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The Newsletter of the Canadian Institute of Resources Law

Economic and Technology Issues in EIA

by Ralf Buckley*

Editor's Note: This article is in response to Alan Scarth's article "No Place in the Boardrooms of the Nation" in Resources No. 58 Spring, 1997.

Introduction

Should formal environmental impact assessment (EIA) processes consider economic and technology issues associated with proposed new developments, or merely their probable impacts on the biophysical environment? Alan Scarth's article in the last issue of *Resources*¹ argued that government regulators should retire to the end of the pipe and leave all decisions on markets and equipment to entrepreneurs. According to Scarth's analysis, it is essentially a historical accident that Canadian federal regulators currently consider money and plant in EIA; and this creates a problem which could easily be fixed by telling them not to do it any more.

The issue is an important one, but Scarth's considerations are incomplete and in some cases incorrect, and his

recommendations would not be easy to implement. Nor is it at all clear that the changes he proposes would lead to better protection for the environment as claimed.

The fundamental deficiency with Scarth's argument is that it ignores critical aspects of both human political and natural environmental processes, as summarised below. It also assumes that EIA is a process with a single objective, whereas EIA law in most jurisdictions prescribes multiple objectives.²

Sustainability Standards

A misconception underlying Scarth's analysis is that natural ecosystems have a "carrying capacity" in the sense of a threshold level of human disturbance, below which the disturbance does not change the ecosystem. This is simply incorrect. If there is one general lesson from the three decades of environment science research that Scarth refers to, it is that every human activity, and certainly those at a scale sufficient to trigger the EIA process, has impacts on the physical and biological

environment, and in most cases also on the human or social environment. The core aim of EIA is to predict such impacts – including their cumulative effects, taken in the context of prior impacts – so that they may be weighed against probable socioeconomic benefits.

An associated and subsidiary misconception is that environmental impacts can always be predicted and monitored definitively and that regulatory standards already exist to keep such impacts below sustainable carrying capacity.

Résumé

L'auteur de cet article soutient que les processus d'évaluation environnementale doivent prendre en compte les projections économiques et les questions technologiques. Les raisons avancées sont les suivantes: tous les projets de développement entraînent des effets environnementaux auxquels sont associés des coûts publics; les organismes de planification doivent comparer ces coûts aux avantages économiques que pourrait retirer le public de ces projets; aussi bien les avantages que les coûts sont incertains et comportent un élément de risque; enfin, les effets environnementaux varient selon les technologies de contrôle de l'environnement.

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Essentially, Scarth's argument is based on the premises that: (a) there are universally agreed environmental standards for all human activities; (b) it is feasible for economic activities to occur within these standards; (c) as long as they do so, public costs through damage to the environment will be zero; and (d) if the standards are breached, the activity can be halted with no public cost.

The only type of commercial activity for which this paradigm could be considered even approximately accurate is small to medium scale manufacturing plants of types which are already commonplace. A large proportion of EIAs, however, are for primary industries, infrastructure projects, and tertiary-sector developments such as tourism, defence installations, etc. Scarth implicitly dismisses many of the principal issues raised by these types of projects in his comment that: "[t]he impact of raw material acquisition is a first consideration but, once that is settled, the issue becomes one of plant outputs".³ This is surely a dramatic understatement of the challenge facing EIA.

In addition, for large development projects subject to EIA, the proponents often negotiate special environmental standards which are substantially more lax than those applied to smaller projects. This may occur, for example, through special planning or licensing provisions, through indentures and ratification acts, or through one-off *ad hoc* special-projects legislation. All of these are common in many jurisdictions.

For EIA of large-scale new and innovative projects, Scarth's argument as summarised above is simply not an accurate reflection of reality. EIA is a scientific and political process as well as a legal one. Environmental standards rarely command universal agreement even within nations, let alone between them.⁴ Human economic activities at the commercial scale do cause environmental impacts and associated public costs.

Economic Aspects

A second misconception in Scarth's analysis lies in his view of the appropriate role of government in considering economic impacts of projects. The EIA process requires planning and regulatory authorities to weigh the probable public economic benefits from a proposed project against the probable public environmental costs. Public economic benefits in this context may be quite widely circumscribed, typically including all economic benefits likely to be retained within the jurisdiction making the planning decision. These may include jobs, new goods and services, shareholder dividends and so on, as well as royalties and taxes. Public costs likewise include environmental degradation and social disruption, as well as the costs of publicly-funded infrastructure and the depletion of natural resources such as fish, forests, soil and minerals.

The comparison of economic benefits and environmental costs is not a trivial exercise or a mere formality. It is a core part of the public decision-making process for which EIA is the main information source. Rarely is the comparison straightforward or clearly weighted one way or the other. If it were, there would be no environmental disputes over new developments and no need for EIA frameworks to incorporate dispute resolution processes. Much more commonly, there is significant uncertainty in relation to environmental costs, economic benefits, and an appropriate metric to compare them. This is why the entire discipline of environmental economics has arisen.

Uncertainties relating to environmental impact prediction have been demonstrated in a number of instances.⁵ Even for major or significant impacts, some predictions are inaccurate not just by a small margin but by orders of magnitude. Uncertainties regarding economic benefits have rarely been quantified.

One such analysis,⁶ however, found that employment opportunities and economic benefits had commonly been grossly overstated in EIA documents over the past two decades. Clearly, therefore, the economic aspects of development proposals do indeed need to be considered by government planning agencies in determining whether to grant development consent to new projects.

In summary, the development approval processes weigh uncertain economic benefits against uncertain environmental costs, and EIA assessors need information on both.

Irreversibility and Risk

A third misconception underlying Scarth's analysis is his failure to recognise that whilst it is sometimes practicable for a government planning authority to refuse development consent for a high-impact project, it is extremely difficult – if not impossible – to reverse such a decision once granted.

Scarth's argument assumes not only that sustainability can be guaranteed by easily-defined end-of-pipe standards but that, if these standards are breached, the human activity causing the impacts can be halted with no public costs, environmental or otherwise. Once again, this is simply not true. In practical terms it is almost impossible to halt a large development project of the type typically subject to EIA, once it is under way – no matter how severe its environmental impacts prove to be. It is generally after major industrial catastrophes that plants are shut down.

There are three principal reasons why development projects are rarely halted for breaching environmental standards. The first is that it is commonly difficult to prove whether a breach has occurred. Environmental monitoring programs, including baseline components, are typically of such poor scientific quality that it is difficult to decide with reasonable statistical

confidence whether a particular set of environmental measurements made during operations reflects an impact caused by those operations, or natural ecosystem variations. This difficulty is particularly acute for biological parameters, such as local population sizes for rare species. Effective monitoring takes time and money, and both are typically inadequate. In addition, parameters such as rare-species population sizes can be difficult to quantify accurately for purely technical reasons, irrespective of the resources devoted to the task.⁷

Certainly, there are some types of impact where this issue does not apply: for example, the discharge of a chemical which is easily monitored and which does not occur naturally in the surrounding environment. But if a chemical does not occur naturally – or indeed, even if it does – it is most unlikely that its chemical behaviour in a particular ecosystem, or its effects on the various biological species present, will be known with any detail.

It is simply not correct to suggest, as Scarth seems to, that while 30 years ago we knew nothing about environmental impacts, now we know it all. For most biological species and chemicals, even the most brutally crude toxicological studies to determine an LD50 – the concentration of the chemical that kills half the individuals in a sample population of the biological species in a given time period – have not yet been performed. Subtler but equally significant impacts, such as changes in breeding behaviours or interactions with other species, in different environments and in the presence of other pollutants, are only now beginning to be investigated.

In addition, even simple chemical impacts may take many years to be detectable. There are many cases – in all industry sectors – where developments have caused serious groundwater contamination within the plant boundary, and this has moved beyond the boundary long after the plant has closed and the company

been wound up. If the government must "withdraw to the plant boundaries" as Scarth suggests,⁸ problems such as these, with associated public costs, will continue.

It is for reasons such as this that there are no generally agreed discharge standards for even the most common of industrial pollutants, whose broad impacts have been known for over a century. Different countries, and even different states within the same country, often have widely different standards and regulatory approaches to the same chemical. Scarth's contention that there are "standard permissible limits for almost all substances detrimental to the biosphere"⁹ is simply incorrect. Besides, such standards refer only to use of the environment as a sink for wastes. What about its use as a source of raw materials, often equally or even more detrimental to the biosphere?

In addition, it has been recognised for decades that, in many cases, end-of-pipe discharge concentration standards are both economically and environmentally inefficient, and also easy to circumvent. Certainly, many standards are still set in this format, but in a climate where communities and regulators are trying to move towards ambient rather than discharge standards, and industries are trying to move towards more efficient ways to reach those standards, to return to the end-of-the-pipe approach would be a very retrograde step.

Besides, the chance of getting different jurisdictions to agree even on discharge concentrations standards appears slight. In an international trade context, the members of the World Trade Organisation have long since abandoned the attempt to agree on international standards even at the simplest level, settling instead for so-called mutual recognition of each others' standards.¹⁰ This is a political problem which is likely to remain insoluble for the indefinite future, irrespective of scientific evidence.

Finally, even in countries such as the United States and Canada which have access to the most comprehensive and recent scientific data and have relatively powerful central governments that can dictate environmental standards on the basis of such data, the actual standards employed are by no means stable. Standards are updated at intervals on the basis of new scientific information, as indeed they should be.

In summary, if a standard is set in terms of a change relative to a baseline, it is often hard to prove whether a breach has occurred. If it is set as an ambient standard, there is likely to be an argument about who caused any breaches. And even if it is a crude end-of-pipe discharge standard, there is unlikely to be agreement on what the standard should be, and no guarantee at all that adherence to the standard will ensure sustainability.

But all this is only a small part of the problem. Let us assume that there is a standard in place, and – ignoring a potentially protracted series of legal disputes – let us assume that the operator has admitted that the standard has been breached. Under Scarth's model, in this situation the government would order the operator to halt operations and reduce its environmental impacts; and the operator would be both willing and able to comply, and would in fact do so immediately.

Does this happen in practice? Of course not. First, the operator will argue that although technically speaking a breach did occur, this was not typical of normal operating conditions, and that the project is within its standards for much of the time. This may sound like telling a police officer that even though you did exceed the speed limit this time, you should not get a speeding ticket because most of the time you comply with the limit. The difference is that whilst a police officer would ignore such an argument, environmental regulators will often accept it.

The reasons they do so may be technical, economic and political. There are very few projects where environmental performance can be improved simply by swapping an end-of-pipe scrubbing device for a more powerful one. Much more commonly, a significant improvement in environmental performance can be achieved only through major redesign and reconstruction of the project, or by siting it elsewhere. For impacts associated with construction, such as habitat destruction, it is already too late.

Even where a change is technically feasible, it may be so expensive that the project would no longer be economically viable. Doubling the scale of a large tailings dam in a mining operation, or converting from a bleached kraft to a thermomechanical process in a pulp and paper plant, for example, is generally feasible at the design phase but not once operations are underway.

A government order to reduce environmental impacts in order to comply with an environmental standard, therefore, may well have significant immediate personal economic impacts on employees, shareholders, contractors, and local businesses. The number of people may be small, but their incentive to organise political protest is high since their immediate livelihood depends on the project.

The costs of environmental damage, on the other hand, are shared by a larger number of people and have a less direct impact on most, so the incentives for political action are fewer. In addition, former residents who were particularly concerned about the project's environmental impacts may have moved permanently away from the project area.

In summary, once a project has commenced operation it is very difficult to halt it, even if its environmental impacts prove to be far greater than anticipated and its

economic benefit less. Granting development approval may not be completely irreversible, but it is very close to it. Granting development approvals hence involves the risk that environmental costs will be higher, and/or economic benefits lower, than projected in the project proposal documents. The development approval agency accepts this risk, on behalf of the society of which it is part, in return for the net benefits which it believes the project will produce. But in assessing both the risk and likely net benefits, the development approval agency needs to examine economic as well as environmental projections, and also the uncertainties in each.

There is an additional political dimension. For a lawyer, EIA may appear as a legal process, while for a scientist it may appear as a scientific one. For a project proponent, however, it is a negotiation, part of a political process in which the proponent gains public resources – including rights to use the natural environment either as a source of raw materials, a sink for waste products or both – and the society gains increased wealth and employment opportunities. Clearly it is in the interest of the proponent to exaggerate potential benefits and downplay potential costs, particularly since there are no penalties for doing so. Once again, therefore, it is important that development approval agencies should be given the opportunity to scrutinise economic as well as environmental projections before approving any new project proposal.

It is also in the proponent's interests to panic politicians into a favourable commitment, either by taking advantage of convenient elections or by claiming that a market window will close. Certainly, market windows exist, but rarely is a project proposal abandoned just because the first political deadline passes.

Technology

Similar comments apply in regard to technology. It is very rare that pollution control or other environmental technology, best available or not, can contain discharges or other environmental stresses below the level of environmental impact. As noted earlier, almost all projects produce public costs in the form of damage to the environment. A requirement for "Best Available Control Technology" (BACT) as a condition of development consent or an operating license is simply a way to minimise those costs. Setting standards to reflect BACT performance is merely a recognition that this is the closest approach to sustainability which is currently feasible, and if standards more stringent than this are imposed, the industry would be unable to operate at all.

Scarth notes correctly that if a particular technology is recognised as best available, there is no incentive for that industry sector to conduct research to improve that technology. There is, however, still a commercial incentive for the waste management, pollution control and environmental technology industries to develop new approaches which are either more effective, cheaper or both.

For large industry sectors it is also possible for governments to drive improved technologies simply by setting environmental standards which current technologies cannot achieve, so that the industry is forced to conduct environmental research in order to stay in business. This approach is generally not feasible at the scale of individual project EIA, however, because it would impose an unreasonable burden on an individual company. Indeed, it is probably not possible politically within a single country. The best-known practical example occurred when Japanese car manufacturers were forced to adopt improved pollution control technologies in order to meet American import standards.¹¹

Scarth's arguments appear to imply, firstly, that environmental standards for sustainability are easily defined and achievable and, secondly, that multiple environmental technologies are available in order to meet those standards. Once again, this is simply not true. Most, if not all industry sectors are far from sustainable even if current BACT is employed, let alone if it is not.

Similarly, once development consent has been granted to a particular project, it is commonly difficult and expensive to modify the pollution control and other environmental management technologies it incorporates. It is therefore reasonable to require that the designs and technologies proposed are available for assessment by the development approval authority as part of EIA processes. In addition, the environmental design is sometimes not complete at the EIA stage. Granting development consent subject to the use of BACT allows the proponent to proceed with project planning, finance and design, and indeed to start construction, with the details of pollution control installations subject to approval only by the regulatory authority which grants and monitors discharge licences and similar operating conditions. In many jurisdictions this is not the same authority as that which grants primary development consent.

Conclusion

One of the basic premises underlying Scarth's arguments is that government regulators are less well equipped to predict market condition than private entrepreneurs. This is surely true, at least on average. But his conclusion, namely that the EIA process should ignore the economic aspects of the proposed development, does not follow from the premise and is not correct.

Similarly, Scarth's basic premise that government regulators are apt to be less creative inventors of new

environmental control technologies than their private-sector counterparts is also likely to be true on average. But once again his conclusion, namely that the EIA process should not consider technological aspects of proposed developments, is equally incorrect.

Finally, Scarth proposes that because in his view end-of-pipe standards are a sufficient institutional mechanism to maintain sustainability of industry, a great deal more effort should be devoted to the scientific research required to establish such standards more accurately. In this case, the premise is wrong, but I cannot disagree with the conclusion.

* Ralf Buckley holds the Chair in Ecotourism, School of Applied Science, Griffith University, Australia.

NOTES

1. A. Scarth, "No place in the boardrooms of the nation" (1997) 58 *Resources* 1-6.
2. R.C. Buckley, "What's wrong with EIA?" (1989) 20 *Search* 146-147. R.C. Buckley, "Improving the quality of EIA" in A. Porter and J. Fittipaldi, eds., *Environmental Methods Review* (Tampa: AEPI, 1997) (in press).
3. Scarth, *supra* note 1 at 2.
4. R.C. Buckley, "International trade, investment and environment: an environmental management perspective" (1993) 27 *J. World Trade* 102-148.
5. R.C. Buckley, "How accurate are environmental impact predictions?" (1991) 20 *Ambio* 161-162. R.C. Buckley, "Environmental auditing" in R. Vanclay and D. Bronstein, eds., *Social and Environmental Impact Assessment* (U.K.: Wiley, 1996).
6. P. Syvret, "Academic warns on perils and costs of resorts" (1996) 20.11.96 *Australian Financial Review* 2.
7. R.C. Buckley, "How well does the EIA process protect biodiversity?" (1993) 2:93 *Aust. Environ. Law News* 42-52.

8. Scarth, *supra* note 1 at 4.

9. *Ibid.* at 3.

10. Buckley, *supra* note 4.

11. H. Nishimura and M. Sadakata, "Emission control technology" in H. Nishimura, ed., *How to Conquer Air Pollution: a Japanese Experience* (Tokyo: Elsevier, 1989) at 115-156.

New Research Associate

John Donihee joined the Institute as a Research Associate in July 1997. He holds a B.Sc. (Hons.) from Carleton University, a Masters of Environmental Sciences from York University and an L.L.B. from Dalhousie University.

Prior to joining the Institute, he practised law both privately and with the GNWT Department of Justice. He has practiced extensively in the areas of environmental, administrative and aboriginal law. He is a member of the Law Societies of Alberta and the Northwest Territories and has appeared before a variety of regulatory tribunals and in all levels of Canadian Courts.

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Recent Developments in Canadian Oil and Gas Law

by Nigel Bankes*

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Secured creditor on bankruptcy takes subject to GOR interests because of the terms of subordination agreement.

Dynex was placed in receivership by the bank which held debenture and Bank Act security against Dynex's oil and gas assets. The bank had registered its interests in both the land titles office and the personal property security (PPS) registry. Subsequently, a receiving order was made against Dynex under the Bankruptcy and Insolvency Act. Excepted out from the terms of the bank's security instruments were certain "permitted encumbrances" which included existing GORs and future GORs with the consent of the bank. The GOR holders registered their interests in the land titles office but not in the PPS registry. In an earlier decision on certain preliminary motions, (*Bank of Montreal v. Dynex Petroleum Ltd. (No. 1)*, [1996] 6 WWR 461, 39 Alta. L.R. (3d) 66) Justice Rooke of the Alberta Court of Queen's Bench ruled that as a matter of law a lessee in Alberta could not create a GOR that was an interest in land. However, he also held that the "permitted encumbrance" language of the bank's security instruments operated to subordinate the bank's security so as to accord priority to the GOR holders during the receivership. Although there was no privity between the GOR holders and the bank, the GOR holders were entitled to the benefit of the subordination because of the terms of s.40 of Alberta's Personal Property Security Act which provides that a secured party may subordinate its security interest "to any other interest" and a third party may enforce the subordination "if the third party is the person or one of a class of persons for whose benefit the subordination was intended."

In the present case the court was asked to resolve the priority problems for the period after the bankruptcy, and, in particular to ascertain the effect of the bankruptcy on the subordination agreement. The GOR holders contended that they were entitled to succeed on one or more of the following grounds: (1) the GOR was the subject of a trust, (2) the GOR holders were secured creditors by virtue of holding an interest in real property, (3) the GOR holders held secured interests in personal property, and, (4) the GOR holders were unsecured creditors but were entitled to benefit from the bank's general subordination.

The court held that the GORs did not create a trust interest because there was no indication that the parties intended to create a trust relationship. The court declined to opine further on the interest in land issue on the basis that this had been decided in *No. 1* and that the court was functus on this issue. The GORs did create a secured interest in personal property but since the holders had failed to register them in the PPS registry they could not bind the trustee in bankruptcy. However, the GORs were still entitled to take the benefit of the bank's subordination. The bankruptcy had not affected the terms of the subordination even though the subordination could not bind the trustee in bankruptcy since the GOR holders had not registered their security interests. In the result therefore the trustee in bankruptcy would be obliged to distribute the available assets to the secured creditor (the bank) but the bank would in turn hold that distribution on trust to satisfy the claim of the GOR holders to the extent that the GOR holders could not be satisfied as general creditors.

Bank of Montreal v. Dynex Petroleum et al. (No. 2) (1997), 50 Alta. L.R. (3d) 44 (QB).

Operator of joint lands breaches fiduciary duty where it is also the operator of a contiguous unit.

Unocal had a 54% interest in the Kakwa Unit which occupied part of the Kakwa Cardium A pool. The pool (oil pool with liquids-rich gas cap) was the subject of a pressure maintenance order. Moco had a small interest in each of two tracts (north and south halves) of section 12 which was not part of the Unit. Unocal held the majority interest in the two tracts and was the operator. The two tracts of section 12 were not pooled.

Unocal's predecessor in title drilled the 7-12 well on the south half in 1985 but the well was not produced. Moco acquired its interest in 1992 and shortly thereafter learned that Unocal did not intend to produce the 7-12 well until blowdown of the gas cap. This was unsatisfactory to Moco because drainage was occurring. During subsequent negotiations the parties considered various options for the 7-12 well including unit expansion, a Unocal or Unit purchase, and tying in the 7-12 well to a Unit well, all subject to an appropriate pooling arrangement for the entire section. Negotiations failed and Unocal ultimately resigned as operator of the joint lands effective April 1995. On those facts Moco alleged that Unocal was in breach of its fiduciary obligations. The court agreed holding that Unocal was in a conflict of interest position given its interests in both the joint lands and as a Unit Operator and tract owner within the Unit. The conflict of interest explained the breakdown of negotiations on the section 12 property and explained Unocal's failure to come up with a coherent plan of action for the property. Unocal continued in breach of its fiduciary obligations until it resigned the operatorship of the section 12 property. The court has yet to assess damages and it has invited further submissions from the parties as to the jurisdiction of the Energy and Utilities Board to deal with the matter.

Moco Resources Ltd. and McPherson Consulting Limited v. Unocal Canada Resources et al, unreported judgment of Justice Kent, June 13, 1997, Alberta Court of Queen's Bench.

Postscript: in supplementary reasons for judgement Justice Kent ruled that the EUB had no jurisdiction to deal with the matter. She also ruled that the plaintiff's loss should be measured either by the actual production of the well for an 11 month period if it should ever produce, or on the basis of its tract participation should the property ever be included in the unit. If neither event occurred there would be no damages. The plaintiff has the burden of ensuring that the well produces either by obtaining an appropriate order from the Board or by including the property within the unit.

More detailed versions of the above digests may be found in *Canadian Oil and Gas* published by Butterworths.

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