Snstainability

P.S. Elder*

To protect the future of the planet, political and economic leaders, as well as environmental groups, have endorsed the concept of sustainable development. The practical application of this vision will require profound changes in institutions and in the decision-making process of industrialized countries. The author examines the legal innovations in many areas that could promote sustainability, emphasizing the complexity of the issue and the diversity of opinion on the meaning of "sustainability" and on methods of implementation. Law is mainly a goal-implementing mechanism requiring ethical, political and economic consensus as a foundation. He concludes that even with social consensus, the law's role is limited, and will remain one of many social mechanisms. However, legal specialists should consider what their fields can contribute to sustainability, because of the need to integrate knowledge into coherent political, economic and social programs.

Des leaders politiques et économiques, tout comme certains groupes environnementaux, ont appuyé la concept du développement durable pour protéger l'avenir de la planète. L'application concrète de ce concept exigera de nombreux changements, notamment sur le plan des institutions et du processus décisionnel des pays industrialisés. L'auteur examine les innovations juridiques qui seraient susceptibles de promouvoir le développement durable, question ainsi que les divergences d'opinions en égard à l'interprétation de l'expression « durabilité » et aux méthodes de mise en oeuvre. Le droit est un mécanisme voué à la mise en oeuvre d'objectifs, si bien qu'il exige un consensus éthique social et politique comme fondement. L'auteur conclue en précisant que même si un tel consensus est atteint, le rôle du droit est limité, et ne demeurera qu'un mécanisme social parmi d'autres. Les spécialistes du droit doivent néanmoins songer à ce que leur domaine peut apporter à la durabilité, compte tenu au besoin d'intégrer leur connaissance à des programmes politiques, économiques et sociaux cohérents.

*Professor of Law, Faculty of Environmental Design, University of Calgary. With thanks to Janet Keeping for her comments on the draft and to Professor Peter Jones, Director of the Institute for Advanced Studies in the Humanities, University of Edinburgh, where this paper was written.

Synopsis

* * *

Iutroduction

Since the World Commission on Environment and Development (the Brundtland Commission) presented its report in 1987, politicians, industrial leaders and environmental groups around the world have endorsed sustainable development — "[meeting] the needs of the present without compromising the ability of future generations to meet their own needs"[1] — as a guiding principle for the future of their countries.[2] Overwhelming public concern about our

[1]*Our Common Future: The World Commission on Environment and Development* (Chair: G.H. Brundtland) (Oxford: Oxford University Press, 1987) at 43 [hereinafter *Brundtland Report*]. For a history of the concept, see W.M. Adams, *Green Development* (London: Routledge, 1990) c. 2.

[2]*E.g.*, the leaders of the Group of Seven (Canada, France, Italy, Japan, the United Kingdom, the United States and West Germany) endorsed the concept at the Toronto summit in 1988. Sustainability herein must be understood to imply an indefinite or very long timespan, not literally eternal sustainability.

endangered environment appears to have resulted in a significant shift in people's perspectives[3] and, to some extent, their actions. "Green consumerism" and recycling are "in." The environment is re-asserting itself on the public policy agenda: pressure is mounting on governments to do something about energy conservation and the greenhouse effect. In the private sector, business and many environmental groups have better relations and no longer automatically see each other as opponents.

There are "signs of hope,"[4] even if they should have occurred twenty years ago and if their depth is suspect.

This overview, using both Canadian and global examples, will suggest that the issue of sustainability is both more complicated and more fundamental than may first appear. It will also be proposed that law's contribution depends on prior social consensus on profound questions of political economy. However, although law offers only a partial answer, technical innovation in many legal areas may help us toward a sustainable future.

I. Understanding "Snstainability"

A. In Seareh of a Definition

An uncritical embracing of the concept of sustainable development ignores many important questions. For example, what does the term mean to each of its supporting constituencies? Ostensible agreement masks many old conflicts. Western industrialists seem to think it means only more efficient resource use accompanied by sustainable material growth, with huge economic opportunities as Third World countries industrialize. Third World elites tend to agree, but are sceptical about we "First Worlders" telling them to learn from our mistakes and to avoid destroying their forests or generating more greenhouse gases. Third World countries also wonder why it is so important that they implement population-control measures, when most resources are consumed by wealthy

---

[3]K. Neuman, "Public Opinion on the Environment: Trends and Implications for Law and Public Policy in the 1990's" in D. Tingley, ed., *Into the Future: Environmental Law and Policy for the 1990's* (Edmonton: Environmental Law Centre, 1990) 3.

[4]L. Starke, *Signs of Hope: Working Towards Our Common Future* (Oxford: Oxford University Press, 1990).

A well-known American commentator, however, speaking of the many international developments, is more sceptical:

> Do we have conventions, agreements, treaties? Yes, we have many indeed. Do we have institutions, large and small, to carry out their mandate? Yes, we most certainly do. Do we have a global environment which is getting healthier? No! In fact, quite the contrary. ... [L]et us not delude ourselves ... that ... the destruction of the planet has stopped or even slowed ... (See J.E. Carroll, *International Environmental Diplomacy* (Cambridge: Cambridge University Press, 1988) at 277-78).

nations that have few population-limiting policies apart from immigration controls.

Many schools of thought contend that the environmental crisis is one of values, politics and power and that sustainability needs more than clean-up, materially efficient processes and nature conservation. Socialists believe only socialism can achieve sustainable development. Libertarians and quasi-anarchists, left and right, tell us that centralized authoritarian systems are responsible for our plight and that decentralized, directly democratic small communities are our only hope. Eco-feminists implicate male psychological drives for competition and domination. Many environmentalists and ethicists believe that the ideologies of materialism, growth and scientism[5] are the problem. They claim that industrialized countries must reduce production and their material standard of living and prepare for a massive redistribution of the world's income. Eco-philosophers argue that we must stop being so anthropocentric and admit that humans are just one species among many, and are nourished both spiritually and physically by intimate contact with the natural environment. Some of them argue that the crisis has its roots in our world view, and that the world views of indigenous peoples or of Eastern philosophies, such as Buddhism or Taoism, are preferable to the Western mechanistic, scientific, exploitative one that they see as psychologically immature.[6] These philosophical positions presumably imply major reductions in human population, mechanized technology and material throughput, although the policies necessary to achieve this are no more specific here than in the other radical prescriptions.

Clearly sustainable development is a flag under which many armies are marching. Numerous definitions of sustainable development have been offered.[7] However, partly because of confusion about the meaning of development,[8] it has been suggested that we use the term "sustainable society" instead.[9] For present

---

[5]Scientism means "an exaggerated trust in the efficacy of the methods of natural science to explain social or psychological phenomenon, to solve pressing human problems, or to provide a comprehensive unified picture of the meaning of the cosmos" (H.B. Woolf, ed., *Webster's New Collegiate Dictionary* (Springfield, Mass.: G. & C. Merriam Co., 1981) at 1027).

[6]A.R. Drengson, "The Ecostery Foundation of North America (TEFNA): Statement of Philosophy" (1990) 7:1 The Trumpeter 12 at 13.

[7]*E.g.*, W.E. Rees, "The Ecological Meaning of Environment-Economy Integration" (Address to the 9th Commonwealth Conference on Human Ecology, Edinburgh, 1989) [unpublished] [hereinafter "Economic Integration"]; W.E. Rees, "The Ecology of Sustainable Development" (1990) 20:1 The Ecologist 18; World Conservation Union (I.U.C.N.), "Caring for the World: A Strategy for Sustainability" [unpublished] at 10 [hereinafter I.U.C.N.].

[8]*E.g.*, the tendency to equate development with growth (I.U.C.N., *ibid.*).

[9]*Ibid.* Dr. John Robinson of the University of Waterloo heads up a team researching the Sustainable Society Project, with support from the Social Sciences and Humanities Research Council of Canada. See J. Robinson, *Defining a Sustainable Society: Values, Principles and Definitions Sustainable Society* (Working Paper No. 1) (Waterloo: University of Waterloo, Department of Environment and Resource Studies, January, 1990).

purposes, I see the notion of physical sustainability as involving the use of resources at a rate that does not imply a reduction of real incomes in the future[10] and that does not reduce the ecological diversity of natural systems or their regenerative capacity.[11] Although the intrinsic value of the biosphere is acknowledged, this approach does not imply that all existing ecosystems must be maintained as is, nor that present social institutions continue unchanged, because sustainability also has social aspects. Evolution is not precluded. Indeed, sustainable "development" seems to admit this as well. It is assumed, however, that sustainability of human society is not an end in itself, but a means for the achievement of human goals chosen through democratic processes; a thousand-year Reich may still be subject to criticism. Further, if the present generation left both natural and created capital unimpaired for future generations, we could accept the legitimacy of its material consumption and avoid agonizing over which "needs of the present" are merely "wants." Given continued environmental deterioration, however, it is highly unlikely that this issue can continue to be ignored in the approval process. Finally, the notion implies concern for global sustainability, not just for that of one country: global ecological and social systems are too interconnected for isolationism. The *Brundtland Report*'s notion that sustainability requires equitable distribution should, therefore, be retained, although what this entails will be contentious. One possibility might be for the developed nations, which have virtually exhausted the environment's assimilative capacity, to compensate developing countries for refraining from undertaking cheap and dirty industrial development.

The notion of sustainability resembles that of "carrying capacity," but significantly differs from it in some formulations. Carrying capacity for humanity could be defined as the maximum sustainable population on a globe completely transformed by technology into one huge human life-support system, on the assumption that other species are valueless. In this discussion, however, carrying capacity is constrained by the need to maintain the viability of the existing range of natural environments, not as remnant museum pieces, but as vital parts of the world in which all species live. It also assumes the need for a significant reserve capacity in case of error or natural changes.

Given the considerable disagreement about both the physical extent and social causes of our environmental problem, prescriptions differ radically. Will it suffice to ensure that market prices reflect the true social costs of materials and products? Or is the market itself the problem? Is industrialism, acquisitive materialism or the maldistribution of power the enemy? Or is it simply the scale

---

[10]A. Markanda & D. Pearce, "Natural Environments and the Social Rate of Discount" (1988) 3 Project Appraisal 1.

[11]H.E. Daly & J.B. Cobb, jr., *For the Common Good: Redirecting the Economy toward Community, the Environment, and a Sustainable Future* (Boston: Beacon Press, 1989).

of population and economic activity? Will it suffice if "business as usual" simply shifts to a long-term — say, fifty year — perspective in all decisions?

B. Working Hypotheses

Plausible arguments can be made in favour of each of the possibilities listed above. But in order to set a context for our legal discussion, I shall list some tentative working hypotheses. In the first hypothesis, short of thermonuclear war, the survival of humanity or civilization is not yet at imminent risk. Environmental collapse will probably not be complete and immediate.[12] Rather, it will manifest itself more regionally, and gradually, through two types of events. There will be enormous privation and casualties in the poorer countries, beginning with agricultural failures and so-called natural disasters, which are exacerbated by human stress on the environment. As well, toxic spills or industrial accidents[13] will cause increasing environmental and social stress. Depletion of non-renewable resources, including energy, will also hit the poor through higher prices. However, this will not constitute the first physical limit. The main limit appears to be overuse of the environment as a "sink"[14] and for short-term, unsustainable production in agriculture, fishing and forestry.

The second hypothesis is that business as usual is not possible. This is the case even if we achieve significant improvements in resource-use efficiency and stress economic growth in service or tertiary activity. We are all ultimately dependent on living systems. Recent environmental indicators[15] show that sustainable growth is an oxymoron, if not in principle, at least in the medium term. The *Brundtland Report* seems unduly optimistic in assuming sustainable growth rates of 4% per year,[16] which yield a doubling time of 18 years. Between

---

[12]Two important arguments to the contrary should, however, be noted. Some claim that the greenhouse debate about global warming obscures the fact that two different global climatic changes can be attributed to greenhouse gases: winters are longer and colder, while summers are hotter. The two changes tend to cancel each other out in terms of average global temperature, but both could combine to cause world-wide agricultural catastrophies in the next several years (see L. Ephron, "We Are On the Edge of Starvation: the Importance of Forests to Civilization and Agriculture" (1990) 7:2 The Trumpeter 85).

The other misgiving is that by the time some damage, such as acid rain, is measurable, it can be irreversible. This is another manifestation of step-function ecological changes, as opposed to observable gradual decline, and it means that we could be in worse trouble than is assumed in this article.

[13]*E.g.*, the Exxon Valdez oil spill in Prince William Sound, the Three Mile Island and Chernobyl nuclear accidents and the tire and P.C.B.-impregnated waste fires at Hagersville and St.-Basile-le-Grand.

[14]In ecological terms, a "sink" is where wastes end up. The term is the converse of "source."

[15]L.R. Brown, *State of the World 1990: A Worldwatch Institute Report on Progress Toward a Sustainable Society* (New York: Norton and Co., 1990) [hereinafter *Worldwatch Institute Report*].

[16]*Supra*, note 1 at 51.

increases in population and per capita material consumption, two more doublings of demand could exceed the capacity of the world's ecosystem.[17]

In the third hypothesis, because physical resource limits absolutely preclude people in the Third World from achieving North American standards of material affluence,[18] economic justice — a prerequisite for sustainable development according to the *Brundtland Report* — requires significant redistribution of present world income to the developing countries. This must imply a significant reduction in the income and consumption of wealthy individuals, although not necessarily in their quality of life.[19] If this is correct, sustainability is radical indeed.

The above suppositions imply that profound changes in institutions and decision-making processes will be required, at least in industrialized countries; it is not only Eastern Europe that needs institutional reform. Accomplishing this poses the greatest legal challenges. The apparent public demand for decentralized institutions and participatory decision-making may necessitate a devolution of some power. Nevertheless, strong common standards will be needed to remove competitive advantages to jurisdictions that wish to attract industry with lower environmental requirements.

The fourth hypothesis is that voluntary action is at least as important as governmental decree. We have little hope of maintaining peace in a resource-short or ecologically deteriorating world, or perhaps in our own country, unless a social consensus develops around a set of propositions, such as those just listed. One author writes:

> There is no chance whatsoever of establishing the conserver society or making it work until we have generated widespread public acceptance of conserver society perspectives and values.[20]

---

[17]In a much-cited paper, P.M. Vitousek *et al.* claim that "nearly 40% of potential terrestrial net primary productivity is used directly, co-opted, or foregone because of human activities" ("Human Appropriation of the Products of Photosynthesis" (1986) 36:6 BioScience 368). Because this would, even in principle, preclude much more than one more doubling of our take, we may be approaching the ultimate limit to growth far more quickly than other measures have indicated.

Another measure is the number of humans (3) per hectare of arable land. Assuming an average growing season of 180 days, Bryson (cited in "Economic Integration," *supra*, note 7 at 8) claims a limit of about 5.5 persons per hectare.

[18]Daly & Cobb, *supra*, note 11 at 1-4.

[19]This is partly because a clean environment adds substantially to one's perceived quality of life. Without environmental amenities, one spends much more on surrogates, such as travel, ion generators and bottled water. In addition, many people have noted that the consumption of goods does not ensure a person's or society's wellbeing. As noted by L.R. Brown, "materialism simply cannot survive the transition to a sustainable world" ("Picturing a Sustainable Society" in *supra*, note 15 at 190).

[20]T. Trainer, *Developed to Death: Rethinking Third World Development* (London: Green Print, 1989) at 193.

Many specific policies are implied by this kind of approach to sustainability, even if it is difficult to visualize the type of society that will evolve. The myriad policy details should be left to others,[21] but it would not be misleading to focus on shifting from non-renewable to renewable energy sources and rigorous conservation measures. Nor should we forget that just because an activity is sustainable, does not necessarily mean we have to undertake it; impact analyses may show that activities, although sustainable, will have negative social effects and should be rejected. Perhaps environmentalists will still have a useful role in a sustainable society![22]

II. The Role of Law

With this foundation to build on, we can now speculate on how law can contribute to sustainability. But we must not exaggerate law's potential either to derive goals or, even with the necessary social consensus, to realize them. Although law may have an "internal morality" centring on notions of procedural fairness, its contribution to solving social problems usually awaits political agreement on ethical, political and economic policy. Law is largely a goal-implementing, not a goal-deriving set of techniques, even if one of its strengths is the ability to provide structures for decisions on goals. Being embedded in the *status quo*, law supports it. That is why some social, policy-oriented context was needed before we investigate where legal tools can help.[23] And it bears repetition that the law is only one of the many social mechanisms, including family, school, church, peer groups, elites and the media, whose convergence is necessary to shape conduct.

This article will discuss six areas where the law offers expertise:

---

[21]*E.g.*, F.R. Thibodeau & R. Fields, eds, *Sustaining Tomorrow* (Hanover: University Press of New England, 1984); P. Jacobs & D. Monroe, *Conservation and Equity: Strategies for Sustainable Development* (Ottawa: Environment Canada, 1987); W.C. Clark & R.E. Munn, *Sustainable Development of the Biosphere* (New Rochelle, N.Y.: Cambridge University Press, 1986); Daly & Cobb, *supra*, note 11; L.W. Milbrath, *Envisioning a Sustainable Society: Learning Our Way Out* (New York: State University of New York Press, 1989); D.W. Pearce, A. Markandya & E.B. Barbier, *Blueprint for a Green Economy* (London: Earthscan Publications, 1989) [hereinafter *Blueprint*]; G.B. Doern, *The Environmental Imperative Market Approaches to the Greening of Canada* (Toronto: C.D. Howe Institute, 1990) [hereinafter *Imperative Market*]; I.U.C.N., *supra*, note 7.

[22]See N. Evernden, "The Environmentalist's Dilemma" (1988) 5:1 The Trumpeter 2.

[23]I. Jenkins, *Social Order and the Limits of Law* (Princeton: Princeton University Press, 1980) at ix:

> All of the contents that law deals with and all of the ends that it serves have both their original and their eventual *loci* in extralegal sources: they issue from and refer to things, forces, situations, needs, and purposes that are independent of and prior to law itself.

For a good overview of the topic of the present article, see N. Robinson, "A Legal Perspective on Sustainable Development" in O. Saunders, ed., *The Legal Challenge of Sustainable Development* (Calgary: Canadian Institute of Resources Law, 1990).

a) designing authoritative decision-making mechanisms (for example, through the use of international, constitutional, municipal and administrative law);

b) providing framework-institutions for a society's economic system (such as contract, property, corporate and labour law, as well as dispute settlement (dealt with in item f below));

c) proscribing action (for example, through the use of criminal sanctions);

d) giving legislative form to political attempts to influence behaviour in other ways, often through the use of command-penalty or economic incentive schemes;

e) modifying the legal rights of private citizens;

f) dispute settlement.

Law has other important functions, such as providing stability of expectations — it allows people to plan ahead and undertake binding future commitments — while providing a modest degree of flexibility to respond to new situations. Also crucial for sustainability is law's role in helping to educate and influence people about the boundaries of acceptable behaviour, "to domicile change within the settled framework of ... practices and purposes and so to make the new seem both familiar and desirable."[24] But the six categories listed above help us to focus on possible legal reforms, always remembering that without political will, the legal system is virtually helpless to deal with the environmental crisis that present institutions have allowed to arise.

A. Authoritative Decision-Making Mechanisms

What may formerly have been seen as national environmental issues are increasingly understood to have international implications. Some environmental problems, and hence solutions, are clearly global in extent, for example, acid rain, the depletion of the ozone layer and the greenhouse effect. The Experts Group on Environmental Law, convened to assist the World Commission on Environment and Development, offered 22 Principles that it felt should be implemented by the year 2000.[25] These principles are characterized by the affirmation set out in the first principle:

> [A]ll human beings have the fundamental right to an environment adequate for their health and well-being.[26]

The principles that follow suggest certain correlative obligations that states should accept, not just in areas beyond their national jurisdiction, or in trans-

---

[24]Jenkins, *ibid.* at 123.

[25]Experts Group on Environmental Law of the World Commission on Environment and Development (Chair: R. Munro), *Environmental Protection and Sustainable Development* (Boston: Graham and Trotman, 1987) [hereinafter *Experts' Report*].

[26]*Ibid.* at 9.

boundary situations, but in their domestic domain as well.[27] In his foreword to the *Experts' Report*, H.E. Judge N. Singh, President of the International Court of Justice, suggests:

> The crucial problem is to bring about ... enforceable [international] law — an aspect calling for a great deal more than efforts solely directed towards the formulation of new laws or rights without any method or machinery to enforce them. ... Surely this aspect ... should be given priority over any other consideration.[28]

Thus, a procedure to create binding international arrangements will be needed in matters of environmental urgency. Quite probably, because the rhetoric of sustainable development requires that environment and economy be linked, the new institutions or mandates will also cover significant areas of international trade and aid. Matters of war and peace can also be seen as relevant in this context because of the historical temptation to use force to gain access to resources,[29] the environmental impact of war and the sinful misallocation of desperately needed resources to the arms race.

International legal scholars and practitioners have their work cut out for them. Are we merely to favour more rapid means for the adoption of specific multilateral agreements, subject by subject (building on the experience of the *Montreal Protocol on Substances That Deplete the Ozone Layer*[30])? Or would the development of more regional groupings with their own parliaments be preferable, such as the European Economic Community? Do we need a new standing international environmental conference to create new standards or procedures, subject to ratification, or should we confront the issue and constitute the United Nations as a binding legislator?[31] Perhaps all of these ideas should be explored. Surely the notion of national sovereignty needs re-examination.[32]

As one aspect of this re-examination, binding dispute settlement should be available at the request of any state. As well, perhaps at least formally consti-

---

[27]H.E. Judge N. Singh, "Foreward" in *ibid.* at xi.

[28]*Ibid.* at xv.

[29]*E.g.*, the Romans, the Vikings, European imperialism, Hitler's "lebensraum" policy and Saddam Hussein's recent invasion of Kuwait.

[30](1987) 26 I.L.M. 1550 [entered into force Jan. 1, 1989]. The U.N. Environmental Programme (U.N.E.P.) brought 24 governments and the European Community Commission together in Montreal to consider the Protocol. It came into effect in 1989 after being ratified by countries representing two thirds of global use. The Protocol was negotiated quickly (as international agreements go) and, according to Starke, "is significant for two steps governments agreed to take: protect the environmental before all the evidence was in on how bad damage could or would be, and make industry change its ways before alternative processes were known" (*supra*, note 4 at 17-18).

[31]M.J. Adler, *The Common Sense of Politics* (New York: Holt, Rinehart & Winston, 1971) at 176.

[32]*E.g.*, is the call by the former President of the World Court for enforceable international law (*supra*, note 27), at the necessary pace of development, attainable without a significant derogation from the traditional notion of sovereignty?

tuted non-government organizations (N.G.O.s) — and even individuals — should be able to invoke international principles where relevant. This could be done either by allowing them to have standing to sue states in international courts, or less drastically, through a convention ensuring the reciprocal recognition and enforcement of these principles in domestic courts, regardless of the defence of statutory authority.[33]

Constitutional lawyers also have some interesting matters to consider. Ecological sustainability implies much more rigorous management of resources and the environment on the basis, not of present somewhat arbitrary political boundaries, but of bio-regions, such as drainage basins or ecosystems. How the present Canadian federation can respond to this is puzzling. The legal authority for, and status of, interjurisdictional agreements is not entirely clear, especially where integrated multi-departmental initiatives would be required.[34] Some examples of interjurisdictional cooperation include British Columbia's estuaries,[35] fisheries management and environmental impact assessment procedures,[36] but significant federal-provincial friction has accompanied federal attempts to intervene in environmental management.[37]

Because recent years have seen such dramatic constitutional developments in Eastern and Western Europe, as well as in Canada,[38] it may be time to ask some basic questions about how to increase government responsiveness. There are strong demands, which must be reconciled, for more local and democratic control and at the same time for stronger international action. One possibility is to move the power of setting strong standards to central authorities — such as the United Nations or the Canadian parliament — but to devolve management and implementation to the regional and local levels.[39] This might involve a redistribution of constitutional powers within the present federation, or provide additional arguments for a federation of regions that could allow Quebec the constitutional space it appears to want. Perhaps too, the notion of proportional representation should be examined for Canadian legislatures. It is interesting to

---

[33]See A. Rosencranz, "The Uniform Transboundary Pollution Reciprocal Access Act" (1985) 15 Env. Pol. L. 105.

[34]The Canadian Institute of Resources Law is presently doing research on this topic.

[35]P.S. Elder, "Estuary Protection in British Columbia" (1989) 4 Int. J. Est. & Coastal L. 117.

[36]P.S. Elder, "Environmental Impact Assessment in Canada: the Slave River Project" (1986) 24 Alta. L. Rev. 205.

[37]A.R. Lucas, "The New Environmental Law" in R.L. Watts & D.M. Brown, eds, *Canada: the State of the Federation, 1989* (Kingston: Queen's University, Institute of Intergovernmental Relations, 1989) 167 at 182.

[38]The Canadian developments are the entrenchment of the *Canadian Charter of Rights and Freedoms*, Part I of the *Constitution Act, 1982*, being Schedule B of the *Canada Act 1982* (U.K.), 1982, c. 11 [hereinafter *Charter*], the failed Meech Lake proposals, as well as the ongoing search for a constitutional formula to hold the country together.

[39]This technique is used in the U.S.: see M.S. McMahon, "Balancing the Interests: an Essay on the Canadian-American Acid Rain Debate" in Carroll, *supra*, note 4 at 147.

speculate whether this technique would have resulted in a stronger voice for environmental values by putting Green Party members in our legislatures over the past decade. In any event, when strong value-conflicts exist, it seems undemocratic for the present "first past the post" electoral system to exclude significant minority viewpoints from being represented in Parliament. Political scientists and constitutional lawyers may also wish to consider mechanisms for greater direct democracy. The level of detail and kinds of questions suitable for plebiscites or direct references would require careful thought. Open, participatory policy reviews could be regularly required in major policy fields.

Another possible constitutional amendment is an environmental "Bill of Rights." In assessing this option, Canada can look to its experience with the *Charter*. An article by Elder and Ross[40] has recently concluded that private lawsuits can be useful, but not as a central strategy. Although the article did not comprehensively examine the advantages of constitutionalizing such a bill of rights, it did recommend an administrative law approach. In other words, the authors saw a role for courts in reviewing governmental actions, not in granting direct and specific remedies to protect a general right to a clean or healthy environment. Under this scheme, the prime duty would be placed upon all government decision-makers, and not just those involved in environmental impact assessment and project approval, to apply legislated criteria designed to foster sustainability. For example, this criteria would provide that government policies could not, in the aggregate, deplete the jurisdiction's natural capital. Discontented citizens would be entitled to reasoned explanation from decision-makers as to how and whether proposals contributed to sustainability. If the response seemed unsatisfactory, recourse could be had to the courts. However, more work, including elaboration of possible criteria[41] and a critical examination of the recent experience of American states, is needed before proposing an entrenched environmental bill of rights.[42] It would also be important to think more carefully about whether any non-human beings should be included within the community of rights-holders.[43]

---

[40]P.S. Elder & W.A. Ross, "How to Ensure that Developments are Environmentally Sustainable" in Saunders, ed., *supra*, note 23, 124.

[41]*Ibid.* at 131 & 135. Constance D. Hunt, Dean of the Faculty of Law, University of Calgary, believes that provisions in the *Canadian Environmental Protection Act*, R.S.C. 1985, 4th Supp., c. 16 [hereinafter *C.E.P.A.*] similar to those just described, and other sections that expand opportunities for public involvement in enforcement of environmental standards, constitute a significant step toward an environmental bill of rights (C.D. Hunt, "Legal Issues Arising From the Principle of Sustainable Development" (Address to the International Bar Association Section on Business Law and General Practice, Strasbourg, October 1989) [unpublished] at 8.

[42]Several American states have created such a right: see J. Swaigen & R.E. Woods, "A Substantive Right to Environmental Quality" in J. Swaigen, ed., *Environmental Rights in Canada* (Toronto: Butterworths, 1981) 195 at 213.

[43]See C.P. Stone, "Should Trees Have Standing? — Toward Legal Rights for Natural Objects" (1972) 45 S. Cal. L. Rev. 450. But see P.S. Elder, "Legal Rights for Nature: the Wrong Answer to the Right(s) Question" (1984) 22 Osgoode Hall L.J. 285.

Municipal lawyers could no doubt generate many new ways to empower, or even require, municipal governments to maximize sustainability in their sphere. For the most part, the changes could be implemented through amendments to existing planning or municipal government acts, although any separate legislation regarding municipally-owned energy distribution networks would also be a useful place to begin. Provinces might intensify efforts to provide a policy framework for land-use decisions to ensure maximum preservation of good agricultural land, consideration of energy and environmental aspects of plans and development approvals. For example, useful goals include subdivision layout and other techniques to maximize solar gain, energy conservation and increase the efficiency of public transport. At the same time, sustainability probably implies minimization of the need for private automobiles. Perhaps we should re-introduce denser, mixed-use, commercial-residential areas. Much more vigorous and sophisticated measures are also needed to reduce solid-waste production and the amounts needing final disposal, although not all of this burden belongs at the municipal level. However, in all efforts by senior governments to encourage or direct municipal reform, care should be taken to preserve the chance for municipal innovation and autonomy.

Environmental impact assessment (E.I.A.), as part of planning and approval processes at all levels of government, also deserves careful examination. Its flaws are well-known. For example, the scope of the process often applies only to projects, not policies, programs, new products or new technologies; it only applies to new activities, not existing ones; its science may be poor or inadequate; there exists a lack of opportunities for public involvement; there are weak links between the E.I.A. process and the decision taken about the proposal; and there is inadequate post-project analysis.[44] Better social control of all proposed actions with significant environmental impacts is crucial. But this does not necessarily imply that we can adequately control impacts. Perhaps we "should not desperately seek prediction and control, but rather should settle ... on the acceptance of, and adaptation to, surprise effects,"[45] including the closing down of activities that are imposing unsustainable environmental burdens. If sustainability assessments are to be melded into this process, an operational definition of sustainability would be needed and any project that might provide unacceptable surprises would have to be rejected, in spite of its economic benefits; it is sustainability that makes our long-term economic well-being possible.

---

[44]Elder & Ross, *supra*, note 40 at 128-29. It should be noted that some environmentalists distrust the very idea of E.I.A.: Livingston goes so far as to call it "a grandiloquent fraud" (J.A. Livingston, *The Fallacy of Wildlife Conservation* (Toronto: McClelland & Stewart, 1981) at 33). He claims it is part of a whole world view of instrumental rationality that sees the environment merely in terms of resource values. The alternatives of rejecting all development or of allowing it without study, however, appear even less desirable.

[45]F. di Castri, "Commentary" in Clark & Munn, *supra*, note 21, 318.

Further, perhaps governments could develop accounting techniques to monitor the cumulative environmental impact of all existing economic activity.

It may be asked how any project using non-renewable resources could ever meet sustainability criteria. One partial answer is to require proponents to demonstrate the ability to recover, re-use or recycle the materials involved, although inevitably exploitation of virgin resources would continue.

Energy is a more intractable problem. One possibility is for non-renewable energy sources to be dedicated to "bridging the gap" until a sustainable energy future is achieved. This could be done by banning certain end-uses and by taxing others. Another approach is suggested by El Serafy.[46] He would divide receipts from a non-renewable resource project into capital and income components. Enough capital must be invested in a sustainable substitute such that at the end of the non-renewable project's economic life, the renewable twin project can yield as much income as the "income" portion of the non-renewable project.

Finally, the *Brundtland Report* challenges us to develop new institutions to ensure that environmental and sustainability considerations are as central to all decisions as economics.[47] Various ideas need to be explored. Each agency or department could have an environmental section, possibly composed of officials seconded from Environment Canada (similar to the way the federal Justice Department has legal units in all federal government departments and agencies).[48] A central unit may be an answer, one located in the cabinet secretariat with access to priorities and planning committees of Cabinet, or possibly in Treasury Board. It is believed that the unit would need veto power over non-sustainable proposals.[49] The New Zealand success with an environmental ombudsman also could be assessed. Another possibility would be for the Prime Minister to assume the Environmental portfolio, perhaps with a junior minister to assist in the detailed direction of the officials.

B. Providing Framework-Institutions for the Economic System

Our economic system is obviously at the heart of the environmental crisis. I do not know whether the market is as potent a means of bringing about socially desirable goals like sustainability as mainstream economists believe,[50]

---

[46]As described in Daly & Cobb, *supra*, note 11 at 73-74.

[47]*E.g.*, *supra*, note 1 at 311-12. The "chief institutional challenge of the 1990s" is to ensure that ecological and economic factors are considered at the same time and in the same institutions (*supra* at 313).

[48]These "environment" officials would have mixed loyalties in serving both Environment Canada, as well as the client department.

[49]See I.U.C.N., *supra*, note 7 at 40-41.

[50]See, *e.g.*, *Blueprint*, *supra*, note 21; *Imperative Market*, *supra*, note 21.

but even its critics such as Brooks and Paehlke or Daly and Cobb prescribe significant doses.[51]

No one is naive enough to believe that free markets alone will bring the necessary transformation. The difficulties of creating markets in all relevant uses of the environment are formidable, but governments can give powerful market-like signals through various regulations, taxes and fees. For our purposes, we may accept that a mixed economy, using markets, but with greater democratic and social control of the means of production, will be necessary for the transformation. The social challenge is to blend planning, democracy and the market place.[52]

Economists argue that if the full social costs of resource exploitation and of effluent emissions were incorporated into prices, the desired level of environmental quality might be achieved. Setting the right prices may present greater empirical than legal challenges, given the long delays possible between human action and environmental reaction, as well as the global and complex nature of issues such as climate change. For example, what is the social cost of CO_2 emissions from particular sources? Nevertheless, constitutional, commercial and public-utility regulatory lawyers will be involved in decisions on pricing or on creating markets for very limited rights to pollute.

Our economy's framework-institutions need examination in this context. Property rights have been significantly limited by planning legislation, but we must ask ourselves whether uses that do not currently require development-approval need to be limited further by a stewardship principle; various efforts are being made to establish "land stewardship trusts,"[53] although the present

---

[51]D.B. Brooks & R. Paehlke, "Environmental Issues and Democratic Socialism in Canada or Seeing Green Through Pink-Tinted Glasses" in P. Findley & S. Rosenblum, eds, *Debating the Future of Socialism in Canada* (Toronto: Lorrimer [forthcoming]); Daly & Cobb, *supra*, note 11. But perhaps a reminder from Adam Smith is timely. According to Daly & Cobb, he believed that "the market is a system so dangerous that it presupposes the moral force of shared community values as its necessary restraining context" (*supra* at 140). The reference is to Smith's *Theory of Moral Sentiments* (1759). Professor David Pearce, former economic advisor to the Thatcher government's Environment Department in the United Kingdom, believes that "[u]nfettered free markets will not solve environmental problems. They will make them worse" (D. Pearce, "Sustainable Development and Environmental Impact Appraisal" (Address to the Tenth International Seminar on Environmental Impact Assessment and Management, Centre for Environmental Management and Planning, University of Aberdeen, 9-22 July 1989) [unpublished] at 7).

[52]Ontario Premier Bob Rae, "A Socialist's Manifesto" *The [Toronto] Globe & Mail* (1 October 1990) A13.

[53]Usually they involve setting up non-profit societies that acquire and manage the land according to conservancy and stewardship principles in a trust agreement. Also, various kinds of easements may be acquired. See B. Didcoct, "Land Trusts and True Wealth: An Introduction" (1990) 7:1 The Trnmpeter 3; J.T. Banighen, "Intentional Communities & Land Stewardship Trusts" (1990) 7:1 The Trnmpeter 4; R. Harvey & E. Lee, "Forming a Land Trust" (1990) 7:1 The Trumpeter 7; Drengson,

strategy depends on voluntarism and seems limited to saving remnants. Further, can the old doctrine of waste be reinvigorated? Because the impact of land use is so central to sustainability, perhaps we should consider converting present fee simple estates to 99-year leases from the Crown,[54] or nationalizing development rights. The English experience since the Second World War with nationalizing development rights may not seem too positive, but there was little social consensus and the frequent changes of government resulted in great policy confusion. Such ideas would also arouse fierce debate in Canada today.

Intuitively, there seems little reason to believe that non-renewable resources will be exploited at the socially optimal rate by private calculations of advantage and that the terms of tenure for these resources need to be re-examined. It is arguable that the best way to ensure at least the sustainability of renewable resources such as forests is to convert them to private ownership so that the long-term success of owners depend on their own management practices.[55] But serious soil degradation in Canada[56] has not been avoided by having farms in private ownership. Another obvious problem to environmentalists is that forests are not just tree farms for private profit, but complex ecosystems with other socially vital functions, such as water retention and habitat for many species. Some of the flora and fauna are dependent on an ecosystem that may take longer to develop than the optimal cutting cycle allows.[57] Similar issues could arise with other renewable resources, such as fisheries and agriculture.

Property lawyers could examine ways whereby new "property" rights to environmental quality and sustainability could be created in everyone. The

---

supra, note 6; and J.T. Banighen, "Citizen Involvement in Forest Stewardship: Using the Land Stewardship Trust Model" (1990) 7:2 The Trumpeter 80.

The discussion draft of proposed environmental legislation in Alberta contemplates interests in land being purchased by the goverument that would limit the uses to which private land could be put (Alberta Environment, *A Guide to the Proposed Alberta Environmental Protection and Enhancement legislation: for Public Discussion and Response* (Edmonton: Alberta Environment, 1990) s. 34).

[54]If ownership of the ground remained in the Crown, long-range control would allow government to react to unexpected economic and physical changes and ensure future maximization of benefits and minimization of costs when leases come up for renewal.

[55]G. Hardin, "The Tragedy of the Commons" (1968) 162 Science 1243. As well as being a common property problem, it may be in one's self-interest to devastate a resource if by investing the proceeds one can earn more than by husbanding the resource.

[56]*Report of the Standing Committee on Agriculture, Fisheries, and Forestry to the Senate of Canada: Soil at Risk* (Ottawa: Senate of Canada, 1984) (Chair: Hon. H.D. Sparrow).

[57]These claims were made by people opposed to pulp and timber projects planned in Alberta, where a certain kind of lichen eaten by woodland caribou needed forests more than a century old, considerably longer than the planned cutting cycles. Cavity nesters face the same problem (E.A. Bailey, "Good Forest Management: for the Future" (1989) 12 Env. Views (Alberta Environment) 11 at 13).

"public trust" doctrine might also be re-examined.[58]Finally on property law, what if the native peoples of Canada succeed in their contention that they have aboriginal title to all land not conquered by force of arms or ceded by treaty? Ownership of most of the country would return to them. If claims about their reverence for the land and their stewardship approach are true, and if these attitudes have genuinely survived the onslaught of technological European culture, sustainability would be considerably enhanced by this change in ownership!

Corporate law has already seen increased legal responsibility imposed on directors and officers for environmental harm.[59] Empirical research has confirmed an intuitive belief in the efficacy of such an approach.[60] If the scale of corporate enterprises is part of our problem, corporate lawyers could examine ways whereby corporate concentration and oligopolistic power might be reduced. Past "trust-busting" in Canada has not been notably successful, but the perpetual succession of corporations could be re-examined. Some people favour limiting a corporation's life to a term-certain, such as 40 years, after which full distribution of corporate assets would occur.[61] Indeed, commentators such as Stillman believe that the break between ownership and control in modern widely-held corporations undermines the original justification for private ownership of the means of production,[62] as well as of ecologically important ecosystems. Modern managers feel strong pressure to show short-term "bottom line" results and this is inconsistent with sustainability.

C. Proscribing Behaviour

There is substantial agreement that classical criminal law has an important but limited role to play in environmental law.[63] It is too blunt an instrument to

---

[58]See, *e.g.*, C.D. Hunt, "The Public Trust Doctrine in Canada" in Swaigen, ed., *supra*, note 42, 151.

[59]See, *e.g.*, Ontario's *Environment Enforcement Statute Law Amendment Act*, S.O. 1986, c. 68, amending the *Environmental Protection Act*, R.S.O. 1980, c. 141, s. 146(a) [hereinafter *E.P.A.*]; the *Ontario Water Resources Act*, R.S.O. 1980, c. 361, s. 75; and the *Pesticides Act*, R.S.O. 1980, c. 376, s. 34g.

[60]Dianne Saxe's empirical research shows that the threat of personal prosecution of corporate directors or executives would have significant deterrent effect upon their conduct (D. Saxe, "The Impact of Prosecutions of Corporations and Their Officers and Directors upon Regulatory Compliance by Corporation" (1990) 1 J. Env. L. & Practice 91).

[61]Conversation between I. Spry and the author (1984). A milder alternative is to allow each shareholder to decide what share of her profit is to be distributed each year.

[62]P.G. Stillman, "Property Rights, Ecological Limits and the Steady State Society" in D.C. Pirages, ed., *The Sustainable Society* (New York: Preager Publishers, 1977) 220.

[63]Law Reform Commission of Canada, *Crimes Against the Environment* (Working Paper 44) (Ottawa: Law Reform Commission of Canada, 1985); Law Reform Commission of Canada, *Pollution Control in Canada: the Regulatory Approach in the 1980s* (Study Paper) by K. Webb (Ottawa: Law Reform Commission of Canada, 1988); K. Webb, "On the Periphery: The Limited

use when most environmental harm is related to process pollution that accompanies socially desired production of goods and services. Further, even spills, not to mention exceeding of emission limits, may occur without moral culpability, as the due diligence defence in strict liability regulatory offenses[64] recognizes. Where the criminal law is needed is for deliberate breaches of the law or actions that recklessly disregard the risk of environmental harm. It may be acceptable to impose absolute civil liability for clean-up costs, but there is considerable resistance to doing so in criminal cases, not least by the Supreme Court of Canada.[65]

It is possible that governments will someday decide to prohibit any measurable emission of toxic substances. While such a strict "virtual zero" rule may seem desirable to environmentalists, some grandfather provision will no doubt have to accompany it. Many examples of newly discovered toxins in already approved effluent (for example, mercury and more recently dioxins from pulp mills) show once again that the "quick fix" of absolute prohibition is tenuous. Yet the idea of individually proscribing dangerous chemicals may not prove feasible either. Experience from administering the toxic substances provisions of the *Canadian Environmental Protection Act*[66] will, one hopes, show more progress than achieved under its predecessor *Environmental Contaminants Act*.[67] It will also be instructive to see if successful prosecutions under *C.E.P.A.*'s new criminal offences[68] contribute to better environmental quality and hence to sus-

---

Role for Criminal Offences in Environmental Protection" in Tingley, ed, *supra*, note 3, 58 [hereinafter "On the Periphery"]. But see, *supra*, notes 58-59 and accompanying text.

[64]Classical criminal law offences require proof of subjective *mens rea*, whereas for regulatory or public welfare offences, only the *actus reus* must be proven, subject to a possible defence of due diligence if liability is strict and not absolute (*R.* v. *City of Sault Ste. Marie*, [1978] 2 S.C.R. 1299, 3 C.R. (3d) 30. See also discussion in D. Stuart, *Canadian Criminal Law: A Treatise*, 2d ed. (Toronto: Carswell, 1987) at 157-80).

[65]*Reference Re: s. 94(2) of the Motor Vehicles Act*, [1985] 2 S.C.R. 486, 48 C.R. (3d) 289, where the Court found a constitutional imperative that if there is a risk of imprisonment, a defence of due diligence must be available.

[66]*Supra*, note 41, Part II.

[67]S.C. 1974-75-76, c. 72. See R.D. Lindgren, "Toxic Substances in Canada: The Regulatory Role of the Federal Government" in Tingley, ed., *supra*, note 3, 37.

[68]See, in particular, *C.E.P.A.*, s. 115(1):

> Every person, who in contravention of this Act,
> (a) intentionally or recklessly causes a disaster that results in a loss of the use of the environment, or
> (b) shows wanton or reckless disregard for the lives or safety of other persons and thereby causes a risk of death or harm to another person, is guilty of an offence and liable on conviction or indictment to a fine or to imprisonment for a term not exceeding five years, or to both.

A.R. Lucas points out that the *C.E.P.A.* offence provisions are best seen as regulatory and not criminal ("Jurisdictional Disputes: Is 'Equivalency' a Workable Solution?" in Tingley, cd., *supra*, note 3, 30).

tainability. Perhaps more experience will lead to a re-opening of the debate about the role of criminal law.

The trend toward heavier penalties summarized by Webb[69] may also encourage fuller compliance, although he also notes possible *Charter* difficulties for regulatory offenses.[70]

D. Regulatory and Economic Ways to Influence Behaviour

Eloquent criticism of the command-penalty approach of using quasi-criminal regulatory offences to back up licensing requirements has been made by scholars, such as Barton and Thompson.[71] Using the criminal law, they argue, is neither certain, fair nor rational and, economists add, not efficient either. Compliance is negotiated privately, in spite of quasi-criminal sanctions that are used largely as threats. This school of thought (which has been subject to some learned criticism[72]) recommends the open use of negotiation and financial penalties instead of punishment and public opprobrium. However, the main objective is clear: emissions must be minimized and as cheaply as possible.

If the command-penalty model is to continue, it may be desirable to create standards that evolve with knowledge and do not depend on frequent legislative amendment to remain current. Specifically, jurisdictions determined to implement sustainability should consider whether a "Best Available Technology" requirement should be built into basic laws. This may seem to raise the spectre of economic inefficiency and to ignore the legitimate use of the assimilative capacity of the air and water, but economic "achievability" could be built into the test. Environmentalists would, in any case, be eager to remind us that using air and water as a dump, even for biodegradable effluent, can have significant negative effects and can exclude various other uses.

Finally, tax experts will be able to suggest how the tax system could play a major role in encouraging sustainability.[73] For example, increases in taxes could be more acceptable if the revenue were seen to be dedicated to specific environmental programs. And, because an enormous amount of effort is spent nonproductively in foreign exchange machinations (the world's daily volume of foreign exchange transactions is 100 times greater than Canada's annual Gross

---

[69]"On the Periphery," *supra*, note 63 at 61.

[70]*Ibid.* at 62. See also K.R. Webb, "Regulatory Offences, the Mental Element and the *Charter*: Rough Road Ahead" (1989) 21 Ottawa L. Rev. 419.

[71]B.J. Barton, R.T. Franson & A.R. Thompson, *A Contract Model for Pollution Control* (Vancouver: Westwater Research Centre, University of British Columbia, 1984).

[72]See, *e.g.*, M. Rankin & P. Finkle, "The Enforcement of Environmental Law: Taking the Environment Seriously" (1983) 17 U.B.C. L. Rev. 35. As well, Saxe's research shows that the possibility of prosecution has a significant effect upon corporate officers (*supra*, note 60).

[73]See, *e.g.*, J.A. Cassels, "Structuring the Tax System for Sustainable Development" in Saunders, ed., *supra*, note 23, 141.

Domestic Product[74]), perhaps financial experts can consider how to achieve a single world currency. They might also reflect on whether, in our parliamentary system, legal techniques could be developed to restrain the universal tendency of governments to run perpetual deficits, which are the epitome of non-sustainability.

E. Modifying the Legal Rights of Citizens

The environmental "Bill of Rights" has already been mentioned, but other frequently proposed additions to the citizen's legal armoury include increased access to decision-making bodies through liberalized rules of standing, the right to bring environmental class actions and improved access to information and to the financial resources needed to pursue an interest through lengthy proceedings.[75] There are signs in various quarters that these reforms are on the way,[76] as well as the creation of additional statutory causes of action,[77] protection for "whistle-blowers"[78] and increased use of strict liability.[79] Another possibility is to allow public interest groups to engage in lobbying or other political activity without losing their charitable or philanthropic status which allows donors an income tax credit for monies donated. Or, if public nuisance suits will serve any purpose when we have an environmental bill of rights, private citizens could be permitted to sue if the attorney general will not. And, if litigation is deemed by the court to have raised important public interest issues, unsuccessful plaintiffs could be excused from the payment of costs. It may be expected that inventive lawyers will expand this list of ideas.

F. Adjudicating Disputes

The rules for adjudicating disputes could stand reappraisal. Questions of onus of proof and decision-making in the face of scientific uncertainty are very

---

[74]M.J. Frankman, "A Vision of the New Order" (1990) 7:3 The Trumpeter 127.

[75]See A.J. Roman, "*Locus Standi*: A Cure in Search of a Disease?" in Swaigen, ed., *supra*, note 42, 11; S. Chester, "Class Actions to Protect the Environment: A Real Weapon or Another Lawyer's Word Game" in Swaigen, ed., *supra*, note 42, 60; and M. Rankin, "Information and the Environment: The Struggle for Access" in Swaigen, ed., *supra*, note 42, 285.

[76]*E.g.*, for standing, see *Finlay* v. *Canada (Minister of Finance)*, [1986] 2 S.C.R. 607, [1987] 1 W.W.R. 603; for class actions, see Bill 28, *Class Proceedings Act, 1990*, 1st Sess., 35th Leg. Ont., 1990 (first reading on December 17, 1990), introduced by the Liberal Attorney General in June, shortly before the General Election; for access to resources, see parallel provisions in Alberta's *Energy Resources Conservation Act*, R.S.A. 1980, c. E-11, s. 36(1) and Bill 52, *Natural Resources Conservation Board Act*, 2d Sess., 22d Leg. Alta., 1990 (second reading), s. 10. So far as I am aware, adequate access to information has not yet been achieved in any jurisdiction in Canada.

[77]For example, Ontario's *E.P.A.*, s. 87, and *C.E.P.A.*, s. 136.

[78]*E.P.A.*, s. 134(b).

[79]D. Tingley, "Responding to the Challenge: An Overview of Significant Trends in Government Regulation" in Tingley, ed., *supra*, note 3, 20.

important. In traditional *quia timet* actions, where the plaintiff is suing to prevent apprehended harm, the burden of proof has been heavy: either a high probability of irreparable damage or virtual certainty of the unlawful harm, as for example in a nuisance action. If the common law has not been able to deal more successfully with scientific uncertainty than in the famous case of *Palmer* v. *Nova Scotia Forest Industries*,[80] then statutory reform is needed. In *Palmer*, after an exhaustive canvassing of volumes of scientific evidence, the court rejected a *quia timet* application for an injunction against aerial herbicide spraying of a Nova Scotia forest. Nunn J. did however hold that the action had been suitably framed as a representative one.[81] We may wish to have a rule such as that in the American case of *Reserve Mining Co.* v. *Environmental Protection Agency*,[82] where, although the probability of harm was not proven on a balance of probabilities, a reasonable medical concern for public health was held to justify requiring precautionary abatement measures.

At least in civil cases, lawyers and scientists talk a different language about probability: lawyers operate on a balance of probabilities, scientists require a 95% confidence level. Lawyers want simple yes or no answers, scientists insist on carefully qualifying their responses. A great deal of work is needed to develop an appropriate legal response to scientific uncertainty, risk analysis, epidemiological and other statistical inference. New rules about shifting the burden of proof in such areas could be considered.

Conclusion

Much more could be written about the potential contribution of various legal specialties to sustainability. Trade law, including the Free Trade Agreement with the United States, the practices of Canadian agencies, such as the Canadian International Development Agency (C.I.D.A.), occupational health, labour law, general education and many other fields have been ignored. So has the question of revamping the education of lawyers and judges, or the role of the common law or statute law, for example, in expanding the ambit of strict or statutory liability in the environmental field. But what was intended was more modest. The objective of this article has been to remind lawyers of the breadth and complexity of issues concerning the environment and sustainability, to suggest that the main tasks facing would-be sustainers are more in policy than law[83]

---

[80](1984), 2 D.L.R. (4th) 397, 60 N.S.R. (2d) 271 (N.S. S.C.T.D.) [hereinafter *Palmer*]. See also E.L. Hughes, "Government Response to Environmental Issues: Institutional Inadequacies and Capacity for Change" (1990) 1 J. Env. L. & Practice 51 at 57-59. For some American views on this subject, see, for example, the articles in (1986) 2 Nat. Res. & Env. at 3-38 & 51-68.

[81]It may also be recalled that several of the plaintiffs could have gone bankrupt if the defendant had insisted on collecting the awarded costs.

[82]514 F. 2d 492 (8th Cir. 1975).

[83]The reformist nature of most of the suggestions implicitly underlines this point.

and to encourage legal specialists to consider what their own fields could contribute. Knowledge from many fields needs to be integrated into coherent political, economic and social programs.

Major, perhaps radical, change lies ahead, whether we seek it self-consciously or whether it is forced upon us in a messier fashion. Achieving a sustainable, convivial, democratic and just Canada is our task, because postmodern society will not be sustainable simply because ecosystems are. Green shopping is relatively easy, social control of the industrial complex and voluntary reduction of income are far more difficult. Past conflicts over distribution have been simpler because the growing economy improved the lot of the poor without sacrifice by the rich. But when the pie is no longer growing, only significant redistribution will work. Individual and social transformation will both be needed. Today, I would not bet on the outcome.