

The Political Economy of International Emissions Trading

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The Kyoto Protocol provides an important lesson in the development of international environmental agreements. It demonstrates that simplistic, and seemingly uniform approaches to policy which are likely to be ineffective are not necessary in order to reach agreement. The Kyoto outcomes are relatively modest, but they are steps in the right direction—in the direction of the development of workable policy instruments that have some prospect of being ratified and honoured (although it must be acknowledged that US ratification is problematic, and Parties will be looking to Washington before they act).

Kyoto represents the failure of the ‘blame and shame’ tactics adopted by NGOs, which sought to accentuate the moral case for protection from climate change and supported the European position for uniform cuts—for everyone but themselves. Uniform emission targets were not only politically infeasible, but—because of different abatement costs in different countries—inefficient (unless factors such as energy taxes were to be harmonised first).

The European case never rose above European interests, for all their posturing, and all the NGOs did was to increase moral pressure on non-European governments to support a proposal which favoured Europe. Even the selection of 1990 as the base year in FCCC—the year which so favoured Europe—came about as the result of European action. Article 4 of the FCCC providing for stabilisation *at 1990 levels* resulted from a last minute compromise in the last INC meeting before Rio brought in by the US and UK in April 1992 (Jäger and O’Riordan, 1996: 19), but this reflected a prior agreement within the EU where a joint council of Energy and Environment Ministers in October 1990 agreed to stabilise emissions in the EU as a whole at 1990 levels by 2000, and urged other industrialised nations to do the same (Haigh, 1996: 161).

The general perception created was one of Europe leading the industrialised world on this problem, with nations like Australia dragging the chain, having failed to honour out Rio commitments and alone seeking to defend our interests. The reality is that the European achievement was entirely due to the fortuitous circumstances of the end to subsidised coal mining, Britain’s ‘dash to gas’ and the collapse of the economy of the former GDR. A recent study of the European Union’s deliberate response to climate change concluded that it had manifestly failed to implement an effective response (Collier, 1996). The non-European Annexe I members had performed no worse, and their insistence on being able to share the gains of other collapsed economies in transition under an ‘umbrella’ mechanism to rival the European bubble proved to be the only way out of the Kyoto impasse, which was clearly of European manufacture.

Many have previously seen Montreal, with its precedent of international agreement in the face of a scientific consensus, as the model for FCCC, but climate change entails activities which are of central importance to the national interests of industrialised states, whereas the ozone issue affected a few chemicals of marginal importance, for which some industrial interests made substitutes. Climate science is also much more complex and much more uncertain, especially with regard to the effects of climate change. Interests and the negotiation of interests must be seen as indispensable to the successful conclusion of effective multilateral environmental agreements (Sprinz and Vaahtoranta, 1994; Kellow, 1997), rather than obstacles to effective policy.

Climate change inevitably raises ethical issues which must also be taken into account when framing policy responses (Grubb, 1995; Shue, 1995), but we should be careful that these do not stand in the way of developing effective policies, by ignoring political economy. For example, questions of fairness are important: we should not expect the poor to pay equally for abatement, especially since most Developing Countries have not contributed equally to past emissions. But we must be careful that our sense of justice, when combined with the realities of international politics, does not produce unjust outcomes.

One of the most obvious examples of this is the combination of the quite supportable ethical position just outlined with the bloc politics of the G-77 in the FCCC. Not only is there no justice in Singapore (an extremely high per capita emitter, and a more affluent nation than, say, Portugal) being exempted from obligations to reduce emissions, but the same sense of justice at the present moment requires a street kid in New York to bear reduction costs, while exempting the Sultan of Brunei. This, of course, is an extreme example, but a valid one: it is estimated that there are 500 million people in the South who emit greenhouse gases at a per capita level higher than the average Swiss citizen (Sandbrook, 1977: 650).

How Should We Reduce Carbon Emissions?

These introductory remarks lead us to consider what kind of policy instruments might be adopted to mitigate GHG emissions internationally.

Uniform percentage reductions using regulatory approaches are clearly inferior, especially since they are capable of producing counterproductive effects by creating perverse incentives (Maloney and Brady, 1988), and Kyoto reflects an awareness of this. But such approaches sit well with the 'blame and shame' approach which (inappropriately, I have suggested above) locks the problem into the North-South debate. Economic incentives, while usually more effective instruments, are not universally preferred. For reasons I shall elaborate shortly, an emissions trading regime is to be preferred to the main alternative of an international emissions tax, but this continuing opposition to either (largely because of an ethical objection to any permissive approach to the 'sin' of pollution) could result in difficulties being created in negotiations leading to the development of an emissions trading regime.

The incorporation of emissions trading into the Kyoto Protocol was not accepted ungrudgingly by all. These interests could well work to monkeywrench the highly

complex negotiations which must now occur, by attempting to burden the regime with unworkable or unreasonable requirements. Care will be needed to avoid this.

Why is emissions trading to be preferred to taxes? A uniform carbon tax applied in all countries will achieve welfare efficient abatement if the tax is set at the marginal damage costs of CO₂ emissions, but therein lies the problem: we do not know the exact nature of physical damage, let alone its value. Besides, if such taxes are to be collected domestically, we have a compliance problem, since they could be partially offset by governments reducing existing energy taxes, thus undermining the effectiveness of the international tax. If carbon taxes were to be collected internationally, it would have required a degree of loss of sovereignty which was not consistent with the FCCC. There is no precedent for some supranational agency collecting taxes.

One additional problem is that international taxes, when combined with the double standards provision of the FCCC, could encourage carbon leakage, since taxes would suppress demand in Annex I nations, thus resulting in lower world prices for fossil fuels, and encouraging increased consumption in non-Annex I nations.

Tradeable permits are regarded as preferable to taxes when the costs of abatement are known with greater certainty than the costs of potential damages and there is a significant probability of catastrophic damage (Pearce and Turner, 1990). These conditions certainly obtain with GHG emissions. Once emission permits have been distributed, their value can reflect both developing views of the seriousness of the problem and the cost at which abatement can be achieved, and the market can reflect both changes in scientific knowledge and technological advances without governments having to readjust the level of taxes. If there are significant advances in photovoltaics, nuclear fusion, or CO₂ removal from power station emissions, permits will have a lesser value and this will be reflected in the cost of electricity from fossil fuels.

The creation of a market in permits—including a futures market to guide longer term infrastructure decisions—has considerable appeal to economists. Such a market ‘should automatically clear at the global marginal cost of CO₂ control, thus eliminating the centrally determined estimates of such costs needed to impose an international tax.’ (Mabey *et al* 1997:31) The use of such market instruments is preferred by economists as an alternative to heavy-handed ‘regulation’, but it must be remembered that they must be underpinned by regulation. This is most obvious when we consider compliance issues in a market for permits, since some form of penalty must be set if nations emit more carbon than they have permits for. Such fines must be sufficiently punitive to make default less attractive than compliance, and must be levied by some international body, so sovereignty issues are to be found with emissions trading as well as taxes.

Permit trading between nations of their allocations would also permit them flexibility in their own use of policy instruments to meet their targets—taxes, regulation, subsidies or national-based trading schemes. This flexibility extends, of course, to the international level. Nations can choose whether or not to trade once the distribution of entitlements is

decided, and can make their own decision based on their assessment of abatement costs and other national circumstances.

The Kyoto Protocol allows international trading between firms, and while it does not make the establishment of a domestic emissions trading regime compulsory, it is highly likely that nations will decide to establish such systems as a means of integrating domestic climate change policy with the international system. Such developments raise all kinds of questions, and the full ramifications will only emerge with time. Divisions will emerge between industrial sectors—most obviously between ‘sink’ sectors (such as forestry) and emitting sectors. It will take some considerable time for the details of such a system to be spelled out and for all these sectors to understand how their interests are affected.

One suspects, therefore, that the timetable the Parties to the FCCC have set themselves to address these matters by COP-4 in Buenos Aires later this year is unrealistically optimistic. There will meantime be considerable uncertainty over how initial entitlements will be distributed and how a trading system will operate. There is a strong case for national governments to spell out as much detail as soon as possible. This is to remind us that markets depend on government actions for their functioning.

Government Provisions for Functioning Markets

Theodore Lowi (1993) has spelled out the functional prerequisites of a market which governments must provide. We often take these for granted, but at times such as this, when we are attempting to establish a means of trading emission permits, they provide a useful checklist against which we can measure the size of the task of establishing emissions trading at both the national and international levels.

The Provision of Law and Order

Markets cannot function without the establishment of law and order, As Lowi (1993:20) put it, ‘Predictability in human affairs obviously precedes everything else.’ In the nation-state, the required predictability is provided fundamentally by military conquest, to which is added what Max Weber described as ‘calculable law’, which he saw as a necessary precursor for the development of capitalism. This cannot be imposed by coercive means in the international system, where nation-states (to all practicable purposes) accept responsibilities, rather than having them thrust upon them. Such predictable law is in contrast to the arbitrariness of royal ‘cheap justice’ against which Adam Smith railed, and is the basis of the concern of any corporation with what became known as ‘sovereign risk’. Sovereign risk can never be zero, but it has to be minimised if the predictability necessary for emissions trading is to be achieved.

In addition to the prospect of an international regime making arbitrary decisions at some time in the future, one important problem for international trading in GHG permits relates to the uncertainty which exists in the science of climate change. If there is considerable uncertainty over how many permits might be granted either now or in the future as the climate change science works itself out and as the market is potentially expanded to accommodate new players, then this very considerable *nonsovereign* risk will affect the workings of the market and impact upon the extent to which the correct price signals are

conveyed so as to ensure appropriate economic adjustments and abatement measures. The continuing uncertainties in the science suggest that this is likely to be an important factor, and credits for abatement under the Clean Development Mechanism will also constitute new entitlements which will affect the market price.

There is an additional problem for trading at the international level when nation-states which are parties to any agreement have not achieved conquest within their own borders. This applies equally well to international regulation as to emissions trading, but it needs to be addressed. If Russia, for example, is unable to prevent the manufacture of CFCs within its borders, despite being a party to international agreements to do so, we are well advised to treat with caution any system which requires them to enforce permits to emit GHGs, marketed or otherwise. And they—and most other states—are likely to invoke sovereignty norms very quickly at the merest suggestion of any international monitoring.

Provisions for Property

A related provision which must be made is for the establishment of property rights *and the means for extinguishing them*. Property is commonly defined as something which is owned, and ownership requires not just the prohibition of theft, but the prevention of trespass, so that we can enjoy, use, consume or alienate our property.

The establishment of property rights is more obvious, but at the national level the state retains the right to resume property for some public purpose. The state frequently holds back mineral rights separately from other property rights in land, and it also acquires land for public works, taxes capital and conscripts labour. It also extinguishes property rights in cases of bankruptcy.

Using property rights for controlling pollution has typically involved some kind of ‘sinking lid’ which will bring about reductions in total emissions while allowing prices to provide signals and individual firms to make decisions about how and where reductions will be made. What does this mean in the international context? At the least it means that we need to specify in international negotiations not just how rights to emit GHGs will be established, but also provide mechanisms by which they might be disestablished (including some indication of the circumstances under which this might be done if non-sovereign risk is to be minimised).

Provisions for Contract Enforcement

Contract relations between individuals became increasingly necessary in an economic system when people dealt increasingly with strangers. Contracts are agreements to control some aspect to the future, and they presuppose that the state will provide a near absolute guarantee that breach of contract will be substantially more expensive than observance.

The honoring of contracts has become habituated at the national level, but this is only because we have recourse to the court system and beyond that the full coercive power of the state if we are wronged. (Fear of loss of reputation might be a sufficient reason to

honour obligations under many circumstances, but there are time when the gains of defaulting are sufficiently large to constitute an overwhelming temptation).

Lax enforcement of contracts is a recipe for disaster, and any international emissions trading regime must be underpinned by a system which will make defaulting on contracts an unacceptable proposition. This will require the use of sanctions of some kind, and will inevitably entail some loss of sovereignty by national governments. But what sanctions will work? Being suspended from trading might be one, but this is likely to run the risk of driving parties from the bosom of the international community committed to emissions reduction—which might be attractive to them, and is possible under the Protocol at twelve months notice three years after it enters into force. This is why trade sanctions appeal to many, despite the shivers they send through the trade community, but it is also the fundamental reason why national interests must be negotiated in MEAs.

Provisions for Exchange

Another issue which needs to be decided is the circumstances under which property can be exchanged. Nation states do not always allow their citizens to sell everything that is theirs. They often own products which are deemed harmful and these routinely cannot be traded. Other commodities can only be sold under specified conditions.

And even if trade is permitted, there have to be agreements for standardisation of uniform weights and measures. The work thus far on the Global Warming Potentials of different GHGs should provide this, but we need to be reasonably certain that the numbers are as solid as possible—bearing in mind the number for methane (for example) has undergone considerable change during the course of the IPCC process thus far.

There will also need to be standardised means of estimating emissions. Actual emissions will be too difficult to measure. Using input measures will do nothing to encourage the efficient combustion of those inputs. And what will be required for verification? Will sovereignty be relaxed to allow international verification, or will self-regulation be considered sufficient? (It is worth remembering that successful self-regulation at the domestic level usually takes place within a larger framework of state regulation).

Provision for Conveyance of Public Domain to Private Hands

Governments must distribute as private property that public property they have established by conquest. States often set limits on the conveyance of public domain into private hands, limiting private conveyance of mineral rights, rights of way, and (sometimes) limiting the extent of private ownership to leasehold rather than freehold.

One question here, is whether developing countries (if they are to be included in any trading regime in the future) should be permitted to alienate their emission rights indefinitely in exchange for a sum which might be very tempting at this stage of their development, or whether they should be permitted to sell only rights to emit for some specified period.¹ An African nation was once offered a sum to store hazardous waste

¹ I am indebted to John Tisdell for this point.

which exceeded its GDP. After Kyoto, are we dealing with something like rights in perpetuity or leasehold rights? I take it we are dealing with rights to emit specified amounts of carbon in specific budget periods. If we are to prevent current political leaders from selling the birthright of future generations, we had better decide this at the outset, and limiting future Developing Country trade to leasing could be an important feature in ensuring acceptability.

Provision of Social Overhead Capital

Governments must also provide a number of public goods which form part of the 'social overhead capital'—the media of exchange, the media of transportation, the media of communications, and the means of national defence. These can probably be assumed to be provided by the UN system for emissions trading, although the quality of the media might be open to question.

The Challenge for Buenos Aires

This list of prerequisites for the function of a market in emission permits is suggestive of the enormity of the task confronting governments, both domestically and as Parties to the Convention and as potential Parties to the Protocol.

There would appear to be insufficient time between now and COP-4 for these functional prerequisites to be defined and designed, let alone negotiated. One suspects that we are looking at the prospect of a Buenos Aires Mandate, followed by another series of meetings of an *ad hoc* group. Yet while there are grounds for short-term pessimism—at least that the timetable agreed in Kyoto is overly ambitious—international climate change policy is headed in the right direction.

For reasons discussed earlier in this paper, emissions trading is a superior policy instrument to either regulated uniform cuts or international emissions taxes. If entitlements are distributed initially much in line with existing uses and reflecting national determinations of what abatement costs might be, their initial impact need not be too severe and industry will not oppose them as vigorously as they would taxes. Questions arise over such issues as entitlements for new industries, but there is no reason why they cannot be purchased from sink industries such as forestry or from those making energy efficiency gains or other means of abatement. This is likely to affect the competitiveness of location in Australia only marginally for most industries, since energy costs are only one of several locational factors. Given that brownfields expansion in sectors such as aluminium smelting is likely to be cheaper than greenfields expansion elsewhere, and given that Australia still has substantial reserves of cheap coal, assigning property rights to carbon emission entitlements will not have the same impact on Australia's future economic prospects that a percentage reduction with no trading would have—while still creating incentives for emission reductions and sink creations.

There is the opportunity, with emissions trading, for all this to occur in a way which continues to be flexible to the emerging science over both the extent of climate change and its distribution of costs and benefits, in a manner which is not possible with taxes, because

one needs a good idea of the amount of the damage in order to set the rate of tax. Such was the achievement of Kyoto.

There are many issues which will have to be worked through. The incorporation of reductions in land clearing in Australia's allocation is one such. While it does give us a larger base from which to work, it raises the question of how the gains resulting from reductions in clearing rates since 1990 should be distributed. And, in a related question, who should benefit from sink creation paid for under the National Heritage Trust Fund? There are many issues relating to land clearing and sinks which will raise some thorny issues for the Government in dealing with the rural sector, including the need (presumably) to enforce covenants over land-based sinks to ensure that subsequent landholders continue to manage them so as to fix carbon.

The superiority of emissions trading as an instrument makes the likely benefits worth the effort of working through these issues, but they are not likely to be resolved in time for Buenos Aires. It is also important to sound a note of caution about the possible unintended environmental effects which might flow from the introduction of emissions trading, since we should not think that by addressing carbon emissions we have dealt effectively with all the externalities associated with energy production and use.

Enthusiasts for different energy sources—on technical grounds or out of economic interest—are all prone to understate the downside of the technology they support so enthusiastically. In the early 1980s, I can recall the Tasmanian HEC telling us (land use and wilderness values aside) that hydro-electricity was non-polluting. This ignores the temperature pollution which can kill wildlife when water is released from deep storages, the supersaturation with nitrogen which can result from releases from high spillways, and the heavy metals which can be mobilised from vegetation and geological formations. And we now hear of estimates that the methane released from the creation of a hydro storage in some locations could have an effect on climate change equivalent to burning fossil fuels to burn the same amount of energy such a dam might generate over its lifetime.

There is no such thing as an environmental free lunch. Coal produces all kinds of pollution, including dispersed releases of radioactivity, and CO₂ is far from being the only issue. This principle extends to many of the technologies advocated so enthusiastically on the grounds that they are renewable. The largest wind farm in the world, at Altamont in California, has a visual impact, makes noise, causes soil erosion and kills birds—more per annum than killed by the Exxon Valdez. (The Audubon Society and Sierra Club are not too supportive of windpower, and the latter has called wind towers the 'Cuisinarts (blenders) of the air'). Solar thermal and photovoltaic arrays also have similar impacts, and photovoltaic cell production gives rise to emissions of toxic arsenic, gallium and cadmium. (Note that the land requirements for central photovoltaic arrays are 2-4ha of installed capacity, and solar thermal slightly more—see Bradley, 1997).²

² It should be noted that Bradley is an enthusiast for gas, but this underscores the need for the different interests on issues such as climate change to probe the weaknesses of different schools.

The point here is not that we should necessarily avoid such technologies (many of the impacts listed above can be minimised with careful siting, for example), but that we should exercise precaution, and be careful about rushing blindly in new directions in our response to the climate change issue. For this reason, attempts at 'green energy' labelling which exclude coal-bed methane but include the renewables listed above (see, for example, SEDA 1997) are open to question. Given that coal is likely to be extracted in Australia to some extent for the very long future, using a significant GHG to produce energy when it would otherwise be vented to the atmosphere should not be disapproved of.

Like all environmental problems, responses to the climate change issue should be focused on achieving acceptable outcomes for humans attempting to live on earth, not about earning points in heaven. Emissions trading fits that bill, but it will be difficult to achieve. We need to be sure that its permissive approach is not undermined by those who see it as sinful.

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