



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*



Current Agriculture, Food & Resource Issues

A Journal of the Canadian Agricultural Economics Society

Who Owns Carbon? Property Rights Issues in a Market for Greenhouse Gases¹

Travis Allan

Faculty of Law, University of Toronto

Kathy Baylis

Assistant Professor, Food and Resource Economics,
University of British Columbia

The Issue

With the Kyoto Protocol having come into force on February 16, 2005, participating nations face a pressing deadline to develop systems to reduce their emissions of greenhouse gases (GHGs). Any form of GHG reduction that includes a trading component will involve a change in the definition and/or allocation of property rights attached to emission credits, and any change in property rights will affect the ability of governments to efficiently reduce GHGs. Creation of property rights for carbon is complicated by the need to balance 1) clear incentives for firms to invest in emissions reduction with 2) unintentional creation of a lasting right to pollute. In particular, Canada's federalist system poses some unique difficulties for policy makers in designing property rights over carbon. The purpose of this article is to explore the role of property rights in economic GHG reduction schemes, specifically in terms of jurisdiction and allocation, and their relationship to economic efficiency. The article identifies and discusses a number of property rights issues that need to be addressed when establishing an emissions trading regime in Canada.

Implications and Conclusions

While property rights are highly valued from an economic perspective, strong property rights could potentially act as a constraint upon effective emissions regulation. Moreover, the creation of any sort of ownership or property right out of what was once a public good

will lead to noticeable income effects for market participants; these effects will be greatly influenced by government regulation and framework choice. One definitive implication is that property rights need to be clear and transparent, a goal that is complicated by the competing legal jurisdictions in which these rights need to act. In a wider sense, this discussion serves as a stepping stone for further inquiry into the econo-legal issues relating to offset system design.

Background

Coase (1960) originated the now widely accepted theory that assigning ownership of various non-traditional property rights can be an efficient mechanism for limiting pollution. However, establishing the exact details of property rights for an emissions trading scheme can be relatively complex. Each limitation or expansion of a trading scheme, based on goals such as greater efficiency, control or fairness, alters the way property rights related to carbon emissions are deployed and can affect the outcome of the scheme in unexpected ways. For example, efficiency might be improved by clearly delineating property rights between renters and owners and allowing little room for dispute, but such an action might not be deemed as “fair”. Similarly, the government might expropriate rights to previously sunk carbon for the sake of control (and to limit double counting); however, this would likely be seen as unfair and might also reduce investment in sinks, and therefore efficiency. The composition of the property right involved, then, directly affects income distribution and the incentives faced by participants in the system.

In a command and control system, the burden is placed on the resource owner, and property rights are assumed by the government (or the public). While emitters might attempt to claim an implied right to pollute, there are very few successful cases in which the government’s authority to regulate in the public interest has been denied, even if such regulation causes loss of expected income.² In the case of an economic trading system, however, the question of property rights to emit a given amount of pollution becomes more nuanced.

It is practically an economic truism that strong property ownership rights are required in order to give participants enough certainty to participate in a trading regime.³ This requirement leads to some very interesting concerns about the nature of an emissions offset; for example, if a farmer creates a carbon credit through some sort of sequestration process, is this credit a property right? From an economic perspective it is sometimes tempting to assert that such a right is required in order for farmers to create offsets on any large tradable scale. In practice, however, property rights are not nearly as straightforward as this basic view suggests, and in fact strong property rights can actually hinder the operation of an effective pollution reduction system.

A starting point for the concept of property rights is the phrase *Cujus est solum ejus est usque ad coelum et ad inferos*, which, roughly translated, means that whoever owns

the soil holds title up to the heavens and down to the depths of the earth. While appealing because of its simplicity, this principle is clearly inoperable in a modern society with airplane traffic and with government control over numerous subsurface resource rights. In fact, property rights are conceived of as a bundle of rights (Ziff, 2000), meaning that each property right involves a number of sub rights, such as the exclusive right to use, sell, or give ownership to a third party. In some cases, such as a residential property, landowners may have a right to exclude a third party from entering the property on the ground but be completely unable to prevent an airplane from flying overhead (noise regulations notwithstanding). Thus it is insufficient to simply assert, for example, that a given actor must have property rights in order to participate in an offset trading system; the actor must have some property rights, but the exact degree and composition of those rights needs to be explored.

What is the extent of a property right that is required to provide participants with the certainty needed to move forward with an offset permit purchase or generation? An overly strong, temporally unlimited property right might hinder future controls of emission levels by forcing the government to compensate the owners of emission permits for reducing their overall emissions targets. Even though the government, as noted above, has a good track record of winning cases concerning environmental regulation, there is cause for caution. If a firm were given a general right to emit a certain level of GHGs per year, and the government decided that it needed, perhaps in a new commitment period, to reduce this amount, it is very possible that the firm would attempt to claim the right to compensation for government expropriation of its right to emit (Castrilli, 1999, 5-6). Furthermore, a firm generating sinks that is suddenly denied its income stream because of changes in government regulations could take the same action.

While, unlike their U.S. counterparts, firms in Canada are not constitutionally entitled to compensation for *de facto* regulatory expropriation, Castrilli notes that in Canada “the common law always has protected interests in property such that the creation of an allowance or credit trading system would have to be carefully drafted to ensure the ability of regulatory agencies to act” (1999, p. 5 fn. 30).⁴ The threat of being forced to compensate firms is the reason the United States Clean Air Act (1970) states specifically that its allowances do not constitute a property right (section 403.f); it is also why the Marrakesh accord states that “the Kyoto Protocol has not created or bestowed any right, title or entitlement to emissions of any kind on Parties included in Annex I” (UNFCCC, Decision 15/CP.7, November, 2001). As a result, the more realistic concern is what degree of certainty to provide and in which situations to provide it.

In the case of permit generation, one extreme possibility is for the state to simply confiscate all credits generated in a particular sector, thereby ensuring that no property rights can be ascribed to participants.⁵ However, in situations that require investment by private parties, such as the development of new technologies or industries (like sinks), the threat of expropriation can act as a large deterrent to investment and growth. Canadian

farmers and forest owners as well as businesses in general, wary of such uncompensated seizure, will be hesitant to embark on large-scale sink or other credit-generating projects until their investments are certain, that is, until some form of property right is specified in legislation (such as Alberta's sink legislation, discussed below). Sinks, which are generally the product of farm and forestry projects, are an interesting case because, while the government will include sinks in the first commitment period (between 2008-2012), it is possible that sinks will be removed from the list of acceptable Kyoto mechanisms in subsequent commitment periods, as advocated by the EU in the CDM negotiations (see, for example the Summary of the Bonn Agreement, produced at COP-6 Part II in July 2001 (IISD, 2001)). What this means is that, if the government works toward certainty by creating strong property rights to sinks now, they may be setting themselves up for numerous expropriation cases after 2012 (for further exploration of the sinks issue, see Allan and Baylis 2005, 24-25).⁶

Jurisdiction

The above discussion on property rights assumes, for the sake of simplicity, that the federal government will be the primary actor in charge of GHG reduction in Canada and thus will be in charge of creating property rights to emit GHGs and allocating them to various firms, as well as certifying the creation of new credits (offsets) from under-emitters and sinks. Although it was the federal government that signed the Kyoto Protocol, pursuant to its powers over foreign affairs, there is, in fact, no guarantee that it has the authority to run a system to reduce emissions. Depending on the level, or levels, of government in control of the system, practical results could vary greatly in terms of efficiency, inclusiveness of sink proprietorship and legal status of sink credits.

In Canada, the issue of property rights is complicated by a federalist political system. Sections 91 and 92 of the Canadian Constitution Act 1867 (formerly the British North America Act 1867), outline provincial and federal legislative jurisdiction. Problematically, these sections make no reference to the environment per se. While there are a number of clauses that would allow the federal government to assert control of an emissions trading system, such as the clauses known as Trade and Commerce, Peace Order and Good Government, and Criminal Law, there are also issues of provincial competency that might come into play, such as property rights, which have led to "copious provincial variations" (Ziff, 2000) in Canadian property rights law.^{7,8}

Although CFC emissions trading measures under the Montreal Protocol were solely under federal direction (despite federal-provincial cooperation on the protocol in general), the legislation that has been designed by provinces to prepare for emissions trading as listed in Castrilli (1999, 23-33) shows that there is likely to be far more provincial than federal interest in a GHG reduction system. Atkinson (1999) notes that this seeming change of mood is likely a result of two factors: the Montreal Protocol applied to only a small number of firms, and the substances being regulated were not even produced in

Canada. Carbon and carbon equivalents, conversely, are widely emitted and produced domestically, meaning that provincial governments have a far larger stake in the development of any system that limits their emission and controls credits to offset such emissions.⁹

Already, the lines between participating and refusing factions seem to be coalescing. Among other areas of contention, the federal and provincial governments have disagreed over reduction timelines (Government of Alberta, 2002) and the ownership of sinks (Provincial and Territorial Statement on Climate Change Policy, Oct. 28, 2002). While Manitoba, for example, has signed a Memorandum of Understanding for Cooperation on Addressing Climate Change with the federal government, Alberta has decided that it does not want to participate on the Kyoto timeline (Government of Alberta, 2002). Further, the Government of Alberta has taken the rather drastic step of stating that “a sink right is a property right” in section 9 of Bill 37, and has gone on to specify that “‘sink right’ means the legal interest, and any commercial or other interest, in a sink” (section e, ii, f). Interestingly, a sink can really only be defined based on criteria and certification provided by the oversight system, which in this case is controlled by the federal government. As a result it seems possible that the federal government could use its power to seize credits from sink proponents without compensation simply by refusing them certification, a decision that could spark particular outrage against the Kyoto system or lead to perverse actions such as emptying and then refilling previously created sinks.¹⁰

Allocation

Assuming some working consensus is reached regarding the legal nature of credits, and assuming also a functional resolution of jurisdictional issues, there is still the important question of how to allocate emission permits to firms. In any non-rate-based system, emission permits must be initially distributed in a way that is fair, yet also efficient; depending on the size of the trading system, this is likely to lead to important income distribution effects.

Haites and Hornung report that *gratis* distribution to existing firms (or grandfathering) is the least drastic change from the status quo and provides compensation for the decrease in value of capital stock resulting from a new carbon regime (1999a, 19). The authors also note that all past and current programs (as of 1999) had used *gratis* allocation, although they based it on different distributional rules. In general, a grandfathering approach is also more politically palatable than any kind of economic system of allocation because there is more certainty (once the system is established) and incumbents can have direct consultative input on allocation. However, grandfathering will have income distribution effects because it involves the creation and free allocation of a property right to emit a given amount of pollution to those firms that are past polluters.

Crampton and Kerr believe that auctioning is a far better alternative than the grandfathering approach because it “provides greater incentives for innovation, provides

more flexibility in distribution of costs, and reduces the need for politically contentious arguments over the allocation of rents” (1999, 8). Moreover, unlike grandfathering, auctioning does not create barriers to competition that favour incumbents; therefore, it encourages more market participation and dynamic efficiency. However, auctioning may be politically infeasible.

Alternatively, one could use a combination of both systems. The grandfathering approach can function as an intermediate stage before converting to a full auction, (Haite and Hornung, 1999b, 10). Firms would be given a period of full grandfathering before they would be forced to purchase their credits at auction, either all at one time or by having the number of “free” credits reduced over time. This process would allow for emitters to build up institutional experience and reduce the information costs associated with a carbon trading program.¹¹

Once a system for how to allocate the credits is determined, other issues arise related to exactly who gets to take credit for what reductions. Without detailed rules (and with several jurisdictions), a perennial concern in any multilayered carbon trading regime is the potential for firms to engage in double or triple counting. Double counting involves a firm getting credit twice for a single activity¹² or more than one firm receiving credits for the same offset project, which can happen if there is an ownership dispute over a project or the rules linking trading systems are unclear. Within a single carbon trading system the danger of double or triple counting can be minimized by having one well run, central regulatory agency in charge of issuing permits resulting from offset activities. However, no system could ever anticipate all ownership disputes, and in situations without clear rules, negotiation is really the only way to proceed (Rolfe, 1998). For example, in the Canadian Voluntary Challenge and Registry Program, which asked Canadian firms and municipalities to voluntarily report their emissions and create action plans to reduce them, Rolfe notes that some projects have been claimed not just by two, but sometimes by four or more parties (1998, 221). However, the need for negotiation with the owner could also be enough of a deterrent to make a sink unprofitable for a leasing farmer or forester, particularly when the owner is the government and negotiation involves working with multiple layers of bureaucracy.

Summary

This discussion of the emerging Canadian GHG emissions reduction system has shown how useful it can be to pay attention to the role of property rights in system design. In a general sense, existing rules and incentives based on property rights have a role in system design, jurisdiction and the allocation of credits; at the same time, the nature of property rights granted to system participants is affected by government and judicial decisions on many of the same factors. An exploration of these issues has shown that property rights, far from being straightforward instruments of ownership, are nuanced and highly

important to any system that essentially creates permits and offsets out of thin (or thickening) air.

While the government must provide adequate credit ownership rights to allow firms to own permits to emit pollution, and must also protect sink and offset generators' abilities to make credits so that investors are willing to create more credits for trade, there must be some limits to these rights. Specifically, 1) all reduction and sink projects must undergo some form of certification to meet domestic and international standards; 2) legislators need to make certain that any property rights created by the emissions trading system are not so stringent as to ensure owners (full) compensation for future reductions and regulatory changes; 3) proper regulation and accounting mechanisms need to be in place to prevent double counting; and 4) rights need to have a "rental" provision that allows for the use of temporary offsets such as sinks. Attempts to follow these steps will be hindered by jurisdictional disputes with various provinces, which claim that the federal government does not have sufficient constitutional authority to impose an emissions trading scheme upon their citizens. Until settled, these jurisdictional issues limit the degree to which Canada can deliver a transparent, credible and binding emissions trading system.

Finally, we touch briefly on some of the issues surrounding the allocation of property rights. Particularly with a broad-reaching trading scheme, such as the one currently under discussion in Canada, the creation of credits can confer with them a substantial financial asset. Because of this large transfer of wealth, the manner in which credits are initially allocated will be hotly contested, and political inertia may limit the degree to which the most efficient system of allocation can be arrived at. As well, because of concerns related to conflict over credit ownership (e.g., a conflict between a landowner and an operator) the government needs to be wary of double counting. Double counting (and the aforementioned jurisdictional dispute) is of particular concern if Canada is to avail itself of international emissions trading opportunities, where our trading partners will need to be assured of the security and transparency of our property rights regime.

References

- Agricultural Producers' Association of Saskatchewan. 2003. The impact of climate change on the agricultural and forestry sectors. Regina: The Association.
- Allan, T., and K. Baylis. 2005. Property rights and climate change: Legal issues and economic consequences. CSALE working paper. Saskatoon: University of Saskatchewan.
- Banks, N., and A. Lucas. 2004. Kyoto, constitutional law and Alberta's proposals. Working paper, University of Calgary.
- Boom, J. 2001. International emissions trading under the Kyoto Protocol: Credit trading. *Energy Policy* 20: 605-613.
- Canadian Intergovernmental Conference Secretariat. 2002. Provincial and Territorial Statement of Climate Change Policy, at the Joint Meeting of Energy and Environment Ministers, Halifax, Nova Scotia.

- Castrilli, J. 1999. Legal authority for emissions trading in Canada. In *The Legislative Authority to Implement a Domestic Emissions Trading System*, ed. Elizabeth Atkinson. Ottawa: National Round Table on the Environment and the Economy.
- Coase, R. H. 1960. The problem of social cost. *J. Law Econ.* 3(Oct.): 1-44.
- Crampton, Peter, and Suzi Kerr. 1998. Tradable carbon allowance auctions: How and why to auction. Washington, D.C.: Center for Clean Air Policy. March.
- The Herald* (UK). 2003. Forest owners: Nationalisation of Kyoto credits is theft. Dec. 29.
- Government of Alberta. 2002. Albertans and climate change: Taking action.
- Government of Canada. 2004. Offsets system policy development current status. Presentation to the Federal Provincial and Territorial Sinks Committee. May 28.
- Haites, E., and R. Hornung. 1999a. *Analysis of Options for Gratis Distribution of Allowances*. Ed. E. Atkinson. Ottawa: National Round Table on the Environment and the Economy.
- . 1999b. *Analysis of Options for Distributing Allowances by Auction*. Ed. E. Atkinson. Ottawa: National Round Table on the Environment and the Economy, January.
- IISD (International Institute for Sustainable Development). 2001. Earth negotiations bulletin: Summary of the Resumed Sixth Session of the Conference of the Parties to the UN Framework Convention on Climate Change (the Bonn Agreement). July 2001, <http://www.iisd.ca/vol12/enb12176e.html>.
- Rolfe, C. 1998. *Turning Down the Heat: Emissions Trading and Canadian Implementation of the Kyoto Protocol*. Vancouver: West Coast Environmental Law Research Foundation.
- UNFCCC (United Nations Framework Convention on Climate Change). 2001. Decision 15, Principles, nature and scope of the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol, at Conference of the Parties 7. Marrakesh.
- Ziff, B. 2000. *Principles of Property Law*. Scarborough: Carswell

Endnotes

¹ The authors would like to thank Dr. Shi-Ling Hsu and Dr. Robert Gateman for their helpful comments, and Biocap Canada for funding.

² In *Steer Holdings v. Manitoba* (1992), 48 L.C.R. 241 (Man. C.A.), a landowner who had proposed a commercial development that was subsequently barred by statute was held by a provincial court not to be entitled to compensation. In general, landowners are not guaranteed compensation for changes in regulations.

³ See, for example, Castrilli (1999, 5-6) and Rolfe (1998, 389).

⁴ In the United States, firms are entitled to compensation for “takings” under the 5th Amendment to the U.S. Constitution.

⁵ The Kyoto Forest Owners’ Association, a group of New Zealand forest owners formed to combat the New Zealand government’s decision to take ownership of forest sinks, called their government’s move “possibly the largest private property theft in New Zealand’s history” (*The Herald*, 2003).

⁶ There may also be some issues that need to be addressed regarding the transfer of rights from the creators of temporary emissions credits to purchasers.

⁷ There are a number of very specific guidelines regarding what type of legislation the Supreme Court permits under the Peace Order and Good Government clause; these guidelines severely limit the federal government's options related to laws that have to do with, among other things, "national concern" involving "singleness, distinctiveness, and indivisibility that clearly distinguishes it [national concern] from matters of provincial concern on a scale that is reconcilable with the fundamental distribution of legislative power under the Constitutions" (*R. v. Crown Zellerbach Canada Ltd.* [1988] 1 S.C.R. 432).

⁸ Castrilli (1999) and Rolfe (1998) agree that the federal government has the competency to run the system, but they disagree with each other as to which section of the constitution confers the jurisdiction. Castrilli argues that the right comes from the Trade and Commerce section, while Rolfe argues in favour of the Peace Order and Good Government clause.

⁹ Bankes and Lucas (2004) explain that Alberta is within its constitutional competency to pass Bill 37 (which established the Alberta climate change plan) based on its provincial control of property and civil rights, and potentially also based on the Local Works and Undertakings, Residual, and Matters of Local and Private Nature clauses.

¹⁰ The Government of Canada has determined that offset credits in Canada will only be allocated to projects that began after 2002 (Government of Canada, 2004). This may seem particularly unfair to farmers who have undertaken GHG sequestering activities since 1990 (Canada's base year) and before the 2002 cut-off, because the GHGs these actors have sequestered will provide no returns, while the federal government gains the full benefit of their sequestration toward its GHG reduction targets.

¹¹ Some countries (the Netherlands in particular) propose exempting firms in the international market from reducing their emissions at all (Boom, 2001). One drawback to this type of system is that there would likely be great political contention over which sectors should be considered subject to international competition.

¹² Note, however, that there are situations in which a double claim is acceptable, for example, if a firm claims a credit for a federal and also a parallel but unconnected provincial program, so long as only one of those programs created a corresponding Kyoto assigned amount unit, or AAU.