

# **Mobilizing Individual Responsibility through Personal Carbon Budgeting<sup>1</sup>**

*Steve Vanderheiden, University of Colorado at Boulder<sup>2</sup>*

National carbon budgeting, through which states track the carbon emissions for which they are responsible with a view toward meeting specified decarbonisation targets, forms an essential component of international climate change mitigation efforts. Under most proposed national carbon budgeting systems, market trading systems for unused emissions credits or those created through offset programs based in new carbon sequestration capacity offer an additional compliance option, allowing states to pay to offset those emissions that they cannot domestically abate. Personal carbon budgeting might likewise form a component of such efforts, as principles and practices for holding agents responsible for their roles in climate-related harm can be applied across scales, with climate justice imperatives for decarbonisation applying to persons in a manner that parallels their application to states. As remedial responsibility for climate change is differentially assigned to states under legal and ethical principles for informing the design of international mitigation efforts, so also could it be with respect to persons, and on the basis of many (if not all) of the normative criteria that climate justice scholars have developed for states.

Indeed, for states to implement the mitigation targets that they have been assigned under national carbon budgets, they must pass along those targets in what David Miller calls a ‘two-stage approach’ by which shares of national abatement obligations are allocated among sub-state actors, including persons. According to Miller, states ‘may decide to control emissions by taxing the industries that mainly produce them, or they may decide to give each individual citizen a carbon budget that limits their use of emission-generating resources to a total that they can exceed only by buying a slice of somebody else’s’, and they do so ‘according to guidelines that are agreed internally’.<sup>1</sup> But states cannot avoid confronting many of the same normative issues in implementing national mitigation targets as have been evident in efforts to set those targets within an international climate treaty framework, nor can they avoid assigning differentiated remedial responsibility among citizens, even if they refuse to acknowledge doing either.

---

<sup>1</sup> Prepared for delivery at the Western Political Science Association annual meeting, to be held April 2-4, 2015, in Las Vegas, NV. Comments are welcome, but please don’t cite without permission.

<sup>2</sup> Department of Political Science, Ketchum 106, 333 UCB, Boulder, CO, 80309-0333, vanders@colorado.edu.

In deciding upon implementation measures—between a carbon tax and some kind of carbon rationing system, which most analysts view as the two main policy alternatives—states should seek to design domestic carbon abatement programs and strategies that are capable of differentiating burdens among persons and other sub-state actors in accordance with defensible normative criteria. While a carbon tax would be less costly to implement, a personal carbon budgeting scheme offers several key non-economic benefits that are unavailable without the carbon visibility and personal carbon entitlements found in rationing schemes that allow for trading of unused emissions permits (or ‘cap and trade’ schemes). As I shall argue, personal carbon trading (or PCT) schemes are able to more closely approximate climate justice demands for assigning responsibility for climate change, and to do so through a form of personal carbon budgeting that mobilizes a normative sense of individual responsibility that both justifies and motivates domestic mitigation efforts. While firms and other collective sub-state entities might also be assigned emissions caps in implementation of national mitigation targets, my focus here shall be upon PCT schemes for implementing those targets as well as in assigning individual remedial responsibility for climate change.

In order to focus upon several core issues in individual carbon rationing, I shall bracket several problems related to assigning individual emissions caps or allowing their trade through an offset market. First, I assume a defensible series of annual global emissions budgets capable of satisfying climate justice objectives, and that these can be justly allocated among the world’s nation-states. Second, I assume that national annual emissions budgets can in principle be justly allocated to sub-state parties, including resident persons. My primary aim here is not to explore the resource-sharing principles by which particular shares of remedial responsibility for climate change might be calculated, but rather to consider instruments through which this responsibility could be discharged. Finally, I assume that compliance with national and personal caps could be effectively monitored and enforced, through a transparent system in which parties are aware of their current and past emissions as well as those associated with their future options. All three assumptions bracket serious problems associated with PCT schemes that must be addressed before any such scheme is tenable in practice, but are not of interest to this inquiry.

The first set of issues concerns the mobilisation of personal responsibility through carbon budgeting under a PCT scheme, which despite its costs and implementation difficulties is viewed

as practically feasible if applied to limited carbon sources like transport and energy use. As Tina Fawcett notes, PCT is in the UK ‘considered to be more acceptable than the alternatives of direct or indirect taxation’, if ‘not yet a fully worked-out policy’.<sup>2</sup> Most practical PCT proposals limit their purview to emissions from transport and household energy use, which is relatively easily monitored at the pump and through monthly utility accounts, and require persons to pay from two distinct accounts in purchasing carbon-intensive goods and services: first to pay the market price for the good or service, and then to deduct its carbon credits from their personal allowance. The core features among various proposals include the allocation of individual carbon allowances to cover their own emissions, which is periodically replaced and which declines annually, along with the national emissions budgets from which they are derived. Most versions withhold a share of the national emissions budget from allocated personal carbon allowances, to account for emissions from firms and other sub-state actors as well as to supply additional carbon credits for purchase by individuals that exceed their individual quotas. Prices for these extra carbon shares reflect market supply and demand, fluctuating over time in a manner than carbon taxes do not.

In order to focus upon the power of personal carbon budgeting in comparison with carbon pricing mechanisms that don’t entail personal CO<sub>2</sub> emissions budgets, I compare a PCT scheme, through which persons hold carbon permits as a tradable commodity, with a carbon tax, through which carbon is taxed without rationing or trading systems. Given its potential to activate and mobilise this sense of remedial responsibility, which turns on what I call *cognitive responsibility*, several key advantages to PCT appear to obtain, including the more widely observed efficiency and autonomy benefits of personal trading along with an additional benefit that issues from the system’s instantiation of equity norms for personal carbon consumption and provision of carbon budgeting feedback on various consumption choices. With PCT seemingly able to deliver these noneconomic benefits over a carbon tax, the paper explores its advantages over carbon trading schemes at other levels, such as upstream rationing among firms or to nation-states, considering three objections that have been lodged against carbon trading, finding PCT to be considerably less vulnerable to such critique than are upstream trading schemes, potentially offering PCT as a system capable of realizing the benefits of carbon trading without incurring its biggest flaws.

### **Taking responsibility: Is paying enough?**

Practically speaking, a well-designed carbon tax can be an effective instrument for reducing emissions and financing further decarbonisation efforts. Both mechanisms create conservation incentives in rationing and/or pricing carbon, and both would need to be designed to account for their allocation of burdens among parties in order to satisfy justice imperatives. Many economists favour it to an emissions trading scheme (ETS) due to its relative ease of implementation and for the regular revenue stream that it can yield. Since it prices all carbon rather than setting aside personal or group allowances, a carbon tax sidesteps the controversy surrounding the allocation of shares to various parties, which an ETS must address. However, a tax also has several disadvantages, compared to an ETS. Since it lacks a hard cap on allowable emissions, a carbon tax offers no assurance that states will adhere to national carbon budgets, relying as it does upon elastic demand for carbon from which incentives to reduce consumption or seek substitutes are created. Like an upstream rationing scheme, which passes along carbon pricing to consumers through higher energy and transport costs, a carbon tax can be regressive if basic access to energy is not subsidized or low-income energy users are not compensated. But perhaps the most significant differences concern the relative invisibility of a carbon tax and its absence of an individual emissions entitlement, as shall be discussed further below.

To further distinguish domestic climate change mitigation efforts through which persons are merely made to pay for the carbon they use from ones in which they are placed on a carbon budget and informed about how their various alternatives affect compliance with it, one might first consider several related ways in which agents can be held responsible for some harm toward which they contribute. An agent takes *remedial* responsibility by acting to mitigate or avoid some harmful outcome that would otherwise occur, or to rectify some harm that has already occurred. In his influential account, David Miller describes such responsibility as involving criteria by which agents are ‘picked out, either individually or along with others, as having a responsibility towards the deprived or suffering party that is not shared equally among all agents’.<sup>3</sup> Under an international climate treaty framework, nation-states would be assigned remedial liability in accordance with their ‘common but differentiated responsibilities and respective capabilities,’ and would implement these corrective justice obligations through the subsequent assignment of remedial responsibilities among sub-state parties within their borders.

As Miller suggests, this responsibility is owed to ‘the deprived or suffering party’ and not merely to some state tax office, but remedial responsibility can sometimes be discharged by paying into schemes through which remedies to harm are made available. Insofar as a carbon tax raises revenues that could be directed toward domestic or international decarbonisation efforts that reduce the causes of climate change or toward adaptation efforts that seek to reduce the human suffering associated with its effects, while also creating economic incentives to reduce carbon emissions, it could constitute such a remedy. Persons paying that tax—whether or not they are aware that they are doing so, or that its proceeds are being used to provide a remedy to problems caused by the pollutant to which the tax is attached—could be viewed as exercising *economic responsibility* (or being held economically responsible) for the harm in question. This form of responsibility requires no admission of fault or even recognition of the harm or victims toward which proceeds are directed, as it merely involves the bearing of remedial costs, and so constitutes one variety of remedial responsibility.

In his account, Miller identifies an agent’s moral responsibility for faulty contributions to the harm in question as the strongest criterion for assigning remedial responsibility, but notes that other criteria sometimes apply where moral responsibility cannot be attributed, including mere causal responsibility (i.e. contributory actions that cannot be faulted), the capacity to assist, and special ties of community with victims. In each instance, he argues, the ‘overriding interest’ in assigning remedial responsibility is to ‘identify an agent who can remedy the deprivation or suffering that concerns us’.<sup>4</sup> Given the urgency of some cases in which remedial responsibility is needed, where imperilled victims require immediate attention if the most serious harm is to be averted, the expeditious assignment of responsibility can involve one agent being assigned to act as a first responder and another later being required to finance that initial action or compensate the first agent for any burdens incurred, as when proximate and capable agents undertake an expensive rescue but are then compensated for the costs of doing so by morally responsible parties. A carbon tax could be viewed as involving a form of economic responsibility through which persons help to finance more immediate remedies, along with the nudge toward remedial decarbonisation that the pricing mechanism also provides.

Another form of responsibility, which is not directly remedial but which can assist in supporting remedial actions as well as reducing the need for them, often manifests alongside one

or more responsibility-expressing mental states. With or without taking economic responsibility for some harm by contributing toward the effort to mitigate it, an agent can take *cognitive responsibility* through the conscious recognition of the harm in question along with the agent's role in it, with the acknowledgement of an obligation to respond appropriately. Since remedial responsibility may be assigned to persons other than those contributing toward some harm, as with Samaritan duties to rescue based on proximity to the victim and capacity to assist, cognitive responsibility requires neither causality nor fault, but acknowledges some basis for taking on some remedy. Neither must it require capacity to provide an adequate remedy, as agents could take cognitive responsibility for some harm that they are powerless to prevent, discharging that responsibility either through vicariously remedial actions that seek to protect others from similar harm in the future or through mental states like agent regret or atonement that express this responsibility to oneself or others, and which seek to offer a non-remedial response to it. All such responses are additional to cognitive responsibility, through which the agent takes account of their role in some harm, if not as responsible for causing it then as having some obligation to respond to it in some way. This cognitive aspect of remedial responsibility is distinct from the remedial action itself, and is often viewed as the essence of *taking* responsibility, which entails recognition and acknowledgement in addition to some kind of action.

The distinctive contribution of PCT compared with upstream rationing measures or a carbon tax is then that it encourages persons to take cognitive responsibility for their role in their country's carbon footprint (if not climate-related harm itself), which the PCT scheme identifies as harmful by dint of the personal limits it prescribes. Andrew Dobson describes the cognitive responsibility for global environmental harm issuing from awareness of ecological space use patterns as generating a 'thick cosmopolitanism' that better motivates remedial actions through implied chains of cause and effect than can accounts of global ethics based in humanitarianism or distributive justice, suggesting such motivational advantages.<sup>5</sup> Advocates of informational governance likewise tout such benefits, claiming that disclosure and transparency requirements can motivate pollution avoidance through a combination of the empowering effects of informational feedback about alternative actions that agents are considering undertaking and the reputational accountability that disclosure of environmental performance data provides.

By identifying an individual carbon entitlement through the rationing scheme, beyond which persons face sanctions (in the form of a fee for additional shares) for excessive emissions, a PCT system promotes cognitive responsibility by instantiating a norm of equitable access to carbon sinks and by providing persons with regular feedback concerning the impact of various actions upon their personal carbon footprints. In addition to ensuring economic responsibility for personal emissions that exceed per capita entitlements through the requirement of purchasing additional carbon credits, PCT schemes reinforce the norm through this sanction for exceeding one's equitable share, and provide additional feedback through the increasing or decreasing per unit cost for additional carbon credits, which reflect overall social demand for such additional credits and thus social progress toward decarbonisation imperatives. Such consciousness-raising about the drivers of high-carbon consumption patterns and the availability of low-carbon alternatives, and promotion of cognitive responsibility for each person's contribution toward national mitigation targets, could assist in overcoming norms that enable unsustainable lifestyles and in transforming attitudes and beliefs surrounding greenhouse pollution and climate change.

### **Carbon trading and its discontents**

The cognitive aspect of responsibility-taking through a personal carbon rationing scheme does not require that carbon trading be allowed, as persons would still need to be made aware of their carbon footprints along with the carbon content of their consumption choices, but there may be solidaristic benefits of PCT schemes that depend upon market signals from a trading system. As David Fleming notes of what he calls tradable emissions quotas, trading could foster a sense of common purpose from which a more cooperative ethos for developing a sustainable society may emerge, rather than individualizing and depoliticizing decarbonisation efforts through taxes or rationing schemes that prohibit trading.

First, the fixed quantity makes it obvious that high consumption by one person leaves less for everyone else. Your carbon consumption – that is, the extent to which you depend on fossil fuels – becomes my business: I have an incentive to influence your behaviour to our mutual advantage: lower demand means lower prices... Secondly, the big structural changes – including a substantial localization of the energy system – that will be needed to achieve deep reductions in dependency on fossil fuels will not by any means be simply a function of individual effort.<sup>6</sup>

Since the proposal under consideration here involves trading options within an individual rationing scheme, in order to implement national mitigation obligations and to assign remedial responsibility among sub-state parties according to justified criteria, I consider the above-noted benefits of carbon trading as well as examining three objections to it.

The first objection concerns the commodification of either CO<sub>2</sub> itself or its sequestration capacity, which allegedly results in the inequitable allocation of goods or services from linking unequally-held economic power with the permission to emit greenhouse gases. Note that another objection concerns the commodification of ecological goods and services without reference to any further impacts of their market allocation, claiming commodification of nature to be wrong in itself, but such an objection would apply to all carbon pricing systems rather than cap and trade schemes like PCT. Here it is claimed that trading systems inherently exacerbate or exploit existing wide inequalities among and between people by associating one kind of disadvantage-conferring inequality with another. This claim is thus that carbon trading is *unjust*. The second objects to the delegation of abatement obligations to others through trading on consequentialist grounds, claiming that delegating decarbonisation obligations to others through trading rather than undertaking them by oneself slows the transition to a low-carbon society and economy, where urgency requires that transition to be made quickly. Here, the focus is upon impacts other than those associated with socioeconomic inequality, and the claim is thus that carbon trading is *bad*. Finally, the third objects to delegating such obligations for reasons related to assignments of moral responsibility (e.g. that offset purchasers are evading some abatement obligations that are properly their own). This claim is thus that carbon trading is *irresponsible*.

The standard economic case on behalf of carbon trading is consequentialist, arguing that trading allows for more efficient decarbonisation than would be possible without it, and may be more politically feasible in states with commitments to neoliberal market trading regimes for other goods. Because carbon trading allows agents to utilize the decarbonisation options with the lowest per-unit abatement costs rather than requiring that they reduce their own emissions at potentially much higher per-unit cost, they can reach their abatement targets more cheaply. While the relative economy of allowing for more efficient abatement options would not directly benefit climate change mitigation efforts, compared against parties reaching their targets through more expensive direct abatement efforts, the lower costs associated with a trading system might



make the ETS under which trading is conducted to be more politically feasible, or might allow its decarbonisation goals to be more ambitious. One might argue from opportunity costs that spending more on direct decarbonisation would lead to morally worse outcomes since it might divert resources away from other important efforts like poverty relief, but efficiency alone would not otherwise commend such schemes on ethical grounds.

Indeed, John Broome makes such an argument, defending the use of carbon offsets for their efficiency and claiming that ‘as a general rule, it is better for the world if things are done where they can be done most cheaply’.<sup>7</sup> While he argues for a duty to achieve carbon neutrality on justice grounds rather than by appeal to consequences, he acknowledges that persons could do more good by using their money on poverty relief or public health efforts rather than purchasing carbon offsets, but claims that maximizing goodness would involve ‘acting unjustly by emitting greenhouse gas that harms people’.<sup>8</sup> Distinguishing between duties of beneficence or humanity that oblige persons to aid the vulnerable and duties of justice that oblige them to avoid causing harm, Broome argues that the latter have priority and are more stringent. At best, more efficient means of fulfilling one’s duties of justice by achieving carbon neutrality would be instrumentally and contingently good, provided that the resulting savings were invested in humanitarian efforts to improve the lives of others, not used to enhance one’s own consumption opportunities. Here, efficiency makes ethical action possible, but has no moral content of its own. Notably, Broome objects to the compliance offsets used to meet national decarbonisation targets, referencing only the voluntary offset market through which personal emissions aren’t capped and therefore cannot be traded, but his qualified and indirect defence of efficiency might likewise apply to a PCT scheme, given its potential to allow agents to do further good beyond the demands of justice.

Simon Caney likewise points to considerations of efficiency and feasibility in defending carbon trading schemes, finding these to be pragmatically justified at the country or firm level if also objectionable at the personal level. Having noted that economic instruments like carbon taxes or trading schemes allow parties to discharge a given abatement obligation at the lowest cost, he identifies opportunity costs of undertaking more costly abatement options, suggesting along with Broome that ‘these wasted funds might have been used to develop new low-carbon technologies and products, increased staff wages, been passed onto shareholders or simply given to charity’.<sup>9</sup> Elsewhere, Caney concedes that international emissions trading might not actually

lower emissions, as the cap rather than the various compliance options are what ensures results, but suggests that if trading is ‘a persuasive sweetener’ to reluctant parties and if ‘powerful actors sign up to the package as a whole only because’ of it, then it would be ‘wrongheaded’ to reject trading ‘even though it does not itself lower any emissions’.<sup>10</sup>

Note that the efficiency claims touted by Broome and Caney depend upon two premises that are contested by critics. The first concerns this contingent value, where resources saved as the result of more efficient carbon abatement lead to greater national support for humanitarian causes or redoubled sustainability efforts, for which experience suggests a justified scepticism. The second depends upon a claim accepted by both Broome and Caney but doubted by scholars of various carbon offset programs. As Broome claims, referring to both its effects upon global climate and in discharging one’s remedial responsibility for climate-related harm, ‘emitting a tonne of carbon dioxide and offsetting it is exactly as good as not emitting it in the first place, providing the offset is genuine’.<sup>11</sup> Offsets must be equivalent in their physical effects to count as such, which Broome doubts in the context of sequestration offsets developed under REDD, from which compliance offsets that states are expected to trade internationally in order to meet their mitigation targets under the successor treaty to the expired Kyoto Protocol originate. Against the ‘genuine’ quality of offsets from reforestation projects, he claims that their use by states in complying with national mitigation targets ‘will simply lead to extra global emissions unless any new carbon credits it produces are balanced by a corresponding cut in emissions permits around the world’,<sup>12</sup> and when used to achieve compliance with national caps offer developed countries ‘a useful smokescreen for evading their responsibilities’.<sup>13</sup> Curiously, the voluntary carbon offsets that persons use to achieve carbon neutrality evidently enjoy this moral equivalence for Broome, since he endorses schemes by which paying someone else to take remedial action is fully equivalent to undertaking that action oneself, despite the far less rigorous standards for ensuring biophysical equivalence among the voluntary offsets that he commends compared to the compliance offsets that he rejects.

By contrast, Caney implicitly endorses compliance offsets used in international carbon trading schemes as well as the trading amongst firms present in upstream rationing systems while rejecting personal carbon trading, citing an argument about autonomy expressed in individual terms on behalf of trading by states or firms. He approvingly cites Simmel in claiming that

‘allowing persons to discharge their duties through the payment of money rather than through performing specific acts or providing in-kind payments grants them a greater degree of freedom than they would otherwise have’,<sup>14</sup> despite rejecting such trading when done at the individual rather than international level. Nonetheless, one might defend PCT schemes on the basis of the autonomy that they allow, citing the greater autonomy afforded to individual persons through Caney’s analysis than the collective bodies that he references. States that opt to sell carbon credits that would otherwise allow their citizens to experience the benefits of development do not grant those citizens a ‘greater degree of freedom’ in so doing, especially when they fail to consult or override the expressed preferences of many of those citizens. Those draining national treasuries to purchase additional carbon credits rather than using those funds to develop the low-carbon infrastructure that many of their citizens prefer likewise fall short of the autonomy value that Caney finds in international carbon trading. If freedom or autonomy is to serve as a reason for endorsing carbon trading, it would seem most compellingly located in a PCT scheme by which persons make decisions that affect themselves alone, not in international or upstream schemes by which a few elites make trades that affect persons whose consent is not required or solicited in advance. However, the efficiency and autonomy benefits of carbon trading schemes are often opposed by objections thought by some to outweigh them, and to these we now turn.

### **Objection 1: Equity**

By pricing the permission to emit CO<sub>2</sub> and allowing it to be bought and sold, PCT commodifies either the pollutant or the sink capacity that allows it to be harmlessly emitted. With this commodification, critics argue, ecosystem services like sink capacity ‘become the basis for new socio-economic hierarchies, characterized by the re-positioning of existing social actors, the emergence of others and, very likely, the reproduction of unequal power relations in access to wealth and environmental resources’.<sup>15</sup> Given the correlation between carbon emissions, energy use, and privileges associated with affluence like greater mobility or higher consumption rates, the commodification of carbon allowed through trading schemes has the effect of distributing such privileges by market supply and demand, allowing existing wide economic inequities to translate into inequities in access to ecosystem services or the privileges that these allow.

David Harvey, for example, claims that the ‘primary aim’ of commodification ‘has been to open up new fields for capital accumulation in domains formerly regarded off-limits to the calculus of profitability,’ leading to ‘accumulation by dispossession’ through which resources transferring from common to private ownership shifts wealth from rich to poor.<sup>16</sup> In the context of international carbon trading, Bumpus and Liverman cast this as a form of ‘accumulation by decarbonization’, as unequal exchange between rich and poor ‘disadvantages others who were more efficient or less powerful in negotiations or were willing to assign their carbon rights to others at a low cost—such as forest owners in the developing world’.<sup>17</sup> By allowing the world’s affluent to buy the cheap carbon credits on offer from within developing countries, at rates that reflect the latter’s disadvantaged bargaining position, trading based in the creation of carbon credits through sequestration projects in the developing world can allow the affluent to profit by exploiting cheap offset opportunities in the global South.

Such a critique applies primarily to the compliance offset system through which carbon credits are traded amongst states or other large organizations, and where some credits are created through projects undertaken in poor countries. Since PCT allows trading among only domestic parties and prohibits the sort of ‘carbon colonialism’ referenced, the kind of exploitation that critics attribute to international carbon trading would not apply. While economic hardship may lead some to sell some personal carbon credits from what resembles a kind of coercion in PCT schemes, buyers acquire only the one-time permission to emit rather than the sink capacity that makes ongoing emissions possible, as with the international carbon trading systems referenced above. Moreover, since those exceeding their personal carbon allowance would buy extra credits on an exchange rather than purchasing them directly from sellers, they could not exploit unequal bargaining positions in the way that they might under so called ‘carbon colonialism’ systems. At least with regard to this form of the equity objection to carbon trading, PCT schemes appear to be less vulnerable than the more commonly endorsed international trading schemes.

Another equity worry may apply at the domestic level and through the trading of carbon among persons, however. As Jonathan Aldred notes, ‘carbon trading extends the domain of distribution of goods based on willingness to pay (and ability to pay) in the market’,<sup>18</sup> allowing the affluent greater access to those goods and activities with embedded carbon. Given existing economic inequality among persons, market trading would allow ‘extreme inequality of access’

that currently characterizes market-distributed goods to be ‘spread to more goods’, including those related to energy use. Unless corrected in some way, Aldred claims, the effects would be highly regressive. Since CO<sub>2</sub> ‘is a prerequisite for the fulfillment of basic needs’, its distribution by market principles can be ‘akin to regressive taxation’ in that ‘the burden of a higher carbon price falls more heavily on the poor, because they spend a higher proportion of their income on goods whose production requires carbon emissions’.<sup>19</sup>

Aldred’s worry about regressivity in the impact of carbon pricing applies more directly to carbon taxes or upstream rationing schemes involving firms, which pass costs on to consumers through higher prices in this potentially regressive manner, than it does to a downstream scheme like PCT, which grants all persons some basic emissions entitlement that should allow for the protection of basic needs. Similar to carbon tax compensation schemes that provide some basic access to carbon before the tax applies or compensate low-income persons for expenses related to basic needs, a PCT guarantees a basic carbon entitlement that should blunt the worst aspects of the individual equity critique. Indeed, a PCT is unique among carbon pricing schemes in that it guarantees free access to that carbon that is necessary for meeting basic needs along with some level of luxury emissions, even if it would allocate further luxury emissions according to ability to pay. As Kai Spiekermann notes, surplus carbon credits would be distributed by market supply and demand under a PCT, potentially allowing the affluent greater access to goods like airline travel that require the purchase of credits beyond this personal entitlement,<sup>20</sup> but the PCT itself would narrow rather than widen existing inequalities related to access to ecosystem services. That it cannot neutralize the insidious impact of socioeconomic injustice altogether cannot be the fault of a PCT, which aims to more equitably allocate access to goods that without such a scheme would still to be disproportionately controlled by the rich, with bad environmental consequences of climate change falling largely upon the poor. Indeed, as noted above, PCT schemes appear to better promote equity in carbon access than do any other carbon pricing mechanism available for use in implementing national mitigation targets, obviating the force of this objection to trading.

### **Objection 2: Consequences**

A different objection arising from the commodification of carbon pollution or associated sink capacity concerns the expressive content of the permission that market trading implies. In a

frequently-cited version of this critique, Michael Sandel argues that ‘turning pollution into a commodity to be bought and sold removes the moral stigma that is properly associated with it’.<sup>21</sup> Whereas an *ex post* fine for polluting preserves that stigma by ‘the community conveying its judgment that the polluter has done something wrong’, Sandel explains, an *ex ante* fee conveys a permission to engage in harmful activity.

The distinction between a fine and a fee for despoiling the environment is not one we should give up too easily. Suppose there were a \$100 fine for throwing a beer can into the Grand Canyon, and a wealthy hiker decided to pay \$100 for the convenience. Would there be nothing wrong in his treating the fine as if it were simply an expensive dumping charge?<sup>22</sup>

By implying this implicit permission to pollute, he argues, marketable pollution rights (of which carbon offsets offer an imperfect example, to be discussed below) allow persons to act against community goals like environmental protection so long as they pay enough to do so, which ‘may undermine the sense of shared responsibility that increased global cooperation requires’.<sup>23</sup>

Sandel’s critique might be viewed as indirectly consequentialist; as claiming that fines are superior to fees because of their expressive value, which reinforces social norms against pollution and so further discourages it. Here, one might distinguish between the intrinsic motive of reducing one’s pollution on the belief that it is wrong and the extrinsic motive of reducing it because of some economic cost attached to it. The claim might thus be restated: while both fines and fees attach an economic cost to polluting and thereby furnish an (equal) extrinsic motive for avoiding it when possible, fines reinforce the social stigma attached to violating a norm, thereby furnishing an additional intrinsic motive for doing the same, while fees connote permission and thus undermine that intrinsic motive. Understood in this way, Sandel’s critique does not endorse the claim that pollution rights would be inappropriate to exchange for money or to allocate through a market, with which it is sometimes conflated, since both fines and fees in effect allow persons to pollute in exchange for a charge that is identical in both cases. His critique therefore also applies in one sense to any carbon pricing mechanism, all of which allow persons to emit some amount of CO<sub>2</sub> in exchange for a fee, urging instead a regulatory scheme whereby some level of personal carbon pollution is prohibited, with violations punishable by a fine. Note, however, that only a PCT scheme expresses a norm of equitable emissions through which one might infer some social disapprobation against excessive pollution, as Sandel recommends, rather than treating all pollution as fully permissible so long as required fees are paid.

Under upstream rationing schemes whereby firms are required to purchase carbon credits (or pay a carbon tax), a similar effect might occur. As Aldred suggests, where firms are allowed the option of paying a fee to pollute (e.g. through offset schemes) rather than being fined and implicitly chastised for polluting in excess of permitted levels (e.g. through ‘command and control’ regulation), corporate social responsibility (CSR) programs designed around carbon emission limits may be undermined, since the fees would in such cases allow firms the option of achieving their abatement targets through offsets rather than by reducing their own emissions. Echoing Sandel’s worry about expressing a moral permission to pollute so long as ‘the requisite number of permits are purchased,’ Aldred claims that ‘carbon trading weakens the stigma attached to a large carbon footprint and, therefore, the reputational gain to be had from reducing it’.<sup>24</sup> Shareholder movements to pressure firms into taking on carbon reduction goals may be frustrated insofar as those firms can receive the same reputational benefit by simply purchasing carbon offsets rather than changing behavior or upgrading infrastructure, forestalling meaningful progress toward low-carbon modernization. While a similar dynamic in deciding between the purchase of extra carbon credits and undertaking personal carbon abatement efforts may plague PCT schemes, in that some might be allowed to shirk their share of social decarbonisation efforts by paying others to do this for them, the full biophysical equivalence of both alternatives makes PCT less vulnerable to this consequentialist objection than upstream rationing schemes. Indeed, to return to Sandel’s analogy, the wealthy hiker would be paying someone else to pack the beer can out of the canyon rather than paying a fee to pollute the national park, which might make the activity vulnerable to the third objection but not to one predicting increased levels of pollution.

Other consequentialist objections against the commodification of the ecosystem service related to carbon sequestration are available, however, as the process of commodifying carbon can lead to undesirable outcomes through its incentive effects. Rendering carbon sequestration capacity as a tradable good through schemes like REDD requires the *individuation* of this ecosystem service, which involves the imposition of legal boundaries around certain phenomena so that they can be bought and sold,<sup>25</sup> as well as *itemization*, which ‘results from the separation of such biological function from existing forests or from future planted trees or forested areas’, measuring that capacity ‘through biomass content and growth models which translate it into tons of carbon dioxide stored in trees’.<sup>26</sup> In practice, this has led to ‘the conservation and planting of

certain tree species above others, such as those with the largest carbon content or higher growth rates' and has encouraged the state and private landowners 'to invest preferably in tree plantations more than encouraging the restoration or conservation of complex tropical or subtropical ecosystems,' harming biodiversity and ecosystem resilience.<sup>27</sup>

Note again that such consequentialist objections against carbon trading apply primarily to schemes other than a domestic PCT, which commodifies carbon emissions without allowing the buying or selling of carbon sinks, and which therefore yield none of the harmful incentive effects noted above. Worries about effects upon forestry practices apply to international schemes like REDD that allow credits to be created through reforestation projects, and Aldred's objection applies to carbon trading among firms. Only Sandel's critique of the lost expressive value of prohibitions would apply to the kind of commodification that PCT schemes entail, and then underestimate the normative potential from introducing new restrictions on carbon emissions where none existed previously, requiring personal attention to decarbonization imperatives in a way that helps to instantiate new low-carbon norms through the expression of disapprobation for the *excessive* and harmful personal emissions with which he is concerned. Indeed, only PCT can promise the efficiency and autonomy associated with carbon trading without the potential for negative consequences associated with either upstream firm-based or international trading.

### **Objection 3: Responsibility**

A more cogent formulation of Sandel's critique of carbon trading might be construed in terms of responsibility rather than consequences. Here, the claim is that allowing pollution in exchange for a fee fails to hold agents responsible for doing their part to reduce society's overall levels of pollution. The wealthy hiker would be shirking her duties to reduce littering within the canyon, which require all users to bear certain convenience costs, rather than allowing those with the financial means to delegate those duties to others. As noted above, this would not necessarily result in more pollution, as Sandel implies, but it would shift the burden of undertaking required abatement activities from the buyer to the seller of personal carbon credits. The payment in exchange for the transfer of carbon credits grants legitimacy to this delegation, according to this view, rather requiring pollution abatement duties to be the responsibility of each.



Internationally, this objection to the delegation of decarbonisation activities by developed to developing countries motivated several restrictions upon compliance offsets in international carbon trading under the Marrakesh Accords, adopted at the 2001 Conference of the Parties (COP-7) to the UNFCCC. It declared that developed countries should ‘implement domestic action in accordance with national circumstances and with a view to reducing emissions in a manner conducive to narrowing per capita differences’ between countries, and thus that the use of market-based compliance mechanisms like emissions trading ‘shall be supplemental to domestic action and that domestic action shall thus constitute a significant element of the effort made by each Party included in Annex I to meet its quantified emission limitation and reduction commitments’. At the international level, the ability to delegate carbon abatement duties through offsets and international trading was viewed as a form of wrongful shirking, through which those parties most responsible for climate change were seen as failing to do their part in combatting it.

Caney and Hepburn term this the *Collective Sacrifice Argument*, holding responsibility for climate change to involve ‘non-delegable duties’ in which agents are required to ‘constrain their own emissions and not pay for someone else to lower their emissions’.<sup>28</sup> They reject it as formulated by Sandel, appealing to autonomy in allowing for exchanges between buyers and sellers of permits as well as questioning why decarbonisation efforts should invoke a sense of civic responsibility in the first place. Since their interest lies in emission trading among firms or states rather than individuals, Caney and Hepburn’s primary concern lies with efficiency, to which they appeal in asking whether it would be permissible for a rich western country to pay a developing country like China for compliance offsets rather than reducing its domestic emissions. Here, they presume that none could object to a rich country receiving credit for paying a poor country to lower its emissions when this could be done more cheaply than achieving the same level of carbon abatement at home, considering only the scenario where the rich country ‘can’t really be bothered’ to take domestic action and so purchases the carbon credits from a poor one to delegate that action for noneconomic reasons. Here, they note an equity objection, supposing that ‘it might seem problematic for the wealthy to pay the poor to forego a good that the wealthy continue to enjoy,’ but dismiss the objection on grounds that its remedy requires that there be a ‘fair distribution of resources, including a fair share of emissions

permits' globally.<sup>29</sup> A similar remark might be made on behalf of a PCT, although Caney and Hepburn are concerned here not with a personal trading scheme but with one among states.

Elsewhere, Caney concedes that an objection about the delegation of duties through an offset scheme is 'most plausible' against PCT schemes, which involve a cooperative scheme 'in which everyone is charged to perform a specific shared task as a civic responsibility,' and where trading would allow some to exempt themselves from 'acting in a public-spirited way furthering the common good'.<sup>30</sup> However, he claims that in carbon trading 'the motivation of the person lowering emissions does not matter at all' for the outcome,<sup>31</sup> and rejects the notion that persons must reduce their emissions for intrinsic moral reasons related to their doing their part in a collective scheme rather than from the economic motivation associated with the offset scheme, dismissing civic responsibility-based objections to trading altogether. Likewise, Edward Page argues that such an objection 'fetishizes the importance of agential responsibility' while failing to consider that 'this seems to be a price worth paying if the result is a more efficient response to climate change',<sup>32</sup> thus undercutting an objection that he finds 'troubling' but 'hardly decisive'.<sup>33</sup>

It is thus fitting that collective sacrifice forms a core component for the case on behalf of PCT schemes, which allow trading but nonetheless call for a kind of collective sacrifice in that all must comply with rationing schemes through which all are affected. In advocacy of PCAs, for example, Keith Hyams reiterates the importance of acting from a sense of common purpose, noting that the economic motive for trading under an PCT scheme 'would be supplemented by the additional moral motivation accompanying the belief that one is contributing one's fair share to the burden of discharging a collective responsibility'.<sup>34</sup> Critical to this motive is the cognitive responsibility that accompanies the taking of economic responsibility through a combination of personal decarbonisation and offset trading, which Hyams argues would not be diminished by the provision for trading unused credits among persons. Critics directing their ire against carbon trading for the personal responsibility that it putatively allows to be delegated would do well to consider how it can also help to found such responsibility, along with considering how limits to such delegation under well-designed PCT schemes might be able to minimize the force of this objection. Surplus emissions credits would be unaffordable for anyone if nobody undertook significant carbon abatement actions under a PCT designed to reduce domestic emissions to the extent required by just national mitigation targets,<sup>35</sup> and limits on the selling of personal carbon

credits beyond the subsistence threshold similar to those proposed for states under the Marrakesh Accord could further ensure that all bear some abatement burden in reducing their society's emissions rather than fully delegating these to others.

Collective sacrifice, like the 'common but differentiated responsibilities' principle from the UNFCCC, requires that all be held responsible for climate-related harm in some way, and in accordance with ethical criteria by which remedial responsibility is properly assigned. As with international schemes, defensible limits upon trading to protect basic needs and to ensure that all do their part should address the worries that critics express any parties escaping decarbonisation obligations altogether, which none should be able to do under a well-designed PCT. Trading as well as tax-based schemes ensure that all take economic responsibility for the global problem, and as suggested above a PCT scheme uniquely promotes cognitive responsibility for it, as well. The further requirement that all persons within society bear the full burden associated with reducing their emissions to the level set by their personal carbon entitlement—which entails a significantly greater burden for those with much higher current emissions—would be onerous for these likely buyers of carbon credits in any trading scheme, who seek to reduce but not eliminate this burden altogether. It would require individual rationing without a trading option, foregoing the efficiency and autonomy benefits noted above as well as incentives for further abatement beyond the threshold set by the personal carbon entitlement. Even if paying is not fully morally equivalent to undertaking personal decarbonisation activities, as is suggested above, the two are biophysically equivalent, and few if any would likely be able to entirely avoid some of the latter.

### **Conclusion**

Advocates of various PCT schemes claim that the cognitive responsibility that comes with acknowledging one's obligation to contribute toward remedies can promote the sort of reflexivity by which attitudes and behaviours can be effectively transformed. As Parag and Strickland note, personal carbon trading require that persons be informed about their carbon footprints as well as those associated with various activities in which they might engage, which would help to 'create a perceptual and cognitive framework enabling individuals to integrate understanding across emissions from different activities, and in the context of energy use as it occurs'.<sup>36</sup> They argue that 'carbon visibility, awareness, and correct information are crucial for

promoting behavioural change’ on an individual level, but that transformation in social norms regarding greenhouse pollution that results from personal trading programs can enhance the efficacy and legitimacy of such remedial efforts, which ‘increases when people are aware of the problems resulting from their energy use, feel responsible for it, and feel morally obliged to do their bit to help solve these problems’.<sup>37</sup>

This visibility of personal carbon emissions made possible through a PCT may not only be personally empowering, with the power of information combined with an economic incentive to reduce personal carbon footprints, but it could also be socially empowering, encouraging cooperation in the development of a more sustainable society. As Fleming suggests, a PCT scheme ‘is not a negative programme in which individuals are persuaded to reduce energy use (by the use of sanctions such as taxes), but a positive and collective – even exhilarating – incentive to restructure and rebuild the political economy on different principles’.<sup>38</sup> Given the requirement to purchase additional emissions permits when personal carbon footprints exceed their quotas, with permits traded on a market with prices that fluctuate with supply and demand, the aggregate social supply and demand for carbon would be as visible to persons as their own supply and demand. When many fail to comply with their quotas and so require offsets to comply with them, the market price of offsets increases, giving persons a fiduciary interest in developing green energy and transport infrastructure, thereby combating the current economic interest in supporting low-cost but high-carbon energy sources based in fossil fuels. Neither of these advantages would accrue in a domestic compliance system built around a carbon tax, which requires none of these cognitive or cooperative elements.

The assignment of remedial responsibility for problems like climate change involves the reduction in contributions to a global environmental hazard, but should be done in a manner that is normatively defensible if parties are to be held responsible for their role in contributing to that hazard, and if indeed responsibility is to identify and assist in their compliance with just remedial burdens. As fairness in international remedial responsibility takes account of criteria like equity and moral responsibility, so also could it as nation-states transfer their collective responsibilities into implementing mechanisms than in effect attribute remedial responsibility among sub-state parties, which occurs in any event. So long as they avoid problems associated with other carbon trading schemes and focus upon cultivating the cognitive responsibility that can help to mobilize

the economic responsibility that PCT schemes also call upon, such proposals offer means by which the large-scale challenges of climate justice might begin to be translated into individual duties as well as policy mechanisms for implementing national carbon abatement imperatives. As such they warrant the attention that has thus far been reserved for the rationing of carbon or assignment of remedial burdens among states rather than persons.

## NOTES:

---

<sup>1</sup> David Miller, “Global justice and climate change: How should responsibilities be distributed?” *The Tanner Lectures on Human Values* 28 (2008): 117-56, p. 121.

<sup>2</sup> Tina Fawcett, ‘Personal carbon trading: A policy ahead of its time?’, *Energy Policy* 38 (2010): 6868-76, p. 6875.

<sup>3</sup> David Miller, ‘Distributing responsibilities’, *The Journal of Political Philosophy* 9, 4 (2001): 453-71, p. 454.

<sup>4</sup> Miller (2001), op. cit., p. 471.

<sup>5</sup> Andrew Dobson, ‘Thick cosmopolitanism’, *Political Studies* 54, 1 (2006): 165-84.

<sup>6</sup> David Fleming. (2007), *Energy and the Common Purpose* (London: The Lean Economy Connection, 2007), available at: <http://www.teqs.net/book/teqs.pdf>, p. 14.

<sup>7</sup> John Broome, *Climate Matters: Ethics in a Warming World* (New York: W.W. Norton, 2012), p. 93.

<sup>8</sup> Broome (2012), op. cit., p. 91.

<sup>9</sup> Simon Caney and Cameron Hepburn, ‘Carbon trading: Unethical, unjust, and ineffective?’ *Royal Institute of Philosophy Supplement* 69 (2011): 201-34, p. 206.

<sup>10</sup> Simon Caney, ‘Markets, morality and climate change: What, if anything, is wrong with emissions trading?’ *New Political Economy* 15, 2 (2010): 197-224, p. 216.

<sup>11</sup> Broome (2012), op. cit., p. 89.

<sup>12</sup> Broome (2012), op. cit., p. 95.

<sup>13</sup> Broome (2012), op. cit., p. 94.

<sup>14</sup> Caney (2010), op. cit., p. 200.

<sup>15</sup> Nicolas Kosoy and Esteve Corbera, ‘Payments for ecosystem services as commodity fetishism’, *Ecological Economics* 69 (2010): 1228-1236, p. 1234.

<sup>16</sup> David Harvey, ‘Neoliberalism as creative destruction’, *The ANNALS of the American Academy of Political Science* 610 (2007): 22-44, p. 35.

<sup>17</sup> Adam Bumpus and Diana Liverman, ‘Accumulation by decarbonization and the governance of carbon offsets’, *Economic Geography* 84, 2 (2008): 127-55, p. 144.

<sup>18</sup> Jonathan Aldred, ‘The ethics of emissions trading’, *New Political Economy* 17, 3 (2012):339–360, p. 343.

<sup>19</sup> Aldred (2012), op. cit., p. 345.

- 
- <sup>20</sup> Kai Spiekermann, ‘Buying low, flying high: Carbon offsets and partial compliance’, *Political Studies* 62, 4 (2014), 913-29.
- <sup>21</sup> Michael Sandel, ‘Should we buy the right to pollute?’, in *Public Philosophy: Essays on Morality in Politics* (Cambridge: Massachusetts: Harvard University Press, 2005), p. 94.
- <sup>22</sup> Sandel (2005), op. cit., p. 94.
- <sup>23</sup> Sandel (2005), op. cit., p. 95.
- <sup>24</sup> Aldred (2012), op. cit., p. 351.
- <sup>25</sup> Noel Castree, ‘Commodifying what nature?’, *Progress in Human Geography* 27, 3 (2003): 273-97, p. 280.
- <sup>26</sup> Kosoy and Corbera (2010), op. cit., p. 1231.
- <sup>27</sup> Ibid.
- <sup>28</sup> Caney and Hepburn (2011), op. cit., p. 214.
- <sup>29</sup> Caney and Hepburn (2011), op. cit., p. 217.
- <sup>30</sup> Caney (2010), op. cit., p. 208.
- <sup>31</sup> Caney (2010), op. cit., p. 209.
- <sup>32</sup> Edward Page, ‘Cashing in on climate change: Political theory and global emissions trading’, *Critical Review of International Social and Political Philosophy* 14, 2 (2011): 259-79, p. 267.
- <sup>33</sup> Page (2011), op. cit., p. 268.
- <sup>34</sup> Keith Hyams, ‘A just response to climate change: Personal carbon allowances and the normal-functioning approach’, *Journal of Social Philosophy* 40, 2 (2009): 237-56, p. 238.
- <sup>35</sup> Mark Sagoff, ‘Controlling global climate: The debate over pollution trading’ in V.V. Gehring and W.A. Galston (eds.), *Philosophical Dimensions of Public Policy* (New Brunswick, NJ: Transaction), pp. 311-18.
- <sup>36</sup> Yael Parag and Deborah Strickland, ‘Personal carbon trading: A radical policy option for reducing emissions from the domestic sector’, *Environment: Science and Policy for Sustainable Development* 53, 1 (2010): 29-37, p. 32.
- <sup>37</sup> Parag and Strickland (2010), op. cit., p. 33.
- <sup>38</sup> Fleming (2007), op. cit., p. 14.