



**Sharing the atmosphere: A proposal for
an equitable and sustainable global
trading scheme for greenhouse gas
emissions.**

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CSGR Working Paper 264/10

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February, 2010

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Abstract

An emissions trading scheme is likely to be an important component of the post-Kyoto global regime for reducing greenhouse gas emissions, primarily for economic reasons. Like most tradable permit schemes that have thus far been adopted, notably in the United States and Europe, it is expected that a global greenhouse gas emissions trading scheme will be based on the 'grandfathering principle', allocating entitlements to emitters on the basis of existing levels of emissions. The paper argues against this common practice as being ethically problematic and, more broadly, that the desirability of tradable permit schemes depends in large part on how social and political implications have been incorporated into their design. A case is made for the allocation of emission entitlements on an equal *per capita* basis to all individuals, but for the management of entitlements by specially designated community bodies (Community Carbon Trusts) on behalf of citizens. Such an approach, based on the notion of 'individuals-in-community', is not only ethically more defensible, but also has the potential to enhance local/regional capacity to mitigate and adapt to climate change, to promote sustainable development, and to enhance democracy, without compromising the economic rationale (cost-efficiency) for the adoption of emissions trading.

Key words: emissions trading, emission rights, environmental space, communities; 'individuals-in-community', sustainable development.

Introduction

Given the likelihood that a post-Kyoto climate change agreement will include provisions for trading greenhouse gas (GHG) emission rights (carbon credits), it is timely and important to look more closely into the merits (or otherwise) of emissions trading systems (ETS), in particular with regard to the issue of the allocation and distribution of entitlements. Thus far, ETSs and other tradable permit systems have allocated entitlements to those historically responsible for emissions or the exploitation of resources (the ‘grandfathering’ principle). There are, however, strong reasons for challenging this practice, and for advocating the allocation of entitlements to all people, in line with the *per capita* distribution principle.

This article argues that GHG emission rights, if they are to be granted, should be distributed on a globally determined equal *per capita* basis, but collectively managed by community bodies (Community Carbon Trusts – CCTs) on an ‘individuals-in-community’ basis, instead of being granted or sold by governments to (big) emitters. The approach advocated here is not only ethically more justified, but offers significant socio-environmental advantages to communities and has the potential to enhance democracy. It thus provides an example of how a significant environmental challenge can be met in a more positive way than by the prevailing approaches based on narrow, mainly economic, considerations.

This article will, first, discuss shortly the idea of emissions trading and its growing popularity with regard to the control of global GHG emissions. Second, it will focus on the issue of the allocation and distribution of entitlements, discussing general principles commensurable with the Contraction and Convergence and Environmental Space approaches. Third, the more specific elements of a scheme in which emission entitlements are formally allocated to individuals but managed collectively by communities, and its potential for boosting sustainable development, are discussed. Finally, some thoughts will be given to the political merits and feasibility of these ideas.

Emissions trading: An idea whose time has come?

The idea of trading emission permits finds its roots in economic theory (Baumol and Oates, 1988: 424; Bertram, 1992). In essence, it is based in the assumption that by allocating property rights to (portions of) a public good, the collective and individual interests in that good can be harmonised and effectively protected. Thus, the ‘Tragedy of the Commons’ scenario which often befalls common property resources (Hardin, 1968),

in which the 'rational' pursuit by individuals of their interests leads to the destruction of a common good, can be avoided.

In the context of public 'bads' such as pollution, tradable permits can be allocated to the existing (or slightly lower) level of pollution, with the total amount allocated being gradually reduced over time to finally achieve a level that is considered sustainable or acceptable. All (major) emitters of the pollutant in question are required to obtain permits for the amount that they emit, with permits being either granted for free or having to be bought (via auction or on the market). The market price of permits will reflect their relative scarcity (the extent to which the existing level of emissions exceeds the total level of emissions for which permits have been issued). The higher the price of permits, the stronger the incentive on polluters to reduce their emissions. Ultimately, economic theory tells us, all emitters will try to reduce their emissions to a level where the marginal costs of doing so equal the benefits. In this way, the collective reduction of emissions is achieved most efficiently, as all polluters reduce their emissions at rates reflecting the differences in costs and benefits associated with reduction.¹

The idea of applying the notion of a tradable permit system to global CO₂ emissions emerged in the late 1980s. It was first raised in 1989 in a study commissioned by the Ministry for the Environment in New Zealand (Bertram, *et al.*, 1990) and subsequently caught the attention of the Intergovernmental Panel on Climate Change (IPCC) and other analysts (Grubb, 1989). Since then, its popularity has grown among governments and industries, especially with the increase in concern about global warming and the build-up of pressure for more effective action. As the costs of reducing carbon dioxide emissions varies across industries, sectors and nations, a tradable emissions scheme for such emissions seems more attractive than blanket regulation based on standard requirements across economies. Another option, a globally agreed carbon tax, offers less certainty in terms of achieving a desired level of emissions reduction, takes away money from people when they need it most, and cannot provide the steady signal that is required for meeting long-term policy objectives (Fleming, 2007: 33).

In recent years, interest in emissions trading has grown considerably. To meet their emissions reduction targets under the Kyoto agreement, a growing number of countries, including Denmark, the Netherlands and the United Kingdom, have adopted proposals for putting in place greenhouse gas emissions trading systems. By 2003, some 47 carbon trading schemes had been introduced, most of which in Europe (Hasselknippe, 2003). In 2005, interest in emissions trading was boosted significantly with the entry into force of the Kyoto Protocol, and when a trading scheme became operative at the EU level (Dunn

and Flavin, 2002; Euraktiv, 2005). It has been noted that, based on current emissions projections, countries that have signed up to Kyoto will be relying heavily on these trading mechanism to meet their commitments (OECD/IEA, 2005: 64).

Although emissions trading scheme have become more popular, they are not without issues. Evaluations have pointed out a mixed bag of results regarding their environmental effectiveness and efficiency gains (Hahn, 1995; Tietenberg, 1992b; 2003). A wide range of issues and obstacles to their 'optimal' functioning in line with the expectations promised by economic theory have been identified, including gaps in information, transparency, monitoring and verification, insufficient or wrong incentives, low prices and/or uncertainty about the long-term price of carbon, and high transaction costs, and inadequate monitoring and enforcement (Tietenberg, 1992b; 2003). Many of these problems can be regarded as design issues that may well be reduced or resolved with time and experience. However, some are fundamentally political and relate to the preponderant role of governments, more or less influenced by vested interests, in the design and implementation of such schemes. There will always be a discrepancy between the optimal models designed in economic theory and 'really existing' models, among other, because political rationality leads governments to grant concessions to powerful interest groups. Moreover, in plain terms, parties often have strong incentives and plenty of opportunities for cheating (Davies, 2007; Davies and Adam, 2007; Lipow, 2007). All these problems, and past records, cast doubt on the claim that emissions trading schemes and other tradable permit schemes are indeed more efficient, effective and cost-effective in tackling environmental problems than more traditional forms of regulation (Lipow, 2007).

Doubts about emissions trading are not just fed by discrepancies between their theoretical economic advantages and performance in practice. They are also based on social and ethical concerns. The (relative) merits of tradable permits schemes should not be judged solely or even primarily on economic (efficiency) grounds. Political, social and ethical considerations have a significant role to play in their adoption or rejection, even if the economic advantages of such instruments can be demonstrated. Some have argued that the use of economic instruments to address pollution, for instance, is *inherently* unethical, as they fail to stigmatise and punish behaviour that knowingly harms people and the environment (Kelman, 1981), and that this can be compared to the medieval practice of selling indulgences by the Catholic Church (Goodin, 1994). However, other policy instruments are not necessarily less problematic in this respect.² The argument advanced here is that the merits and demerits of tradable permit schemes need to be assessed more broadly, to include social, and political as well as economic and ethical

issues. Whether emissions trading, or for that matter any other tradable permit scheme is desirable, it can be argued, depends in large part on whether their ethical, social, and political advantages as well as their environmental effectiveness and economic benefits, compared to other approaches, can be convincingly demonstrated. To a large extent, these merits depend on the *design* of these instruments, including to *whom* entitlements are allocated and *how* they are distributed.

Allocation and distribution

Here, the term allocation will be used to refer to whom emission entitlements (or pollution permits) are granted (whether for free or for a price), while distribution refers to how much holders of such rights are allocated and to the spread or concentration of emission rights, also as the result of trading.³ Although interrelated, these issues also raise different questions. Obviously, allocation affects distribution (as those who are not entitled to permits do not receive any), but permits can be distributed more or less equally among those who are entitled. Who is entitled is the primary question; how entitlements should be distributed depends on how that question is answered as well as other considerations.

Both questions are fundamentally ethical and political. In economic theory, it does not matter how entitlements are allocated, as different forms of allocation are cost-effective as long as permits are distributed in a way that all holders are ‘price-takers’, transaction costs are low, and entitlements are fully transferable (Tietenberg, 1992a: 129; 2003: 401, 410-412). Economically, there are no compelling reasons for allocating rights to the poor rather than to the rich, or to emitters rather than to those affected by emissions. From an economic point of view, the distribution of entitlements is of concern only to the extent that their concentration would result in holders being able to use their (monopoly, oligopoly) position to influence price and trading. This does not mean that tradable permit schemes *cannot* be used to address equity issues. As Tietenberg notes: “...the initial allocation can be used to pursue fairness goals without lowering the value of the resource” (Tietenberg, 2003: 411), but this simply has been avoided. From an ethical and political point of view, however, allocation and distribution issues, also with regard to GHG emission entitlements, are highly significant.

Allocating emission entitlements to *all* people on an *equal per capita* basis has been justified on the basis of the simple moral principle “that every human being has an equal right to use the atmospheric resource” (Grubb, 1989: 37). That all people should have an equal right to such a vital resource for human life as the atmosphere is a principle also

underwritten by those who advocate an ‘environmental space’ (ES) approach. The ES approach is based on three main tenets: the existence of environmental limits, the linkage between environmental limits and resource consumption (‘throughput’), and sharing environmental space on a *per capita* basis (Bührs, 2004; Carley and Spapens, 1998; Hille, 1997; Sachs, *et al.*, 1998).

The ‘Contraction and Convergence’ (C&C) approach, which also assigns, in principle, an equal *per capita* ‘right’ to GHG emissions to all people, and expects emissions of all countries to converge to that level by a set date, can be seen as an application of the ES approach. (Kuntzi-Reunanen and Luukkanen, 2006; Meyer, 2000; Najam, *et al.*, 2003; Pearce, 2003). Although initially dismissed as idealistic, there are signs that its political acceptability is growing, in part because there seems to be no other way to bring countries like China and India into the fold of a global climate change regime. Many political and business leaders, including the German Chancellor Angela Merkel, have expressed support for the adoption of a global agreement based on the Contraction and Convergence model, recognising that, in global political terms, it is the most realistic basis for forging international consensus on a post-Kyoto climate change agreement (Global Commons Institute, 2008; Spiegel Online International, 2007).

However, although distributing emission entitlements on an equal *per capita* basis is often regarded as the most just solution, it is not unproblematic (Starkey, 2008). For a start, it does not take the fact, referred to above, that historically high-income countries are responsible for the larger part of such emissions⁴, and that the people in those countries have benefited from this in the form of economic development and higher standards of living. As GHG emissions are closely intertwined with ‘development’, low-income countries arguably should receive greater entitlements than high-income countries (‘developmental equity’). On the other hand, it can be argued that people living in colder climates (many of which are high-income countries) have a greater need for energy sources to keep warm compared to people in warmer regions. Who has a right to what has been the subject of a long-standing philosophical debate between often conflicting schools of thought, a debate which is unlikely to lead to consensus or agreement on the notion of justice, including environmental justice, especially in an international context, any time soon (Beitz, 1999; Caney, 2002; Dobson, 1998; Miller, 1999; Page, 2006; Rawls, 1999; Rose, 1992; Starkey, 2008).

Given these differences and complexities, it is perhaps not surprising that many of those involved in the debate about the allocation and distribution of GHG emission entitlements adopt the basis of the Equal Per Capita Allocation (EPCA) principle,⁵ as

Starkey notes (Starkey, 2008: 5, 9-12). Thus, although not everyone agrees with the EPCA principle, its simplicity seems to hold growing appeal internationally, if not for pragmatic and political reasons.

But distributing emission entitlements to countries on a *per capita* basis and then leaving it to national governments to further allocate and distribute them within their countries does not necessarily (or at all) guarantee an equitable allocation and/or a reduction of inequality. It is here that the difference between distribution and allocation becomes really important. The question to whom emission rights should be allocated is compounded by the confusion between individuals and states when it comes to distributional justice (Beckerman and Pasek, 1995). In much of the literature about tradable emissions permits it seems to be taken for granted that permits will be allocated to national governments (states), at least initially, who then allocate them within their countries. The most common practice in the GHG trading schemes that have been adopted by governments is to allocate entitlements to the principal emitters, based on past emissions records (the ‘grandfathering’ principle) (Hasselknippe, 2003; OECD/IEA, 2005: 25-27, 121-122). The main reason for this is political-economic: introducing tradable permit schemes based on this principle is economically neutral, or even lucrative, to the main, affected industries, and thereby enhances their political acceptability and feasibility.

Although, in first instance, it may seem reasonable to allocate emission entitlements to those who ‘need’ (to obtain) them, this raises serious objections. First, it implies showering them with significant ‘windfall profits’, given the considerable market value of entitlements, especially if granted for free (OECD/IEA, 2005: 27). Second, it is ethically dubious, to say the least, to effectively reward those who are responsible for causing the (pollution) problem, and for harming environmental (including human) well-being. It can be rightly questioned why polluters should be rewarded for “having invested in environmentally damaging activities?” (Bertram, 1992: 437-438; Bertram, *et al.*, 1990: 14). Third, allocating entitlements to (mostly large) emitters and allowing these to be traded without restrictions may create (or reinforce) monopoly power, and contributes to increasing disparities in wealth and power within countries as well as between countries. The introduction of GHG emissions schemes has been accompanied by the creation of a new range of investment opportunities, including speculation in derivatives (Chicago Climate Exchange; European Climate Exchange; Klaassen, *et al.*, 2005; Korppoo, 2003), creating “a convergence of capital and environmental markets” (*Financial Times*, London, 4 November 1999, quoted in Sinai, 2001). Carbon trading schemes have been characterised by critics as just another form of privatisation and appropriation of the

commons, profit making and increasing inequality, and constituting ‘carbon colonialism’ (Bachram, 2004; Pearce, 2008).

However, these objections against carbon trading schemes are no reason for dismissing them altogether. Rather, they emphasise the need for designing schemes in ways that take into account ethical, social and political considerations. It is possible to design carbon trading schemes that *reduce* inequality, and that benefit the poor and communities rather than the rich, and that strengthen the economic basis of democracy. The key, I will argue, lies in allocating entitlements to individuals but to manage these entitlements at the community level.

The more logical step following on from *distributing* emission entitlement over countries on a *per capita* basis, especially if this is done on equity grounds, is to also *allocate* such permits to individuals. If entitlements are distributed between countries on the basis of the argument that all people have an equal right to the use of, or benefits provided by, the atmospheric commons, it seems odd to then *allocate* those rights to only *some* people within countries. Recently, the idea of granting emission entitlements to individuals has been taken up by advocates of domestic tradable permit schemes - DTQs (Fleming, 2007; Starkey and Anderson, 2005; The Foundation for the Economics of Sustainability (Feasta), 2008). DTQs assign a proportion of emission entitlements, for free, to individuals (be it only adults) on an equal *per capita* basis. Emissions that can be attributed directly to energy use by individuals (in the UK, some 40 per cent), are covered by individual entitlements, while the remainder is tendered to business and government organisations (Fleming, 2007: 9-10). Such a scheme would have the advantage that the costs of reducing emissions would be borne largely by the main energy users (emitters) and by those individuals who exceed their quota, while sparing those on low incomes and offering an incentive to all energy users to minimise their emissions. Although the idea has drawn criticism for being overly complex (Graham, 2004) and DTQs carry higher set-up and running costs than alternative approaches to reducing emissions, they seem technically feasible (Starkey and Anderson, 2005: 2, 31-35).

However, for several reasons, it is preferable to design a scheme that, although formally allocating entitlements (for free) to individuals, does not involve *trade* by individuals. The reasons relate to efficiency, the *collective nature* of the emissions reduction challenge, equity considerations, and the potential advantages of managing entitlements collectively rather than individually.

As already noted above, the transaction costs associated with an emissions trading scheme involving millions of individuals are significant, diminishing their efficiency. Although it has been argued that the higher costs of such schemes are offset by their less tangible benefits, such as involving all people in the challenge of, and responsibility for, controlling emissions, this argument is not very convincing, for the reasons explained below (Starkey and Anderson, 2005: 35).

Involving individuals in trading emission entitlements may be seen a means of involving them in a common purpose, but it also *individualises* the challenge. Sure, individuals, as consumers, can do quite a few things to mitigate or reduce their energy use and emissions, but we cannot depend on such choices for bringing about the infrastructural and systemic changes that are required to make our production, consumption, transport and energy systems (among other) sustainable. For instance, some people may choose to install solar hot water systems, to buy 'green' electricity, to live close to their work, or to use public transport, but the adoption of such solutions by all or even most people (or even making them available to many) requires decisions, and significant expenditure, at the collective level.

Also, it seems doubtful that allowing individuals to trade entitlements would make people feel part of this common challenge. It may just as well reinforce the prevailing emphasis on individual responsibility and approaches, with individual gain (personal cost-benefit rationality) as the main driver for reducing emissions. Moreover, when individuals benefit from trade, it is quite possible that they will not invest their gains into further reducing their energy use or emissions, but on consumptive purposes. To really involve individuals in the challenge of reducing emissions requires an approach that conceives of individuals as *persons in community*, a view that sees human beings as constituted by (the quality of) their relationships and that acknowledges their mutual interdependence (Daly, *et al.*, 1989: 159-175).⁶ The welfare of each depends very much on that of the community as a whole, and vice versa. This applies *a fortiori* to the issue of climate change, which requires the building or strengthening of collective capacity to deal with sources and (potential) effects on communities as well as individuals. Such a view also implies adopting approaches and seeking solutions that involve people as citizens rather than as consumers.

Allocating entitlements to individuals also does not imply *reducing* inequality, as both rich and poor would qualify for equal entitlements. Although the marginal value such permits would be greater to the poor than to the rich, ultimately the rich would stand to gain most from allocating entitlements to individuals, especially if trading (and speculation) in

permits is allowed. Chances are that the poor would sell whatever they can of their entitlements as they desperately need income to meet their daily needs (Martinez-Alier, 1993; Martinez-Alier, 2002), while the rich can continue their unsustainable lifestyles by simply buying additional entitlements, and might be able to generate potentially big profits from trading large volumes of permits on the market.

The approach favoured here is to allocate formally emission entitlements to all individuals, but to assign responsibility for the management of these entitlements, bundled on a geographical or community basis, to community organisations. Apart from being more equitable than allocating emission entitlements to the major emitters, this also has the potential to promote sustainable development. How such a scheme would work and can deliver this potential, I will discuss in the following section.

GHG emission entitlements and sustainable development

The idea advanced here is that of a scheme that allocates emission entitlements (for free) to individuals, but in which their management occurs, on a community level, by specially designated bodies, referred to here as Community Carbon Trusts (CCTs). Assigning responsibility for the management (including trade) of entitlements to a community organisation is advocated not just to reduce transaction costs; it is also more in line with the collective nature of the challenge posed by climate change, and has the potential to strengthen the capacity of communities to deal with this challenge, which needs to be seen in the broader context of the need for sustainable development. Giving the responsibility for the management of entitlements to specially designated community bodies rather than general local/regional government organisations also helps to ensure that spending of the revenue from the trading of entitlements is focused on the ultimate objective of reducing emissions and advancing sustainability.

In line with the C&C and ES approaches, the scheme proposed here starts with determining the maximum allowable level of global GHG emissions. This would be divided by the world population, giving the *per capita* amount of GHG (environmental) 'space' and entitlement. This space would be distributed across countries based on population numbers, determining each country's ultimate quota.⁷ Within countries, GHG entitlements are then distributed by national governments over newly created community organisations (CCTs), with each CCT representing a geographical area that is considered socially and environmentally appropriate.⁸ Initial emission entitlements are based on existing levels of emissions and population (in line with the C&C approach),

but are reduced gradually and steadily (every year or every few years) to reach their ultimate quota by the target year.

Globally agreed designated sources of emissions (companies, organisations, sectors) in all countries must buy emission permits, either from CCTs in their own countries, or on the international market. Carbon banks could act as intermediaries to facilitate trade and reduce transaction costs.⁹ Trading, then, would occur between the major ('upstream') emitters, CCTs, and carbon banks. As the amount of available permits gradually contracts, the price of permits rises over time, providing an incentive to emitters to reduce their emissions in the most cost-effective way (so that the marginal costs equal the marginal benefits). Emitters that are not able to reduce emissions will see a continuing increase in the costs of covering their emissions, which will be incorporated into the prices of their goods and services, making these relatively more expensive than less carbon intensive alternatives (such as renewable energy resources compared to fossil fuels). Thus, the incentive to reduce or contain emissions becomes stronger over time.¹⁰

The main difference between the proposed scheme and that like the EU's ETS is that entitlements are not allocated to the major emitters, but to community organisations (formally, to all 'individuals-in-community'). The major differences with the DTQs referred to above is that entitlements are not traded by individuals, and that the revenues from trading flow to CCTs rather than individuals. Another difference between DTQs and the scheme proposed here is that the latter allows trading to occur internationally, which is not just important from the point of view of enhancing efficiency (Hepburn and Stern, 2008: 271; Tietenberg, 1992b: 50), but a necessity for the scheme proposed here to balance supply and demand. As most of the major emitters (and thus demand for entitlements) are found in high-income countries, but most entitlements would be owned by people in low-income countries (given their larger populations), confining trade within national borders would significantly hamper the opportunities for trade.

Apart from equity considerations, arguably an equally important rationale for adopting the scheme proposed here is that the flow of income that is expected to be derived from selling entitlements by CCTs will significantly strengthen their capacity to deal with the challenges posed by climate change. However, to ensure that this will be the case, two conditions must be met. First, emission rights must be made inalienable in the sense that they cannot be sold indefinitely by CCTs (on behalf of their members), but only on an annual basis. This to avoid that entitlements accumulate in a few hands and increase inequality, as new monopolies are created that only serve their own narrow economic interests (Grubb, 1989: 34), and also to minimise the scope for speculation (which

contributes to price instability and adversely affects investment decisions). Second, the revenue derived from entitlements can only be spent on programmes and projects that reduce emissions (mitigation) and/or that assist communities to cope with the effects of climate change (adaptation).¹¹ The obvious reason for this is to avoid that revenues are spent on projects or measures that increase GHG emissions (such as road building). This condition is a practical application of the idea that the currency by which entitlements are traded should be in the form of projects or measures that contribute to carbon abatement and/or enhancing energy conservation and efficiency (Grubb, 1989: 35).¹²

The importance of strengthening local capacity for promoting sustainable development widely recognised in the environmental movement and in the literature on sustainable development (Adams, 1990; DeWitt and Mlay, 1999; Durning, 1989; Meadowcroft, 2004; Seyfang and Smith, 2007), while the significance of the role of local government and community-based action is increasingly recognised in the context of combating climate change. Local governments are no longer simply implementers of national policy and have developed approaches of their own (Bulkeley and Betsill, 2005; Bulkeley and Moser, 2007). These developments are most pronounced in the United States, where the failure of the federal government to take forceful action has provoked a raft of initiatives aimed at combating climate change at the state and local level, and where municipalities are said to be leading the way (Kousky and Schneider, 2003). In several European countries, many local governments have seriously engaged with *Agenda 21*, sometimes with the support from the national level (Lafferty, 2001). In these matters, local governments have also become an international actor in their own right through international organisation and programmes, such as ICLEI and the International Cities for Climate Protection Programme (ICLEI, 2007).

Although these developments should not be idealised, and local governments and communities are limited in their willingness and capacity to embrace sustainable development and issues like climate change, their significance should also not be dismissed or underestimated (Kousky and Schneider, 2003). Given their key role in urban and regional planning, housing and transport, local governments have a big role to play in advancing sustainability, but are often hampered in doing so by insufficient funding. As combating climate change is now an inevitable and necessary condition for advancing sustainability, requiring the (re-)development of environmentally sustainable urban, energy, transport and other infrastructures and systems, especially at local and regional levels, the transfer of income from emissions trade to this level of government boost the means for sustainable development. It is also badly needed, given the shortage of cash of

many local/regional authorities and the enormous expense required for the development of sustainable infrastructures. An emissions trading scheme like the one proposed here provides the basis for a considerable income flow to local government. It increases the capacity for exploiting the potential synergies between the sustainable development agenda and the need to address climate change, especially at the local level (Wilbanks, 2003).

However, local governments are not *inherently* inclined to support sustainable development, and are also prone to being captured by particularistic, short-term, and vested interests. To prevent that, as a result of ‘politics as usual’, the income flow from emissions trading is spent by local governments on projects that increase rather than decrease emissions, it seems best to assign the management of these revenues to separate, independent bodies (CCTs). These bodies should be given the mandate to sponsor only projects and measures that reduce GHG emissions and/or that enhance the capacity of communities to adapt to climate change, *and* that are environmentally sustainable. Thus, CCTs would be able to influence decision-making by local governments, generally operating under considerable financial constraints, towards the development and maintenance of infrastructure that enhances sustainability. The scheme proposed here does not presume that all local/regional governments take environmental causes seriously, let alone consider these a priority. But tempting them with a considerable pool of money will certainly help.

Thus, the global emissions trading scheme proposed here is not only more equitable than those commonly advanced (based on the ‘grandfathering principle’ for the allocation of entitlements), but has also the potential to significantly strengthen local capacity for tackling climate change and advancing sustainable development. Moreover, it may also help to advance local democracy, as I will discuss in the next section.

GHG emission entitlements, politics and democracy

The management of GHG emission entitlements to CCTs as the representatives of ‘individuals-in-community’ not only has the potential to promote sustainable development, but also to enhance the involvement of people in decision making. On the condition that certain institutional arrangements are put in place, such a scheme is likely to enhance democracy of the direct (deliberative, participatory) as well as the indirect (representative) kind.

It is sometimes argued that a reliance on economic instruments in public policy is detrimental to democracy of the deliberative or participatory kind. Such instruments, in particular those of a property rights nature, are said to diminish opportunities for public input and deliberation, and help to “establish more firmly an economically rationalistic world, one populated by *homo economicus* rather than *homo civicus*”. “*Homo civicus* is not good for democracy”. By contrast, although a reliance on regulation is sometimes referred to as a ‘command-and-control’ approach, it is seen as more likely to provide opportunities for public debate (Dryzek, 1995: 305-307).

This argument overlooks two important things. First, that market instruments themselves require regulation, for their establishment as well as their continued functioning. This is true for markets of all kinds, but even more so for ‘quasi-markets’ created in the realm of public goods, such as air quality. Foremost, such markets are created for the specific purpose of achieving particular environmental objectives, such as a reduction of pollution levels, at lower cost than via alternative means. The allocation of entitlements and obligations with regard to public goods is likely to arouse considerable public deliberation about goals, objectives and targets, as well as on institutional arrangements, implementation, enforcement, and performance. Thus, the establishment of a market for GHG emission entitlements invariably gives rise to (ongoing) public deliberation on these matters, perhaps even more so than if more traditional policy instruments are relied upon (such as standards or a ‘Best Practicable/Technical Means’ approach).

A second, and perhaps more fundamental, reason why market instruments, and in particular the allocation of GHG emission entitlements, have the potential of enhancing and not diminishing democracy is that they may help to strengthen the *economic basis* for democracy. As already noted above, distributing entitlements globally on a *per capita* basis would amount to considerable global redistribution of wealth, given the present inverse relationship between population size and income in the world. Inasmuch as democratic political systems require a minimum economic basis, such a transfer may assist in this respect. Moreover, allocating entitlements to CCTs strengthens the economic basis of communities and local governments in poor and rich countries alike, and is likely to enhance public interest in how revenues are spent, especially as these can be used for causes from which potentially also individuals benefit, such as the development of community-owned renewable energy sources, enhancing energy efficiency, and improved and low-cost public transport.

Although, for reasons discussed above, there is a need to lay down (internationally or globally) certain rules regarding the mandates and operations of CCTs, the decisions and

operations of these bodies are likely to become the subject of considerable public deliberation. All people living within area covered by a CCT are formally or legally members of the Trust. Trustees are accountable to (and elected by) the members of the Trust, and all members will have an opportunity to contribute to the debate about what programmes and projects (aimed at mitigating and/or adapting to climate change, based on sustainability principles) to spend the revenue from selling their emission entitlements on. The needs and preferences of, and within, rural and urban communities may differ, and a community's priorities in these areas are likely to change over time. In other words, it is important that the diversity of needs and preferences can be expressed through the decision-making processes by which it is decided how the revenues are to be used within the general constraints specified above.

The management of GHG emission entitlements by communities may help to enhance democracy also in other ways. It is likely to strengthen the position of local government *vis-à-vis* central government, in particular in the all-important area of energy policy and management. Presently, energy policy is largely determined by central governments, influenced by big (private or semi-public/private) companies that emphasise and profit from large scale forms of energy generation beyond the control of communities. Enhancing the capacity of communities to develop their own forms of energy generation and management, tilts the 'playing field' of the market, at least to some extent, back towards communities, and creates a political-economic basis from which they can build an environmentally sustainable physical and energy infrastructure. Perhaps most importantly, granting emission rights to 'individuals-in-community' can help build or restore people's collective sense of being able to influence their own future, instead of being controlled and manipulated by the anonymous forces of 'the market' and technological development, as described by Ulrich Beck in the "Risk Society" (Beck, 1992).

To ensure that CCTs are and remain responsive to the views, interests and needs of the community that they represent, it is desirable that their Board members are elected by the communities on a regular basis. For the sake of continuity and promoting a longer-term perspective, one third of the Board members could be elected every five years. However, this is not the place to fill in the details of the rules and arrangements by which CCTs operate, also because this is best left to a process of discursive design at the community level. The notion and experience of (especially local) democracy is likely to take on greater meaning if people are able to link substantive outcomes to collective choices. Again, this is not to idealise local government or to denigrate the importance of nation-states and national governments. All levels of government and governance have crucial

roles to play in addressing climate change and other environmental issues. In the prevailing global political-economic system, there is a need for strengthening the collective capacity to deal with these issues at all levels. What is argued here is that it is possible to design a global tradable permit scheme for greenhouse gas emissions that is equitable, that strengthens the capacity of communities, and that enhances public influence on vital decisions that affect communities and the environment.

Even though the potential advantages of introducing a system of tradable emission rights along the lines suggested may be apparent, to what extent is it politically feasible? It could be argued that local or regional governments in many, especially low income, countries do not have the means to manage the emission entitlements for the citizens in their area (Baumert, *et al.*, 2003). Although weak local/regional government capacity is no doubt a problem in many countries, the scheme proposed here is aimed specifically at boosting that capacity. However, as corruption can be a serious problem also at this level, it seems desirable to assign the management of revenues from the sale of entitlements to specialised bodies (CCTs) that operate independently to internationally agreed standards. The common elements required for the proper functioning of such bodies (their mandates and rules related to trade and the spending of revenue) suggest the need for designating an international organisation that assists in the creation and operation of CCTs, and that audits their performance. Funding for these purposes could come from a small levy on the trade of emission entitlements. Moreover, it could be agreed internationally that some of this revenue is made available to national governments that have inadequate monitoring, reporting and enforcement capacity, which is another essential requirement for the effectiveness of any global tradable permit scheme or, for that matter, any international regime or regulation.

No doubt the strongest opposition to the adoption of a scheme like the one proposed here will come from those parties that stand to lose the significant gains potentially associated with the allocation of entitlements based on the 'grandfathering' principle. Allocating emission entitlements to communities rather than businesses does not in itself change the cost structure of reducing emissions. The 'loss' incurred by business from an allocation of entitlements to communities relates primarily to the unearned and undeserved profits that stand to gain if such entitlements are granted to them. It is the outlook on considerable 'windfall profits' that makes tradable emissions proposals acceptable and attractive to many businesses. Allocating emission entitlements to communities eliminates this prospect and therefore can be expected to lead to diminished support for, and increased opposition to such a scheme in business circles.

As noted above, the adoption of the ‘grandfathering’ principle as the basis for the allocation of emission entitlements can be explained foremost on its acceptability to major businesses, and to the fact that the business sector occupies a privileged position within many political systems. But this is no reason for readily dismissing alternatives as ‘unrealistic’. The privileged position of business in democratic systems should not be taken as a ‘given’, but should be seen as problematic and contestable from a democratic perspective (Dahl, 1985; Lindblom, 1977; Polanyi, 1944). Rather than further strengthening the position of businesses by giving them rights to collective goods, we should identify and adopt ways to ‘re-embed’ economic interests within the socio-political structures of societies. Formally assigning emission entitlements to CCTs gives citizens more control over infrastructural development and helps to counter the trend towards the increased concentration of economic power that also translates into political power.

Even from a politically or economically ‘realistic’ point of view, allocating emission entitlements to communities cannot be simply dismissed as idealistic. Proponents of tradable permit schemes also often refer to the option of making businesses pay for entitlements, for instance, by auctioning them (Fleming, 2007). Schemes may start off on the basis of the ‘grandfathering’ principle, but the possibility or even likelihood of gradually introducing auctioning for a growing proportion of emission entitlements is often referred to as a realistic option (Stavins, 2008). Initially, ‘grandfathering’ may be needed to overcome the opposition to the adoption of such schemes, but once they are in place, governments may well be inclined to gradually introduce auctioning as a means of generating revenue enabling them to finance the significant costs associated with the development of sustainable infrastructures needed to move towards ‘carbon neutral’ economies. Similarly, there is no reason why, even after GHG entitlements have been given initially to businesses, they cannot be gradually transferred from businesses towards communities instead of being auctioned.

Of course, to the extent that businesses accept the challenges posed by sustainable development, they may benefit, too. A growing number of businesses involved in selling services, projects and technologies that reduce GHG emissions stands to gain from the increased demand for these things from communities. The scope for expansion of such industries is enormous, and arguably represents a new frontier or stage in the eco-industrial revolution that has only just begun.

But the real ‘winners’ of the scheme proposed here will be communities. Significant tangible and intangible benefits can be expected to flow from the greening of urban,

energy and transport infrastructures, enabled by the expected boost in financial capacity of communities. This, in turn, will strengthen the capacity of communities to adapt to the already inevitable effects of climate change and to deal with other environmental challenges. Moreover, such a scheme may help stimulate public debate in communities about their own future, enhancing democracy as well as the sense of community and citizenship.

In the end, whether emission entitlements are allocated to businesses or communities is a political decision influenced by the relative power and influence of the various parties and interests involved. To bolster the case for community entitlements, communities themselves will need to embrace the idea. Environmental and citizens' groups will need to push hard for its acceptance by governments. Eco-businesses need to lobby governments and bring home the fact that, in the medium to long-term, there are likely to be more economic winners than losers from the necessary greening of infrastructures. But such pressure should not even be necessary to convince governments of the benefits of a system that enhances the capacity of communities, and therefore nations, to deal with climate change and to develop sustainable infrastructures, and that diminishes the dependence on mostly foreign controlled supplies of energy and other resources that are steadily being depleted. Supporting such a course is also likely to strengthen the political legitimacy and stability of governments. The need to reduce GHG emissions provides not only an opportunity for sharing environmental space equitably and sustainably, but also for displaying political vision and quality of leadership.

Conclusion

In recent years, the idea of establishing a global GHG emissions trading system initially advocated mostly by economists, has been gaining support among environmental advocates, businesses and governments. Much of this growing support is based on the perceived economic advantages of such a scheme, which offers governments and businesses opportunities to reduce GHG emissions in the most cost-effective way. Moreover, as granting emission entitlements to emitters based on past emission records ('grandfathering') has become the most commonly adopted basis for allocating emission entitlements, many businesses stand to gain considerably from the adoption of such a scheme. However, allocating entitlements to emitters (polluters) does nothing to reduce inequity within countries; on the contrary, it is likely to contribute to a widening of the gap between rich and poor, the powerful and the powerless. More generally, advocates of emissions trading schemes tend to focus mainly on claimed economic benefits and

ignore the ethical, social, and political issues associated with the design of such schemes, in particular with regard to whom emission entitlements are allocated. This neglect, even if the claimed economic advantages can be achieved, significantly weakens the case for such schemes, possibly to the point that their disadvantages outweigh their potential benefits.

This paper has explored a design of a global GHG tradable permit scheme that is economically efficient, environmentally effective, and ethically, socially and politically acceptable or even attractive to most people. Allocating entitlements to all people on a *per capita* basis, in line with the principles advocated by the environmental space and C&C approaches, and combining this with institutional arrangements that assign responsibility for the management of entitlements to local/regional organisations that represent ‘individuals-in-community’, has the potential to boost communities’ capacity to mitigate and adapt to climate change by supporting development, that is environmentally sustainable and equitable, and that also enhances democracy, in particular by strengthening the economic basis of local government and by promoting public involvement in collective decision-making.

The scheme proposed here is simple in broad outline. It recognises the ecological imperative of reducing anthropogenic GHG emissions. It notionally allocates the environmental (GHG) ‘space’ to all humans in the world on a *per capita* basis, as a (gradually diminishing) quantity of inalienable emission entitlements. It requires the development of fairly straightforward institutional arrangements for these entitlements to be managed by specialised, independent community organisations (CCTs) on behalf of the ‘individuals-in-community’ within their areas. Like all tradable permit schemes, it requires the creation of a national framework for registering and monitoring emissions and trade, and the enforcement of rights and obligations.

Although such a scheme can expect strong opposition from businesses that stand to lose the unearned profits from the allocation of emissions based on the ‘grandfathering’ principle, the benefits to societies and the world as a whole are much more significant. One would hope and think that this will be sufficient reason for such a proposal to be embraced by political leaders who claim to be committed to advancing the interests of citizens.

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¹ It should be noted that under most schemes, emitters who reduce emissions below the level to which they are 'entitled' (hold permits), can sell their 'surplus' permits on the market, thus providing an additional incentive for reducing emissions. However, for reasons explained below, allowing polluters to profit from their pollution record is ethically problematic. It is also not needed to achieve optimal efficiency as, in economic theory, all polluters will reduce their emissions to a level where the marginal costs equal the marginal benefits.

² For instance, setting standards raises issues regarding what are 'acceptable' levels of pollution, harm or risk, and usually implies allowing some pollution to occur without (financial or other) constraints. Banning *all* pollution avoids this problem, but could cause other adverse (social, economic) effects (such as unemployment), and is in many cases, like in the case of CO₂ emissions, not practicable within reason. Tradable permit schemes potentially can be as strict as standards in the (overall) level of pollution that they

allow, and over time that level can be further reduced and ultimately set at zero, implying the phasing out of tradable permits.

³ It is important to be clear on these terms, as sometimes the term distribution is used to refer to what I call here allocation, while the term allocation is used for *usage*, for instance with regard to resources (De Jonge, *et al.*, 2001: 31-32).

⁴ High income ('developed') countries are estimated to be responsible for approximately 71 percent of historical/cumulative emissions of GHG emissions from the mid-1850s (Baumert, *et al.*, 2005)

⁵ This is sometimes referred to as the Equal Per Capita Allocation (EPCA) principle, it may be more appropriate to refer to the Equal Per Capita Distribution (EPCD) principle, as in most (proposed) schemes entitlements are not *allocated* to individuals.

⁶ In this paper, I use the expression 'individuals-in-community' rather than 'persons-in-community' to make explicit the link with the literature and debate on individual entitlements.

⁷ To provide an incentive against stimulating of population growth as a basis for the distribution of entitlements, the population levels used for the scheme could be 'frozen' at existing levels or based on projected growth levels by 2050, or a mix between the two. The former would be detrimental to many low-income countries where population growth in the coming decades seems inevitable for demographic reasons. Taking the projected population levels by 2050 does not necessarily imply support for population growth as countries that manage to keep their population significantly below the projected levels end up having more 'emission space' *per capita* than the global average that can be used to the advantage of a smaller population. .

⁸ What this means is open for debate, and for national governments to decide, although international rules or guidelines could be developed and adopted. CCTs could comprise cities comprising millions of people, or large areas with a relatively small population. In determining their size, consideration might be given to the differences in how regions are affected by climate change, the capacity required dealing with climate mitigation and adaptation (including vital infrastructure changes), populations size (determining the income likely to be derived from emission entitlements), social and political affinity or cohesion, the minimization of corruption, and other).

⁹ Rules could be adopted to prevent or constrain speculative trade (and profits) in entitlements and their accumulation by institutions, for instance, by levying a tax on trade and by setting limits on the amount of 'banking' and 'borrowing' by the end users of the entitlements, even though allowing a degree of such practices may be desirable to promote temporal efficiency (Tietenberg, 2003: 413).

¹⁰ It should be noted that under the proposed scheme global equality would be achieved with regard to emission entitlements and the benefits derived from those (as the market functions as a great equalizer in terms of the price of permits), but not with regard to the *location* of emissions, as some more energy-intensive industries are likely to continue to be concentrated in some countries, depending on geographical and other factors that create comparative advantage. It would be practically unrealistic and even unfeasible to expect that 'real life' emissions could be distributed equally (on a *per capita* basis) over all countries, and thus to require countries to bring their emissions to such levels.

¹¹ It is of course almost inevitable that uses of such revenues, even if spent on environmentally positive causes, such improving public transport and building community-owned renewable energy projects, bring

about an initial increase in emissions. The important thing is that uses also lead to reductions that (more than) offset the emissions associated with these investments, sooner rather than later, and surely over the lifespan of such investments. Additionally, as GHG emissions reduction is only one of the environmental challenges associated with the existence of environmental limits, such investments can and should also be made to meet environmental sustainability criteria, so that they do not simply shift environmental pressures and problems elsewhere.

¹² One issue that would need to be addressed, too, is whether and to what extent the expansion (or even retention) of carbon sinks adds to the entitlements of communities or countries (and *vice versa*, their destruction to a decrease of entitlements). Limitations of space do not make it possible to elaborate on this point here, but I think there is a strong case for the co-management of sinks (and for sharing the benefits & costs flowing from them) by local/regional communities and national governments.