

# The Ethics of Carbon Offsetting

Keith Hyams and Tina Fawcett

Carbon offsetting can be loosely characterised as a mechanism by which an organisation or individual contributes to a scheme projected to deliver carbon emission reductions on the part of others, and thereby claims responsibility for the reduction themselves. The term ‘offsetting’ is used because such contributions are used to balance out some or all of the organisation or individual’s own carbon emissions, so as not to exceed, in total, some ethical or legally imposed emission limit.

The usefulness of carbon offsetting as an approach to tackling climate change is hotly contested. The United Nations, which has created and governs the major global mechanism for generating and validating carbon offsets, the Clean Development Mechanism (CDM), states that it “stimulates sustainable development and emissions reductions, while giving industrialised countries some flexibility in how they meet their emission reduction limitation targets.”<sup>1</sup> Critics make very different claims, for example: “Carbon offsets are at best a distraction and at worst a grandiose carbon laundering scheme.”<sup>2</sup>; “Carbon offsetting is without scientific legitimacy and is dangerously misleading”<sup>3</sup>.

Arguments about the ethics and effectiveness of carbon offsetting have ranged across the science of carbon emissions, abatement technologies, economics, politics, international relations and philosophy. It is a topic which has divided the environmental movement. Some environmental organisations are actively involved in supporting carbon offsetting, whereas others reject its use entirely. For example, WWF founded and continues to support the ‘Gold Standard’, a ‘best practice methodology and high quality carbon credit label for both Kyoto and voluntary markets’, which is also supported by 80 other NGOs worldwide<sup>4</sup>. Likewise, Forum for the Future, a UK sustainable development charity, works on BP’s ‘Target Neutral’ carbon offsetting scheme, which includes a number of prominent environmentalists such as Jonathon Porritt on its advisory panel<sup>5</sup>. On the other hand, Friends of the Earth has published a very critical report which rejects all forms of carbon offsetting<sup>6</sup>, and environmental campaigner and author George Monbiot has dismissed carbon offsets as a means of making substantial cuts to net greenhouse gas emissions<sup>7,8</sup>.

In what follows, we begin by discussing in more detail the nature of carbon offsetting, highlighting key differences between the compliance and the voluntary market for carbon offsets. We then seek to expose some of the underlying reasons for the ethical disagreements described above. We will show that these disagreements relate both to empirical disagreements about what the likely benefits of offsetting are, and, more fundamentally, to principled disagreements about the right way to discharge duties to deliver carbon reductions.

## 1. Regulated *versus* voluntary offsetting

Carbon offsetting comes in two forms – regulated or compliance offsetting, and voluntary offsetting. While there are important differences between these types of offset (Table 1 below) they nevertheless co-evolved from a common base in the 1990s, and are linked in a number of ways, not least the fact that a growing number of companies sell both compliance and voluntary offsets<sup>9</sup>.

Regulated carbon offsetting emerged as a small-scale experimental idea agreed at the Kyoto Protocol talks in 1997. It was intended to give developed countries some flexibility in meeting their legally-binding carbon reduction targets. The key arguments in favour of regulated offsetting were that it would:

- Be an economically efficient way of making carbon cuts globally
- Transfer money from richer to poorer countries
- Help with technology transfer and development in poorer countries<sup>6</sup>.

The two mechanisms by which offsetting can occur under the Kyoto Protocol are the Clean Development Mechanism (CDM) and Joint Implementation (JI). The most important difference

between these schemes is that CDM schemes operate in developing countries and JI schemes in developed countries (primarily in Eastern Europe). CDM is much the bigger scheme, accounting for 90% of all offset project transaction volumes<sup>10</sup>. Although carbon offsets were initially supposed to be a ‘supplementary’ measure, according to the Kyoto Treaty, they have now become a dominant component in international action to reduce carbon emissions. Within the EUETS scheme, during Phase II (2008-2012), the UK was allowed to use CDM/JI credits to meet around two-thirds of its national savings target, and the percentage allowed on average across the EU was even higher<sup>11</sup>. The EU has tightened the rules on use of CDM for Phase III (2012-2020), so that a maximum of 50% of required savings are met through offsets. The World Bank<sup>12</sup> suggests that to date CDM and JI have reduced over 600 MtCO<sub>2e</sub> of emissions, which is more than the total annual emissions from the UK economy, and may achieve emissions reductions of the order of 3,300 MtCO<sub>2e</sub> by 2020.

Voluntary carbon offsets are, by contrast, purchased by organisations and individuals who wish to offset their emissions for reasons other than external compulsion. Just 1.3% of voluntary carbon offsets were bought by individuals in 2011, the vast majority being bought by organisations, primarily corporations<sup>13</sup>. Survey information indicates that voluntary offsets are most usually purchased for ethical or corporate social responsibility reasons<sup>14</sup>. A ‘carbon management hierarchy’ is quoted in government advice on voluntary carbon offsetting<sup>15</sup> and by companies selling carbon offsets<sup>16</sup>. The hierarchy suggests that carbon offsets should only be used as a last step, when the options for avoiding, then reducing emissions, and then substituting lower carbon options have been exhausted. Yet it seems unlikely that most purchasers of voluntary carbon offsets have followed the hierarchy. For individuals, carbon offsets are often sold in conjunction with avoidable high carbon activities such as flights, which suggests a lack of attention to the carbon hierarchy. And in the case of organisations, in a survey of over 1,600 environmental management practitioners, 44% of respondents were concerned that offsetting could distract attention from reducing greenhouse gases at source<sup>17</sup>. A useful summary of many of the arguments around voluntary offsets can be found in a report by the UK House of Commons Environmental Audit Committee<sup>18</sup>.

**Table 1: Summary characteristics of compliance and voluntary carbon offset markets**

	<b>Compliance</b>	<b>Voluntary</b>
<b>Origin</b>	Established under the Kyoto Protocol in 1997.	Developed by businesses and NGOs since the early 1990s.
<b>Schemes</b>	CDM – Clean Development Mechanism & JI – Joint Implementation	Hundreds of organisations operate in this market, with a number of competing standards and verification schemes.
<b>Activities undertaken to generate offsets</b>	Largely abatement of industrial greenhouse gases <sup>19</sup> .  Note: This is highly influenced by EUETS rules which do not allow inclusion of offsets from forestry or agricultural projects.	Varies considerably year to year. In 2010, dominated by forest carbon credits (45%) followed by methane capture (18%) with little activity in renewable energy & energy efficiency * In 2011, renewable energy accounted for 45% of transactions, followed by forestry.**
<b>Regions from which offsets originate</b>	Primarily China and India <sup>19</sup>	Varies year by year. 2010: North America (35%), Latin America (28%), Asia (17%), Africa (4%) * 2011: North America was still the biggest source, but Asian offsets increased considerably.**

<b>Types of purchaser</b>	Organisations with legally-binding carbon reduction targets to meet, primarily European organisations within EUETS.	Organisations (98.7%) and individuals (1.3%) primarily in Europe and the US. **
<b>Offset carbon traded in 2011 (MtCO<sub>2e</sub>) **</b>	291 (CDM, primary transactions only)	95
<b>Future expectations</b>	Considerable uncertainty, due to lack of successor to Kyoto Protocol and new EUETS rules.	Growth to continue.

Sources: \* figures for 2010 from Reference 14 \*\* figures for 2011 from Reference 13

Note: all percentage figures are by volume, i.e. tonnes of CO<sub>2</sub>, not by value

## 2. Scientific legitimacy and carbon accounting

Two key sets of ethical concerns about carbon offsetting relate to, first, issues of scientific legitimacy, and second, issues of carbon accounting such as additionality.

Scientific debates are generally centred on projects in agriculture or forestry, most of which are sold as voluntary offsets. To take tree planting as an example, many doubts have been raised about the quality of evidence on rates of carbon sequestration by trees and how this varies over time and by species, the security of savings, the risk to plantations from disease, fire and so on– in addition to broader ethical issues around what the trees are replacing, whose land it is and what happens to local people’s rights<sup>18</sup>. While important, these arguments only apply to a particular class of project and do not dominate the wider debate.

In the case of carbon accounting, a report into the integrity of the Clean Development Mechanism for the European Commission<sup>20</sup> identified the following six issues for detailed investigation: baselines setting and additionality testing; CDM governance; competitiveness distortion and carbon leakage; technology transfer; sustainable development; political lock-in. Of these, ‘baselines setting and additionality testing’ was identified as perhaps the most controversial aspect of CDM, and this issue is widely cited as problematic in the literature on all types of offsetting. To ask whether an offsetting project is additional is to ask whether the emission reductions that it achieves would have occurred anyway, even if there had been no intervention in the form of an offsetting project. Since the question engages counterfactuals – an estimate of what would have happened in the absence of the carbon offset funding (‘baseline setting’) – it is inherently problematic. There have been very powerful critiques of the flaws, in practice, of estimates of additionality<sup>6</sup>. Authors have drawn parallels with experience under other carbon trading schemes. Spash compares it with experience in negotiating permit targets in carbon cap and trade schemes, and suggests that “... the same problems arise as under permit allocation, namely vested interests making projections as bleak as possible in terms of GHG [greenhouse gas] emissions in order to gain as many marketable emissions credits as possible” (Reference 21, p.185).

The aim for carbon offsetting was that it should deliver secure carbon savings, while offering benefits to both developed and developing countries. However, there are many indications that these goals have not been met, particularly in the compliance offset market, with inflated prices being paid for carbon offsets of doubtful validity which have delivered little in the way of development benefits<sup>22,6</sup>. Categories of CDM projects, which formerly accounted for up to the majority of CDM offsets supplied to EUETS, have been excluded from 2013.<sup>1</sup> Thus, most savings under EUETS prior to 2012 have been delivered by CDM schemes which have subsequently been discredited – meaning that use of carbon offsets has actually led to an increase in emissions by displacing domestic action to reduce emissions. The danger that critics point to, of ineffective carbon offsetting replacing action to reduce

<sup>1</sup> From 2013, the EUETS will no longer accept credits from projects which abate two industrial gases – HFC and N<sub>2</sub>O from adipic acid. This ban followed many years of concern that these activities were unlikely to be genuinely ‘additional’ and were vastly expensive considering the low cost of abating these gases at source<sup>22</sup>.

one's own emissions, has occurred on a very large scale in real life, with significant environmental consequences.

### 3. Underlying ethical principles

As discussed in the preceding section, disagreements about the ethics of carbon offsetting are, to some extent, underlain by disagreements about the likely outcomes of offsetting projects, and about the difficulties of making counterfactual judgements about what would have happened otherwise. But at the same time, such disagreements also tend to go much deeper, with each side drawing on quite different underlying moral principles. Proponents and critics of carbon offsetting differ not only about whether offsetting projects can achieve what they set out to achieve, but also about what duties people and organisations do actually have in respect of climate change mitigation efforts, and whether they are able to discharge those duties by buying offsets. Providers and users of carbon offsets often imply that by purchasing carbon offsets, they partly or completely discharge their moral duties in respect of climate change mitigation. In contrast, critics often claim that individuals and organisations should reduce their *own* emissions: paying others to reduce theirs doesn't get one off the moral hook. This view is nicely demonstrated by the (tongue in cheek) website [www.cheatneutral.com](http://www.cheatneutral.com), which offers users the chance to pay others not to cheat on their partners in order to offset their own cheating. Interestingly, as noted above, the current UK government position on offsetting recommends the use of voluntary offsets only as an emission reduction strategy of last resort. On the other hand, the use of offsets in the EUETS is implicitly condoned by the rules of the scheme, since the rules do not differentiate for the purpose of assessing compliance between actual reductions achieved by the organisation and 'reductions' achieved by purchasing offsets.<sup>2</sup>

What moral assumptions underlie the claim that by purchasing carbon offsets, individuals and organisations can discharge their moral duties in respect of climate change mitigation? Whilst much has been written on the ethical principles underlying arguments for and against carbon trading in so-called 'cap and trade' schemes, almost no research has yet been undertaken directly on the related but distinct principled questions raised by arguments for and against carbon offsetting (one notable exception is Spiekermann<sup>23</sup>). The case for offsetting seems to draw on a consequentialist ethic; that is, the claim assumes that acts should be judged by their outcomes. Since the outcome (in terms of overall carbon emissions) of emitting and offsetting is the same as the outcome of not emitting, the view claims that the two options are morally equivalent (c.f. Reference 24, p.123). But most moral philosophers think that consequentialism cannot be the full story about ethics. Other things, in addition to consequences, also seem to matter to our moral thinking: things like rights, justice, and fairness. In this context, critics of offsetting assert that each of us has an individual duty to reduce our own emissions in order not to harm the potential victims of climate change. Since that duty is owed directly from each of us to each of the potential victims, the duty cannot be avoided simply by paying others not to flout that duty. Goodin<sup>25</sup>, for example, compares the practice of buying one's way out of emissions reductions to the practice of selling 'indulgences' by the medieval church, to absolve buyers of their sins. Likewise Sandel<sup>26</sup> compares the purchase of emission rights to throwing a beer can into the grand canyon in return for a fee. Others have argued that trading emissions exacerbates existing injustice by worsening an already unfair distribution of emissions, whereby the rich are able to continue high rates of emissions at the expense of emissions of the poor (e.g. Reference 6, pp.24-25). Both of these objections count as much against the use of carbon offsets in the compliance market as much as they count against the use of carbon offsets in the voluntary market, even though in the former case the use of carbon offsets is externally enforced, whereas in the latter it is not. In both

---

<sup>2</sup> It is sometimes thought that ethical issues apply only the voluntary offsets, and not to compliance offsets, since the latter is merely a legal mechanism and makes no moral claims. Spash (Reference 21, p.186), for example, writes that "The growing voluntary carbon credit sector raises the same issues of verification and credibility as found for statutory schemes, but also raises other issues relating to motivation, ethical behaviour and social psychology." Whilst it is certainly true that ethical issues are more salient in the case of voluntary offsets, since voluntary users of offsetting do so for overtly moral reasons, we should nevertheless assess the legal requirements of compliance schemes against the standard of ethics, in order to determine whether the legal arrangements are themselves ethically defensible. Spash is right, however, to note that issues relating to motivation and social psychology do apply primarily to the voluntary market only. Such issues are discussed separately in the next section of the paper.

cases, it is the fact that users of carbon offsets pay others to reduce projected emissions rather than reduce their own that triggers the principled objection.

Criticisms from the point of view of rights and fairness reject the consequentialist ethic underlying the case for offsetting. But it is not clear that the consequentialist case succeeds even on its own terms. For one thing, there are difficulties in ascertaining what the consequences of offsetting actually are, as described in the previous section. But there are problems with the moral argument too. For example, if it is better, because the consequences are better, to emit and offset than to emit and not offset, wouldn't it be better still to both not emit *and* offset? It seems entirely arbitrary to tie the offset to the emission and judge the consequences of the option to emit and offset as if it were one, inseparable, act. Indeed, it has been noted that some versions of consequentialism could even require that individuals and organisations spend much of their wealth on offsets, since the gains of doing so are likely to be so much greater than the costs<sup>23,27</sup>.

One way in which the use of carbon offsets might be defended against these objections would be to deny that the case for offsetting must rely on a consequentialist ethic, arguing instead that the case for offsetting must merely assume that duties to avoid catastrophic climate change are not the sort of duties that are owed by individuals and organisations directly to the potential victims of climate change. Instead, one might argue, humanity as a whole has a collective duty to avert catastrophic climate change, such that each person and organisation merely has an obligation owed to their fellow humans to discharge their own share of that collective duty (on the nature of responsibility for climate change, see Reference 28, ch.5). One could then argue that it matters not whether a person or organisation discharges their share of the collective duty by reducing their own emissions or by paying someone else to do so (c.f. Reference 29, p.243 & 253-4, n. 15). One problem with such an argument is that it requires that we pay others not merely to reduce their emissions relative to what they would otherwise have done, but that we pay others to reduce their emissions below the threshold that they would in any case have had to reduce their emissions to in order to discharge their own share of the collective duty. That is, one cannot discharge one's share by paying others to do what they should not have done anyway: one can only do so by paying others to go beyond the call of duty. Given the increasingly reduced capacity of the atmosphere to absorb additional emissions without posing a significant risk of catastrophic climate change, this threshold would have to be set very low, such that it is not at all clear whether much of what currently qualifies as offsetting really only amounts to paying people not to do what they should not do anyway.

#### 4. Motivation

What motivates individuals and organisations to buy carbon offsets in the voluntary market? Two damaging charges are often made about the motivations of organisations and individuals who purchase carbon offsets. The first is that corporate users often buy offsets for the sake of their image: a practice that campaigners have labelled 'greenwash'. The second is that individual users buy carbon offsets merely to clear their conscience, continuing to engage in high carbon activities while suppressing any associated sense of guilt.

Whilst both the claim that offsets are used to enhance corporate image and the claim that offsets are used to clear conscience rely on empirical assumptions, the latter also relies on ethical judgements about what the difference between doing the right thing and clearing one's conscience actually is. One reason that one might think that carbon offsets are a mere sop to conscience is because, as discussed above, there are good reasons to doubt that individuals and organisations can properly discharge the duties that they have in respect of climate change mitigation by buying offsets. Intriguingly, Spiekermann<sup>23</sup> has argued that, even if one *could* discharge one's duties by buying carbon offsets, we might still impugn the practice of buying offsets as merely serving to clear the conscience of those who buy them. The reason for this, he argues, is that individuals and organisations who buy offsets at present do so at a very cheap price. Offsets are cheap because so few people and organisations buy them. If there was more demand for offsets, he argues, the price of offsets would rise considerably, because the increase in demand would have to be met by additional offsetting schemes that are less efficient than the schemes that compete most successfully in the current market. But many organisations and individuals who buy offsets at the moment would not be willing to do so if they

became considerably more expensive, just as they are not willing to assume the costs of cutting their own emissions. As such, Spiekermann argues that those who buy offsets (but would not buy them if they were expensive) act merely to clear their conscience, and not 'from duty and only from duty'. Spiekermann's sharp distinction between acting to clear one's conscience and acting from duty, which draws on the work of Immanuel Kant<sup>30</sup>, can be challenged. But his basic point, which is that motivation is not black or white, seems sound. Even if those who buy offsets are motivated to discharge their duties to reduce their emissions, one might nevertheless argue that that motivation is rather weak, and disappointingly easily defeated by other interests.

The point about motivation is not merely a technicality of interest only insofar as it bears on the ethical appraisal of users of carbon offsets: it has serious practical consequences. Perhaps the greatest problem of all faced by voluntary carbon offsetting is, precisely, that it preys on the fact that most people and organisations are only weakly motivated to reduce their carbon emissions. For this reason, even notwithstanding concerns about scientific legitimacy and additionality, voluntary carbon offsetting can never offer a general solution to climate change. In order for it to do so, the number of organisations and individuals buying offsets would have to increase sharply. But the increase in demand would push the price of offsetting up, as offsetting projects become progressively more expensive once the easy pickings have already been taken. And at that point, without an increase in the average level of motivation to reduce emissions, most people would no longer be willing to buy them.

## 5. Conclusion

The paper has canvassed a range of objections to the practice of carbon offsetting. These include warranted concerns about whether offsetting schemes will actually deliver the emissions reductions that they claim to deliver, and about whether such reductions would have happened even without the offsetting scheme. They also include more principle objections, objections that claim that offsetting would not be morally justified *even if* it could deliver genuine emissions reductions that would not have happened otherwise. Finally, the paper looked at ethical motivation, exploring the concern that carbon offsetting offers more of a sop to conscience than a genuine solution to climate change. In all cases there remains much more work to be done to gain a fuller understanding of the ethics of carbon offsetting. In the case of the applicable moral principles and motivational issues in particular, research remains very much at a nascent stage.

## References

1. <http://cdm.unfccc.int/about/index.html> (accessed 19 May 2012)
2. Ma'anit A If you go down to the woods today... *New Internationalist* 2006 391
3. Anderson K The inconvenient truth about carbon offsets *Nature* 2012 484:7 doi:10.1038/484007a
4. <http://www.cdmgoldstandard.org/> (accessed 19 May 2012)
5. <http://www.bptargetneutral.com/our-advisors/> (accessed 19 May 2012)
6. Bullock SM Childs M Picken T *A dangerous distraction: Why offsetting is failing the climate and the people: the evidence*. Friends of the Earth, London, 2009.
7. Monbiot G Buying complacency *The Guardian* 17 January 2006
8. Monbiot G Pulling yourself off the ground by your whiskers *The Guardian* 14 July 2009
9. Lovell H Governing the carbon offset market *WIRES* 2010 1: 353-362.
10. Kollmus A Lazarus M Lee C LeFranc M Polycarp C *Handbook of carbon offset programs: Trading systems, funds, protocols and standards*. Earthscan. London, 2010.

This is the pre-peer reviewed version of the following article: Hyams, K. and Fawcett, T. (2013) The ethics of carbon offsetting. *Wiley Interdisciplinary Reviews: Climate Change*.

11. CBI *Emissions trading: Turning ambition into reality: Business proposals for EU ETS Phase 3*. Confederation of British Industry, London, 2008.
12. World Bank *State and trends of the carbon market 2011* World Bank, Washington DC, 2001.
13. Ecosystems Marketplace & Bloomberg New Energy Finance *Developing dimension: State of the voluntary carbon markets 2012*. Ecosystems Marketplace & Bloomberg New Energy Finance, Washington DC and New York, 2012.
14. Ecosystem Marketplace and Bloomberg New Energy Finance *Back to the future: State of the voluntary carbon markets 2011* New York & Washington DC, Ecosystem Marketplace and Bloomberg New Energy Finance, 2011.
15. DECC *A short guide to carbon offsetting* Department of Energy and Climate Change, London, 2010.
16. <http://www.climatecare.org/> (accessed 29 May 2012)
17. IEMA *GHG management and reporting* Institute of Environmental Management and Assessment, Lincoln, 2010.
18. House of Commons, Environmental Audit Committee *The voluntary carbon offset market: Sixth report of session 2006-07: HC331* The Stationery Office, London, 2007.
19. <http://www.sandbag.org.uk/> (accessed 29 May 2012)
20. AEA, Stockholm Environment Institute, Centre for European Policy Studies, CO<sub>2</sub>Logic *Study on the integrity of the Clean Development Mechanism* AEA, London, 2011
21. Spash CL The brave new world of carbon trading *New Political Economy* 2010 15:2, 169-195
22. Wara MW Victor DG *A realistic policy on international carbon offsets: Working paper 74*. Stanford, CA, Program on Energy and Sustainable Development, Stanford University, Stanford, CA, 2008.
23. Spiekermann, K *Buying Low, Flying High: Carbon offsets and partial compliance: working paper*, published online <http://personal.lse.ac.uk/spiekerk/papers/Carbon%20Offsetting%20homepage.pdf> 2012 (accessed 6 June 2012)
24. Dhanda KK Hartman LP The Ethics of Carbon Neutrality: A Critical Examination of Voluntary Carbon Offset Providers *Journal of Business Ethics* 2001 100:119-149.
25. Goodin RE Selling environmental indulgences *Kyklos* 1994 47:573-596.
26. Sandel MJ Should we buy the right to pollute? ch. 14 in his *Public Philosophy: Essays on Morality in Politics* Harvard University Press, Harvard MA, 2005.
27. Ord T *Carbon Ethics* published online at <http://ethics-etc.com/2007/09/21/carbon-ethics/> 2007 (accessed 6 June 2012)
28. Vanderheiden S *Atmospheric Justice*, Oxford University Press, Oxford, 2008.
29. Hyams K A Just Response to Climate Change: Personal Carbon Allowances and the Normal-Functioning Approach *Journal of Social Philosophy* 2009 40:237-256
30. Kant I *Groundwork of The Metaphysics of Morals*, Transl. Mary Gregor Cambridge University Press, Cambridge, 1997 (first published 1785).