Reflections on the Kyoto Climate Change Convention (Dec. 29, 1997), <http://www.executive.govt.nz/minister/upton>.

rather than hindering the dynamism and innovation of the marketplace should be the aim of future climate negotiations.⁷⁹

e. *The Fifth Conference of the Parties (COP-5) Bonn, October/November 1999*

Delegates to the recent COP-5 conference in Bonn were charged with the task of fulfilling the Buenos Aires Plan of Action, adopted at the fourth Conference of the Parties in November 1998 (COP-4). A key feature of this Plan was a two year deadline for strengthening implementation of the Kyoto Protocol.⁸⁰ This included the objective of addressing outstanding details of Protocol mechanisms such as emissions trading, joint implementation and compliance issues.⁸¹ The aim is to have the Protocol fully operational by the time it enters into force, by concluding work on outstanding issues at COP-6, scheduled to take place in The Hague, November 2000.

Bonn did not achieve substantial progress in fulfillment of the Action Plan, nor did it reach substantive decisions on various mechanisms for implementation of commitments or the adequacy of those commitments. It resolved to continue progress on issues encompassed by the Plan,⁸² and requested further work, proposals and comments on principles, modalities, and rules and guidelines, "with a view to the Conference of the Parties taking decisions on all the mechanisms under Articles 6, 12 and 17 [including tradeable emission permits] of the Kyoto Protocol at its sixth session."⁸³ The objective is that the subsidiary bodies will prepare a draft text for negotiation at the next session.⁸⁴ As re-

79. See KELSEY, *supra* note 77. The election of a new centre-left government in New Zealand (as of October 1999) may, in the future, result in the implementation of a new climate change policy which favours more government intervention, and less reliance on market mechanisms; however the new Government has not yet presented a detailed policy on climate change. The October 1999 general elections resulted in a new centre-left coalition government (comprising Labour, Alliance and, on confidence and supply issues, the Green Party). The instigation of New Zealand's programme of deregulation and market liberalization has been attributed, in part, to a Labour Government, but it was aggressively implemented by successive National governments.

80. FCCC, Nov. 14, 1998, U.N. Doc. FCCC/CP/1998/L.23.

81. *Id.*

82. FCCC, Nov. 1999, U.N. Doc. FCCC/CP/1999/6/Add.1, Decision 1/CP.5.

83. FCCC, Nov. 1999, U.N. Doc. FCCC/CP/1999/6/Add.1, Decision 14/CP.5.

84. See FCCC, Nov. 1999, U.N. Doc. FCCC/CP/1999/6/Add.1, Decision 14/CP.5. The Subsidiary Body for Scientific and Technological Advice and the Subsidiary Body for Implementation were requested to work further on their existing "Synthesis of proposals by Parties on principles, modalities, rules and guidelines."

gards the net emissions issue, again no final decisions have been made on methodology and other matters. The meeting endorsed the work of its Subsidiary Body for Scientific and Technological Advice,⁸⁵ but acknowledged that further work will be done, and additional considerations will arise, in the period prior to decisions being made at the sixth session.⁸⁶ Finally, with respect to a review of the adequacy of commitments and targets, the Conference of the Parties was unable to reach any conclusions or decisions.⁸⁷ The proceedings record a comment on behalf on the European Community to the effect that the commitments were currently insufficient to meet the objective of the FCCC, and that the forthcoming IPCC Third Assessment Report would guide further assessment of the adequacy of the commitments.⁸⁸ In short, many of the outstanding issues surrounding the Kyoto Protocol have yet to be resolved.

VI.

FURTHER EXAMPLES OF THE BENEFITS OF THE CONVERGENCE OF ENVIRONMENTAL ETHICS AND LAW

Other examples of the development and legal implementation of an ecological ethic can be offered: the creation of a comprehensive, integrated and ethically guided global framework treaty for international environmental law, the Earth Charter and IUCN Covenant initiatives, the development of ecological rights, and to domestic law.

a. *From the Law of Nations to the Law of the Biosphere*

I have argued elsewhere⁸⁹ that current international environmental law is seriously inadequate, if not fatally flawed. This is (*inter alia*) because the law is firmly based upon, and reflective of, the anthropocentric ethic that has directly contributed to the environmental crisis. Thus, our international environmental laws have become an integral part of the problem, not a solution. Favored is a new approach to international environmental law, including the development of a new principle of law that

85. For a full report of the Subsidiary Body for Scientific and Technological Advice at its eleventh session, see FCCC/SBSTA/1999/14.

86. FCCC, Nov. 1999, U.N. Doc. FCCC/CP/1999/6/Add.1, Decision 16/CP.5.

87. FCCC, Nov. 1999, U.N. Doc. FCCC/CP/1999/6, para. 58.

88. FCCC, Nov. 1999, U.N. Doc. FCCC/CP/1999/6, para. 17-20.

89. TAYLOR, *surpa* note 2.

encapsulates, and gives legal expression to, an eco-centric ethic.⁹⁰ In general terms, this new ethic could become the basis of our present and future conduct towards, and relations with, nature. This new ethical approach can form the basis of a future global environmental framework treaty. Over time, specific issues such as climate change, ozone depletion, biodiversity, desertification, relationship with international trade etc, would be addressed by means of specific, but integrated, regulation in the form of protocols to the global treaty.

One of the argued benefits of such reform is that it embeds our legal responses within a new ethical framework, one which values the continued healthy functioning of ecosystems for the benefit of present and future generations of humanity and other living beings, in addition to valuing them as resources for human use.⁹¹ A further benefit is that this reform creates an integrated and principled approach to environmental problems. The linkages and interdependencies characteristic of our ecological problems are acknowledged, ensuring that we move away from our current piecemeal and sectoral approach, confined as it is by certain basic principles of international law: state sovereignty, and its companion, territorial sovereignty. As a result, international environmental law, currently being 'the law of nations with respect to the biosphere,' would transform to 'the law of the biosphere with respect to nations.'

In its fundamental challenge of traditional legal doctrine, this position seeks a reassessment of concepts such as the global commons. When human activity has the power to seriously damage the equilibrium of the global climate system, we are forced to readdress the exclusive resource exploitation rights of territorial sovereignty.⁹²

The central thesis of an ecological approach to international law has been developed further in respect to two specific areas.

90. Key features of this eco-centric ethic are: (a) reflection of the biotic reality of interdependence/interaction and interconnectedness; (b) recognition of the inherent value of nature; (c) intergenerational equity (between all species, not just humanity); and (d) recognition of humanity's special relationship with nature. See TAYLOR, *supra* note 2, at 43. See the application of these features via the principle of "common heritage of all life." *Id.* ch. 6.

91. *Id.* A number of examples of the incorporation of environmental ethics into international law already exist. See generally TAYLOR, *supra* note 2; Prue Taylor, *From Environmental to Ecological Human Rights: A New Dynamic in International Law?*, 10 G.I.E.L.R. 309, 327-30 (1998).

92. *Id.* at chs. 3-4.

The first is international human rights; the second is international trade law.⁹³

b. *From Environmental to Ecological Human Rights*

The link between environmental ethics and human rights can be further explored in the form of "ecological rights."⁹⁴ "Ecological rights" is used to describe human rights that are subject to certain limitations. These limitations recognize that individual freedoms are exercised in an environmental context, in addition to a social context. The objective of these limitations is to implement an eco-centric ethic in a manner, which imposes responsibilities and duties upon humanity to take intrinsic values and the interests of the natural community into account when exercising human rights. In this manner, ecological limitations qualify the exercise of basic rights and freedoms, such as the right to the free use and enjoyment of property.

While the introduction of ecological limitations may be possible in theory, it is clear that significant political, social and economic hurdles stand in the way of such a development. In particular, the conflicts between developed and developing states, which are so clearly evident in the arena of international environmental protection, present significant difficulties. Emerging peoples' rights to development and economic self-determination illustrate this conflict. It is partly because of these conflicts that international law has thus far focused on the development of environmental rights and, in particular, the creation of a new environmental human right.

93. The application of an ecological approach to international law was recently explored within the narrow context of the environmental protection exception to GATT. In a chapter to a book entitled "Environmental Justice and Market Mechanisms" (*supra* note 28, ch. 11), the merits of an ecological reinterpretation of GATT Article XX were considered. This work demonstrated that the current jurisdictional scope of GATT Article XX is much too narrow as it is defined by the traditional paradigm of state sovereignty over territory and matters within state jurisdiction. Environmental issues are now of such a scale and magnitude that effective environmental policies can no longer be contained in their application to the artificial jurisdictional boundaries of states. These outdated political and legal boundaries are challenged by a greater understanding of how ecosystems function and inter-relate, and our growing interest and concern for endangered habitats and species wherever they occur. Expanding the jurisdictional scope of Article XX would enable states to use unilateral trade measures in support of environmental policies applying to natural resources, areas of common interest, endangered species (wherever they occur), and global support systems.

94. TAYLOR, *supra* note 2.

Thus far the context for examining ecological rights has been the existing and developing international human rights law. Similar studies have recently been undertaken at the municipal level. One such study on environmental rights in European constitutions concludes that there is a clear trend towards constitutional recognition of environmental values.⁹⁵ Those environmental values can be defined to include respect for the intrinsic value of nature. A further study has followed this ecological approach and demonstrated how it can be implemented in human rights theory.⁹⁶ Given the close links between municipal and international human rights law, it is likely that ecological rights will become the subject of increased interest and debate in years to come.

c. *The Earth Charter Initiative*

The Earth Charter initiative is an important international process currently being conducted by a global organization of civilians. Its objective is the development of a set of fundamental global ethics for governing human relations with nature. It is described as "a statement of fundamental ethical principles and practical guidelines of enduring significance that are widely shared by all people. In like manner to the U.N. Declaration on Human Rights, it will serve as a universal code of conduct to guide people and nations toward sustainable development."⁹⁷

The instigators of the Earth Charter initiative conclude that the current plethora of international environmental agreements are ineffective because they fail to recognize that necessary are not only international political commitment and concise legal regulation, but also basic changes in the attitudes, values and behavior of people. In short, legal regulation will remain ineffective if it continues to merely *force* changes in behavior.

How are these crucial changes to be brought about? It is here that an understanding of the Earth process becomes crucial. The development of the current Benchmark II Draft Earth Charter has and continues to take place within an extensive, global consultation process.⁹⁸ The goal of this consultation process is not

95. MICHAEL BOTHE THE RIGHT TO A HEALTHY ENVIRONMENT IN THE EUROPEAN UNION (1998).

96. Bosselmann, *supra* note 2.

97. *The Earth Charter: Values and Principles for a Sustainable Future*, available online at <http://www.earthcharter.org>.

98. For current information on the global consultation process and the most recent draft of the Earth Charter (Benchmark II Draft Earth Charter, April 1999), see the official website at <http://www.earthcharter.org>.

only to produce a draft statement of fundamental ethical principles of "enduring significance for people of all races, cultures and religions."⁹⁹ The more elusive goal is to use this consultation process to *generate* the required changes in people's attitudes and behavior. These changes may occur when people are given the opportunity to make personal and collective contributions and commitments to these values. The consultation process also gives people the opportunity to reflect on these value changes and the encouragement to integrate them into their daily lives.

The Earth Charter itself is not intended to create legal obligations. However, it is anticipated that at some point between 2000 and 2002 (tenth anniversary of the Rio Earth Summit), the Earth Charter Commission¹⁰⁰ will seek endorsement of the Charter by the United Nations General Assembly. This endorsement could give it a "soft law" or policy statement status, similar to the original status of the 1948 United Nations Declaration of Human Rights, prior to its evolution into "hard law." This future endorsement does not imply that the drafting of the Charter will be handed over to an intergovernmental process. As Steven Rockefeller, co-ordinator of the drafting process points out: "the Earth Charter is being drafted primarily as a peoples' treaty to be adopted by civil society . . . [t]he goal . . . is adoption of Earth Charter values by NGOs, business organizations, scientists, religious groups, and educational institutions as well as by national councils for sustainable development and governments."¹⁰¹ "Public ownership" of the Charter may help create the necessary political will for its adoption by governments and United Nations member states.

While the Earth Charter is not intended to be a "hard law" document as such, an important relationship is being developed between the Charter and international and national environmental law. Charter principles can provide an essential "ethical foundation" for environmental law. With this objective in mind, legal experts from the IUCN Environmental Law Commission have been actively working since 1995 to revise the IUCN Draft Cove-

99. See *supra* note 98.

100. After the 1992 Earth Summit, the Earth Council and Green Cross International began to actively further the development of an Earth Charter. From May 1995 onward, global consultations were held between interested international organizations. This led to the creation of an Earth Commission in 1997, which has the task to oversee the drafting and ongoing consultation process.

101. Steven Rockefeller, *The Earth Charter and Human Rights*, 31 HUMAN RIGHTS ENVIRONMENTAL LAW AND THE EARTH CHARTER 21, 23 (1998).

nant on Environment and Development (the "Covenant"), in light of the emerging Earth Charter. The Covenant itself is a "comprehensive treaty, designed as a framework agreement to link all the existing agreements and fill in the gaps in the basic principles and duties of caring for Earth. . . ." ¹⁰² This design was in direct response to the limitations of the current weak patchwork of sectoral environmental law treaties, and the need for a more comprehensive system.

An examination of the Covenant's principles, particularly its Preamble and Fundamental Principles, reveals an important convergence of law and ethics. The two documents share many of the same concepts and moral prescriptions for guiding conduct. To take but one important example; the first principle of the Covenant ("Respect for all life forms. Nature as a whole warrants respect; every form of life is unique and is to be safeguarded independent of its value to humanity"), and the first principle of the Earth Charter ("Respect Earth and all life, recognizing the diversity, interdependence, and intrinsic value of all beings"). ¹⁰³ The Covenant goes on in its detailed provisions to recast these moral obligations as legal duties for nations. Thus it acknowledges the importance of giving moral prescriptions expression in international, and ultimately, national environmental law.

In gaining an appreciation for the potential significance of these two documents, and their relationship, it is important to be aware that International efforts to develop a statement of ethical principles to guide environmental management date back to the 1972 United Nations Conference on the Human Environment. They were furthered by the 1982 World Charter for Nature, ¹⁰⁴ attempts prior to the 1992 Rio Earth Summit to develop an Earth Charter, and by the very large body of work over the last 20-30 years towards the adoption of a new environmental ethic. ¹⁰⁵ The present draft Earth Charter arose most directly out of the failure to get an Earth Charter adopted at Rio. In its place, the delegates adopted the Rio Declaration of Environment and Development, a document which states principles central to the achievement of

102. ROBINSON, *supra* note 1, at 34.

103. Benchmark II Draft Earth Charter, April 1999

104. 22 I.L.M. 455 (1983).

105. For a discussion of some of this work, see MICHEAL E. ZIMMERMAN, *CONTESTING EARTH'S FUTURE: RADICAL ECOLOGY AND POSTMODERNITY* (1994); TAYLOR, *supra* note 2, at ch. 2; BOSSELMANN, *supra* note 2.

sustainable development, but which makes only very weak reference to environmental ethics.¹⁰⁶

The project to draft the Covenant was initiated in the late 1980's. It also built on the World Charter for Nature, and gained impetus from frequent calls for a global environmental treaty, including that of the United Nations World Commission on Environment and Development. In its 1987 report, *Our Common Future*, it called for both the creation of a new charter and a new covenant setting forth fundamental principles of sustainable development. A draft text was presented to, and discussed by, the UNCED Preparatory Committee in Geneva in 1991, and then revised in the light of the Earth Summit outcomes. In 1995 it was delivered to the United Nations Congress on Public International Law. Ultimately it is hoped that the Covenant will either be adopted by the United Nations as a "hard law" text, or form the basis of a similar United Nations sponsored document. As the chair of the IUCN Centre for Environmental Law put it:¹⁰⁷

Whether or not the IUCN Draft Covenant becomes a part of [a new legal framework for sustaining our natural systems], or serves as a model and a goad to show the nations that such a framework legal system *is* possible and superior to today's chaotic and degrading conditions, matters little. The most important role of the Draft Covenant today is to inspire cooperation in lawmaking around the world to ensure the sustainable future. There is vision and there is a way forward.

In summary, the Earth Charter initiative, and its relationship with the IUCN Covenant, is an important example of the potential for the convergence of environmental ethics and international law. To this end, drafters of both the Earth Charter and the Covenant are currently working closely together.¹⁰⁸

106. See TAYLOR, *supra* note 2, at ch. 7.

107. Robinson, *supra* note 1, at 42-43.

108. Members of the IUCN Centre for Environmental Law have created a working group which contributes to the Earth Charter's ongoing drafting and consultation process.

At the domestic level, New Zealand's environmental law has often been hailed as amongst the world's most advanced. In 1991 the Resource Management Act was adopted to create a legal framework for the integrated and sustainable management of natural and physical resources. The Act's use of "sustainable management" is a unique attempt to translate sustainable development into law. It is also a good example of an effort to implement environmental ethics as "sustainable management" is defined to include a number of eco-centric principles. At the heart of sustainable management is the attempt to reconcile a management function with an ecological function. The object of the management function is the use, development and protection of resources, for the social, economic, and cultural well-being and the health

VII. CONCLUSION

This paper has argued in favor of the development and implementation in law of a new ecological ethic. In the specific context of climate change the prevailing ethic is one which seeks to preserve the economic prosperity of existing generations of humanity. As a consequence the response measures in the FCCC and Kyoto Protocol are primarily economically driven, preserving the ability of states to conduct what is in effect, business-as-usual. They do not address the root causes of climate change and will not result in GHG emission reductions of the magnitude necessary to prevent potentially significant changes to global climate systems. In fact the converse may eventuate as response mechanisms, such as emissions trading and the net approach, could contribute to escalating GHG emissions.

The implementation of an ecological ethic was discussed via application of the precautionary principle. This principle is consistent with an ecological value system because it has, as its primary objective, the preservation of ecological sustainability, not the economic status quo. Its application requires, in part, a prior assessment of response measures to establish their ability to achieve ecologically appropriate outcomes. The burden of proving the efficacy of those measures would be upon states proposing them. When the "precautionary principle" is applied to provisions of the Kyoto Protocol, their deficiencies, and the criteria for their improvement or rejection, become clearer.

How is the necessary consensus for implementation of an ecological ethic in law developed? The drafters of the Earth Charter

and safety of people and communities. The object of the ecological function is sustaining the potential of the resources, safeguarding the life-supporting capacity of ecosystems, and avoiding adverse environmental effects. Resource Management Act of 1991, § 5(2). It is the ecological function which contains a number of concepts central to an eco-centric ethic. Klaus Bosselmann & Prue Taylor, *The New Zealand Law and Conservation*, in *PACIFIC CONSERVATION BIOLOGY* 113 (1997). These include reference to meeting the foreseeable needs of future generations (which may include interspecies equity), BOSSELMANN, *supra* note 2, at 53-54, and the long-term considerations necessary for safeguarding ecosystems. In achieving sustainable management, decision makers are also required to have regard to the intrinsic values of ecosystems, and the concept of *kaitiakitanga*, which is defined as the exercise of guardianship. BOSSELMANN, *supra* note 2, at 52-54.

There are a number of difficulties with the practical implementation of sustainable management, but the varied ethics and values expressed in the definition of sustainable management carry the elements of an eco-centric ethic. BOSSELMANN, *supra* note 2, at 52-54.

have chosen to work with, educate and inspire civil society. It is their hope that public ownership of the Charter will create the necessary political will for it to be implemented in law.¹⁰⁹

An important and perhaps intractable issue remains: consumer behavior in developed countries. Two current examples serve to illustrate. In the USA sport utility vehicles are fashionable. Their popularity threatens to overshadow advances in fuel efficiency. In Europe and many other nations, rapid increases in car numbers are undermining the benefits that have been attained through advances in fuel efficiency and clean technologies. Past attempts to address exactly this kind of consumer behavior have been assiduously kept off the international agenda. As former US President George Bush famously announced in 1992: 'the lifestyle of the USA is not up for discussion at Rio.'¹¹⁰ Consumerism was not discussed at Rio, and it has not been meaningfully discussed since. Clearly consumers are currently unable to make choices for themselves. The question is, will they empower their governments to make those decisions for them? And what role will an emerging transnational civil society have, particularly non-government organizations? Recent work suggests that they may begin to play a crucial role in challenging traditional discourses of state sovereignty in international environmental affairs, promoting in its place ecological responsibility.¹¹¹

Ultimately the law reflects political commitment toward the achievement of environmental objectives. Until there is true political commitment to the goal of dramatically reducing fossil fuel use, laws will not be effective to address climate change. That does not mean that legal and policy development should languish waiting for the necessary political commitment to emerge. Ef-

109. The drafters of the New Zealand Resource Management Act of 1991 took a different approach. They sought to promote and stimulate the adoption of a new ethic by creating a proactive and visionary piece of law. While there was support for this when the Act was adopted in 1991, it is likely that the New Zealand public did not fully appreciate the extent to which the law was implementing a new ecological ethic. This may have contributed to the extensive amendment proposals contained in the 1999 Resource Management Amendment Bill. This Bill has yet to pass through the House of Parliament. In light of the recent change of government, the Bill may be substantially rewritten.

110. Wolfgang Sachs, *Global Ecology and the Shadow of Development*, in *GLOBAL ECOLOGY 3* (Wolfgang Sachs ed., 1993).

111. PAUL K. WAPNER, *ENVIRONMENTAL ACTIVISM AND WORLD CIVIC POLITICS* (1996); RONNIE D. LIPSCHUTZ & JUDITH MAYER, *GLOBAL CIVIL SOCIETY AND GLOBAL ENVIRONMENTAL GOVERNANCE: THE POLITICS OF NATURE FROM PLACE TO PLANET* (1996); NICHOLAS LOW & BRENDAN GLEESON, *JUSTICE, SOCIETY AND NATURE: AN EXPLORATION OF POLITICAL ECOLOGY* (1998).

forts to create the best policy and legal responses possible must continue. These efforts in themselves can help generate political commitment, because they will demonstrate what can be achieved with civil society convictions.