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Human Dimensions of Global Change

The Social Challenge

Notes for an Address by

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Human Dimensions of Global Change[1]

A B S T R A C T

The problems of global environmental change are both serious and urgent. This paper argues the need to find ways to handle the myriad social decisions on environmental questions routinely, without invoking all the heavy machinery of conscious collective choice. Such decentralization demands market instruments.

But coupled with the appeal to market instruments must be the strengthening of public decision structures, accountability mechanisms, and democratic guarantees. An environmental "bill of rights" to go with environmental markets is thus the critical social transaction.

A few weeks ago, I had the great good fortune to be paddling a kayak into the bay at Ninstints, Skungwai, having come up from Cape St. James at the southern end of South Moresby Park Reserve in the Queen Charlotte Islands off British Columbia. It was an opportunity to reflect upon the future for societies that are based on consensus and stewardship of renewable resources compared to those that are based on competition and exploitation of exhaustible resources. (It was also a time for thinking of tide-rips and currents, so I didn't get very far with my reflections. But it did seem to me that the question is closely

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[1] Earlier versions of this paper were presented to a University of British Columbia Conference on Global Environmental Change (October 1990), and as a commentary on "environmental gridlock" at the 1990 Roundtable of the Industrial Development Association of Canada (November 1990). Thanks to organizers and commentators at both meetings for their support and helpful observations.

related to the topic for today and I'd like to pursue it a little bit in these comments.)

I was asked to speak today on the Human Dimensions of Global Change. Obviously that's a vast topic; I will not do it justice in one lecture. I propose to address only one part of the issue -- the social challenge posed by greenhouse gases. And even there what I would like to do is simply to use the problem of CO_2 emissions (with brief reference to environmental policy more generally) as an illustration from which to explore some questions about social decisions and the formation of public policy.

The Globe and Mail over the last few weeks has told us that in light of concerns about greenhouse gases and global warming, the House of Commons Committee on the Environment chaired by David Macdonald has recommended as a target a 20% reduction in CO_2 emissions, that Robert de Cotret, as Minister of Environment, has rejected the target recommended by the House Committee, and that the Department of Energy Mines and Resources says it will not go along with any such measures that threaten employment. Yet again, negotiations on an international framework agreement on reductions of greenhouse gases begin in February 1991, and we are told that Canada is preparing to play a leading role. The targets will come, it is said, if not by 1992, then later. The World Climate Conference just concluded in

Geneva apparently agreed that stabilization of CO_2 concentrations in the atmosphere is essential, but could not agree on any timetable for reductions of CO_2 emissions. All very confusing.

More generally, public policy -- the overall environment for economic development -- the context for your work -- is in fundamental turmoil and upheaval at this time. One sees:

- global economic change -- integration across boundaries throughout the world economy, and the development of the so-called "borderless economy";
- global social change -- increasing awareness/ assertiveness in increasingly informed populations;
- global political change -- ethnic nationalism; fragmentation politically, concurrent with integration commercially;
- global environmental change -- increasing militance, increasing concern as the scientific evidence accumulates but the controversies do not lessen.

In all kinds of ways, land use questions are no longer accepted as purely private concerns; e.g., forests are now being described as carbon banks or gene banks playing a crucial role in the ecological systems of the planet, with which individual countries like Brazil or Indonesia or Canada have no right to tamper.

At the same time, in Canada, we are literally at the stage of rewriting the framework for our society -- all the groundrules are up for grabs.

My argument in essence will be that the growing evidence of global environmental change is doing a number of things:

- shifting us from an earlier focus on environmental protection and resource management to the more recent emphasis on sustainable development; I expect that you've heard much about that already in this series.

- shifting us from the notion of a tradeoff between environmental goals and efficiency objectives to a concern for the integration of economic and environmental considerations in both private and public decisions.

- forcing attention away from technical expertise and economic calculation toward what you might call pluralist interaction and participatory politics.

- More particularly, forcing a shift away from problems of CBA and ROR (cost benefit analysis and rate of return appraisals) to problems that have been labelled SNYC and NIMBY and NIMTOF -- that is, "science is not yet clear" and "not in my backyard" and "not in my term of office" (an

acronym, I think, due to my colleague Jim MacNeill); the combination of those three -- really two -- things tempted me to title this talk "Footdragging and Free-riders".

- But in summary, it seems to me, global environmental change in its impact on public policy is in large part forcing us into an era of "negotiated science" and what Patrick Moore (formerly of Greenpeace and now of the BC Roundtable on Environment and Economy) has called "political biology".

- Or, more generally, a strengthening of property rights in resource management and economic development coupled with a much broader empowerment of many more stakeholder groups to force accountability in the exercise of these rights.

My major proposition, however, is that we must find ways to handle the social decisions on environmental questions routinely, automatically, without having to invoke all the heavy machinery of courts, consultation, and cabinet on every occasion. If we are to avoid environmental gridlock, we need workable and acceptable economic instruments, efficient and acceptable administrative mechanisms, and rapid and acceptable political channels for dealing with all the myriad social decisions and tradeoffs involving environmental issues.

Global Environmental Change and International Framework Agreements on Emissions Limits

The whole general question of greenhouse gases and CO_2 emissions, the concern for the consequences for global warming and climate change, and for global environmental change more generally, all call for public policy initiatives and policy action. That policy action is going to be very costly, predictably very costly -- although one isn't quite sure how very costly.

Two problems are encountered. First, there is the problem of scientific uncertainty, the problem that we're dealing with very long-term consequences, that the scientific evidence has to be taken in some way into the public policy processes, into debate, and into Cabinet decisions in a way which now doesn't permit a separation between the sound, scientifically-based, rigorous estimates coming from a scientifically accepted methodology and the very different process of political valuation, if you like. The two things are confounded, they are mixed up. That inability to separate the science from the politics leads to a problem of negotiated science (again, I think, an expression initiated by Jim MacNeill) in which the nature of the estimates is very often coloured by the use to which they are going to be put. Because the evidence is contested, there is an opening for people to offer the SNYC solution: the science is not yet clear, let's not do anything in a rush. The costs of inaction are ignored.

There is a second problem, of course. Because these actions are very costly and because the problem is global, there is an obvious temptation to let the others step out first. "Let's not do anything here -- Canada by itself is not going to make a difference to this problem." You may have seen that suggestion in the Globe and Mail not long ago in a fairly large article on the costs of CO_2 emissions limits as contained in a study by Imperial Oil. So the NIMBY argument, the NIMTOF argument, the free-rider problem, is central to a lot of this.

Let's look at two levels or scales of reaction to the concern for emissions limits. At the international level, there is the concern for framework agreements, with an effort to develop some kind of a protocol on emissions limits and the financing and funding problems that they might raise. Institutions for surveillance and enforcement are proposed which call for some surrender of sovereignty, national sovereignty, to any of these international institutions for monitoring and enforcing international agreements.

In these agreements where, through some political process, governments decide on some targets, and set some limits, the function of those limits in part is to force the development of technology, to assure the "cooperation" of industry that is always mentioned in this new era of industry-government

"partnerships". Their purpose is to set standards within which individual actions will be taken, in adaptation of the technology and in shaping all the other decisions of the community.

At the other end of the scale, consider very briefly the implementation of these kinds of decisions through market mechanisms. The challenge is to reform domestic institutions to eliminate some of the perverse public policy mechanisms presently in place that are pushing towards the kind of degradation in our resource base that we see all around us. The problem is one of getting our pricing rather closer to right, getting our accounting structures rather closer to reality, and at the same time trying to do something or other to strengthen the democratic guarantees that must be associated with strengthened market mechanisms.

More particularly, I suppose, the argument will be that along with the appeals to the market, along with the strengthening of property rights, we're seeing what amount to measures to strengthen stakeholder rights, measures to strengthen the mechanisms for accountability that assure that those property rights are exercised responsibly in what you might call a "push toward stewardship". So pressures for environmental bills of rights, if you like, go along with pressures for strengthened property rights, strengthened freedom of action in market mechanisms.

The conclusion that I want to stress is simply that the real wealth of the country is in its ecological and intangible assets, genetic diversity and social organization; that wealth has to be protected by conscious, collective decisions, and that involves some fairly dramatic changes from our present mechanisms of accounting. It requires some of the democratic guarantees that I just mentioned, and in effect, it requires an appeal to strengthened markets along with much stronger provisions for accountability. So that's the agenda. Let me just flesh out one or two of the pieces in it, and then I suspect that more persuasive and profound commentary on some of the pieces will come out in our later discussion.

The point is that global change can be traced back in significant part to the massive impact of current human activity on the natural systems of this planet. These anthropogenic forcing functions, if you like, all the good and bad outputs and consequences of human activity have in turn to be traced back to the decisions, both public decisions and private, which organize our production and investment and consumption activities -- our allocations of the resources we control, build up, draw down, and use. The public policies we have to be concerned with here, in looking at the impact of global environmental change, are the actions and interventions, conscious interventions, that

influence -- and in fact determine -- how human activity impacts upon planet Earth.

And so we are asked to consider how that cluster of policy actions has to be altered in light of our current concerns about global environmental change. You're all aware of lots of the current controversy about greenhouse gas emissions, having in mind the anticipated link between greenhouse gases and climate change. The June 1988 Toronto Conference on The Changing Atmosphere talked about the need for action, collective community action, to stabilize atmospheric concentrations of CO_2. When you look at that goal, which is a nice goal, it would entail, it is estimated, something like a 50% to 80% reduction in fossil fuel combustion, which is obviously going to call for substantial adaptation of our way of life. So as an initial target, the Toronto conference proposed a reduction by the year 2005 of emission rates by 20% of their 1988 levels. And that target has been mentioned in a lot of subsequent conferences.

In Bergen in 1990, in May of this year, in preparation for the 1992 Sao Paulo meeting (the big UN meeting on environment and development), the ECE countries proposed to establish, no later than this Fall in fact (although I think the timing is slipping in some cases) a strategy and firm targets to realize this goal of 20% reductions in CO_2 emissions. I have a memory that M. Bouchard's rather enthusiastic but informal embrace of those

targets at Bergen was repudiated on his return by Robert de Cotret acting as President of Treasury Board. But, of course, the hats have changed since then and the report on the Greenplan consultations suggests amongst its list of actions "initiating a process to study the feasibility and implications of a national CO_2 emissions control program" and -- I may be subject to correction on this -- I guess there is in fact a Canadian commitment to come up with some target levels for emissions reductions.

The targets, in any case, will be set eventually. This discussion process is moving forward. It's aimed at finding a framework agreement by 1992. That may not happen, for a variety of reasons. But they will be set eventually. In many cases, they would make sense as unilateral undertakings, as part of a so-called "no regrets" policy. Just as in the disarmament literature there has been a case that unilateral action isn't silly, so the argument may apply here too. In the case of emissions reductions achieved through reductions in energy use, through conservation and greater efficiency in material inputs, those actions would be in the economic interests of individual companies and in the social interest for the country as a whole. But targets such as are being talked about now will really only make sense when they're achieved by concerted international action. They're not targets which will make a big difference as a result of individual countries acting on their own. The costs

will be high, and the cooperation of the developing countries -- India, China and others -- will be absolutely critical. That means that for many developing nations the costs have got to be funded through some kind of international effort. And that does create some interesting problems in the negotiation of an international framework agreement -- particularly in the current economic environment.

This example of CO_2 emissions, as I say, introduces the problem of scientific uncertainty, and gives rise to what the Bergen conference fussed about a lot as the "precautionary principle". From the scientific community there at least and in other fora as well, one hears increasingly often the argument that the fact that the evidence is not yet clear doesn't mean that the appropriate policy is non-action. In fact the "precautionary principle" emphasizes that in the case of distant but potentially very large risks, the track of prudence may be to take some substantial current action as an insurance policy.

The argument of a lot of people, my colleague Jim MacNeill being prominent amongst them, is that in fact that insurance policy is in our own economic interest in any case, and would be clearly seen to be in our own economic interest if we could once get through some of the distortions and the structural impediments in our current market system. So the "precautionary principle", the problem of SNYC and the problems of NIMBY and

NIMTOF are all really central to the development of public policy in response to this question of global warming or global environmental change. And, as I mentioned, the need for financing facilities -- world atmosphere funds -- for international institutions for surveillance and enforcement will be absolutely central to the negotiation of various kinds of grand bargains and framework agreements leading up to the 1992 meeting.

Local implementation and market instruments

Now implementation domestically, leaving aside all this international negotiation, coming back close to home to look at the local action to go with the global thinking, raises the whole question of sustainable development and implicates the whole array of instruments to affect people's consumption and investment decisions, as well as their production decisions and their clean-up efforts. In various writings, Peter Pearse of the University of British Columbia has posed very effectively the case for much stronger market mechanisms for the purpose of implementing these social decisions. But I do want to make the point that we're talking about market mechanisms working within a framework of targets and social goals set collectively. That's always been the function of a market. The market is the most ingenious mechanism known to humankind to make good use of limited information in complex situations. But it is a social

construct and it is for a social purpose and it should be adapted at that purpose.

With that over-riding qualification in mind, what are the elements of a program for strengthened economic institutions? I use one final acronym to help me in this area -- SIDA. A SIDA program entails improvements in:

Signals	- National accounts
	- Price system
Incentives	- Pricing/"polluter pay"
	- Property rights
Decision Structures	- Consultation processes
	- Machinery of government
Accountability	- Social responsibility of corporations
	- Democratic openness

If one thinks of the steps that must be taken in any local constituency facing this goal of attempting to manage resources better and reduce emissions from industrial and consumption activity, there are several things one can do. The most important underlying precondition is effectively to merge environmental considerations and economics in decision-making. The systems are locked in the real world, but they are not very well brought together in our decision-making processes, either

public or private, so that's the first step to be taken. The goal of integrating these considerations has implications for our machinery of government. There's a strong argument that environmental resource management agencies traditionally have been concerned with resource management and environmental protection; their mandate is focussed on the downstream end of the development cycle, on the consequences and the clean-up, rather than the causes.

The central economic and sectoral agencies, meanwhile, the big financial agencies, discharge their traditional responsibilities with broad mandates, embracing the upstream end, the prior decision, the design end of the development process.

Environmental protection and resource management agencies address a standard agenda which includes a long list of pollution and natural resource issues, and they are normally tasked to deal with those issues by themselves.

The central agencies address the "priority" agenda of government -- growth, employment, energy goals -- and they do so with a broad arsenal of policies. The transition to sustainable policies requires a sustainable development agenda which is integrated in economic decision-making, in effect reflecting the interests of the CEO, or the Premier, or the Prime Minister. It requires that environmental impact assessments accompany or

replace financial impact assessments as the central documents at which Ministers look when they're making decisions, not only about programs but about underlying policies.

That's all, if you like, a form of motherhood, but it is an underlying pre-condition for any realization of this goal of bringing these environmental considerations into the economic decision-making which dictates the impact of human activity on the Earth's ecosystem and the future for global change.

A couple of steps are necessary to correct the information base on which we work and I just want to mention them very quickly. The first is the need for full cost accounting and full cost pricing. That's basically bringing into the decisions of individual economic actors a concern for environmental consequences. This concern is reflected through the price mechanism by taking account of the value of resources presently unpriced or undervalued.

Current economic accounting systems are concerned with the flow of economic activity. They are concerned with man-made capital. When stocks of buildings and plant and equipment depreciate, that's taken into account as a cost of doing business in the books of businesses and, to the extent that those are then integrated into the national accounts, in the measures of economic activity and national income.

Natural resource capital stocks, if they're not on the books of a private company as assets, don't get into those accounts. The value of standing forest in the public domain, the value of the water stocks or the value of the services which free-running water can render as waste disposal facilities, the value of natural resources generally, isn't reflected in prices, isn't reflected in market transactions, it isn't reflected in the national accounts of the country. And therefore we delude ourselves when we measure our rates of economic growth and our estimates of national income.

So we don't have the stocks and we undervalue the services in our accounting systems. That's natural enough because the accounting system was designed to serve the needs of a limited liability corporation and those stocks don't explicitly enter the decision-making processes of the corporation. So that's one set of practical tasks to be addressed. Resource accounting is a key step towards the action to take account of public concerns with global environmental change.

With these changes, environmental action that now is not reflected in the "bottom line" can be expected to show up there and to become important to management as a result.

Environmental taxes and markets and the "polluter pay" principle again have been mentioned. The province's annual budget sets out the main features or parameters shaping decision-making processes relating to environmental concerns. Tax and subsidy mechanisms create the incentives that will determine whether or not we are properly rationing and maintaining, sustaining, the values of the natural resources on which we depend.

(In particular, just a very quick mention of the discounting problem. There is of course a need for discounting future benefits and costs in appraising various kinds of programs and proposals, but those processes of discounting were designed for individual isolated investments with limited local impacts, at least when one compares them to the scale of global environmental change. And what's appropriate and essential in evaluating small investments with limited local impacts may be, I would argue, basically inappropriate, potentially catastrophic in dealing with massive investments with often irreversible regional and even global impacts. I have to confess that I signed off on the cost-benefit manual of the federal government which says you evaluate everything using a 10% real discount rate, but that was not intended for the appraisal of world bank projects which will displace a population and destroy an eco-system. There is no opportunity, when processes are irreversible, for market transactions to undo the consequence of prior trades with nature

and so the underlying premise of discounting, which is to maximize present value, given that you can reshape the consumption streams to suit yourself thereafter, this underlying premise simply is not, I would argue, applicable in the circumstances of global change.

So we need to get, in some sense, away from the standard handbook -- good as it is -- when we're talking about environmental impact appraisals.)

Can those kinds of changes in accounting systems, pricing schemes and appraisal processes make a difference? My argument is that you're damn right they can. The numerical measures of performance are demonstrably important in altering corporate behaviour. You only have to look at all this dispute about the difference between American management focussed on quarterly financial returns and Japanese management focussed on decade average market shares to see at least some evidence for the argument that if the fund managers are appraising your performance on the basis of your rate of return over the last year, you better not worry too much about standing timber or watersheds. Getting the information base right is the important step towards living off the interest from natural resources, and reducing our consumption of natural resources in the process of production. It's a starting point for undoing the web of subsidies and perverse interventions on which we've built our

current market system. It's the basis for increasing the energy and resource efficiency of industrial activity in the country, and it's therefore the basis for getting on with the job of creating an internationally competitive and sustainable industrial structure.

I'm not going to spend time talking about the implications for the machinery of government, although there are some fascinating issues to look at. Essentially, all of what I have been saying entails improving the information and the structure for government decisions, as well as creating broader and stronger markets to improve private decisions. But as you go through all of that, you have to look at the legislative framework and the opportunity for public scrutiny of those decisions. There are many proposals around for Environmental Protection Acts of various kinds and they emphasize, in many cases, the need for an environmental bill of rights with various provisions for disclosure, freedom of information, protection for whistle-blowers, and all of that sort of thing.

What we are seeing is the emergence of broader concepts of property rights to extend ownership and to extend powers in the management of natural resources, but coupled with broader empowerment of other stakeholder groups to assure greater accountability in the exercise of those powers and rights. One sees growing reference to the need for empowerment of

disenfranchised groups in order to give some kind of purpose to public information programs, some kind of purpose to their efforts to acquire information and participate in discussion of risks to the public, whether health or environmental, or whatever. And more generally one can see here the same argument, the need for broader stakeholder rights to assure that stewardship of resources generally flows from this exercise of broader property rights to natural resources.

There's a long argument which I can't develop here about the extent to which we have to adjust our concepts to reflect the fact that ecological capital, and genetic capital, and social capital are the crucial natural resources, along with financial capital and physical capital. In a way, social cohesion and social organization and the social contract are recognized increasingly as the fundamental national resource, not the paper assets on which we report in excrutiating detail, but which fundamentally miss the point.

Conclusion

So where does all this leave us?

We have to move beyond the creation of incomes through the destruction of wealth. Jobs which are preserved through the sacrifice of our own habitat are not good jobs, and they're not

good public policy. Incomes which are maintained only by hiding the real consequences of our actions from an inexpert but concerned community are not really sustainable incomes.

We have a long way to go to get our concepts of income and wealth in line with what we know to be the nature of a world where human activities are already of a scale to impact substantially, and probably irreversibly, on the survival mechanisms of the Earth itself.

Money is an important thing, but it isn't the only thing, and it isn't everything. Accounting and its extension to economics is an important discipline and an important guide to action, but we shouldn't take it as tying our hands in social decisions.

A community facing the challenges of global change has got to deal with the really important resources which go beyond labour and capital and physical structures and include skills and knowledge and ecological resilience and genetic diversity and social cohesion. For those assets we don't have any very precise accounts and we don't have any very obvious investment strategies that offer really good private rewards for their preservation. Public policy to deal with the dilemmas that result from that lack will have to become more integrated (it's not quite clear how to do that) and still it's got to be more dispersed; it's

going to have to be more global and still it's going to have to be more decentralized; it's got to be more participatory yet it's got to be more responsive; and Lord knows it's got to figure out some way to avoid the paralysis of continued consultation and confrontation.

My guess is that the lessons of Meech Lake and Oka and global change all point in the same direction -- to the fact that public policy will have to become both more based on consensus and more focussed on stewardship, and it's not clear that there's an easy recipe for achieving that marriage of interests which conflict in the short run but coincide in the long.

But economic development in the right form is still in the interests of all of us. Integration in a world economy is not evadable -- that is to say, it is inevitable for everyone except those content to remain in a remote hinterland in a true "state of nature".

So we have to find ways to talk together constructively without paralysis of the development process. To do that, I've suggested that we must both embark on a full scale SIDA program in the sustainable development field, and recognize that it is going to cost us all one hell of a lot of grief to carry through the adjustment to real implementation of that oxymoronic semantic

capsule "sustainable development" -- but that there is no alternative to doing so.

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The poles which still look out from the village of Ninstints in Skungwai were there before the invention of the limited liability corporation and double-entry bookkeeping. They didn't survive the calculus of cost-benefit and individual self-interest. But when we get our concepts of value straight, and our notions of wealth right, then my guess is those poles will again have a lot to teach us. And maybe that's the ultimate impact of global change on public policy, and the social challenge with which we have to deal.