

Carbon offsetting: sustaining consumption?

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Abstract

In this paper we examine how theories of sustainable and ethical consumption help us to understand a new, rapidly expanding type of consumer product designed to mitigate climate change: carbon offsets. The voluntary carbon offset market grew by 200% between 2005 and 2006, and there are now over one hundred and fifty retailers of voluntary carbon offsets worldwide. Our analysis concentrates on the production and consumption of carbon offsets, drawing on ideas from governmentality and political ecology about how narratives and technologies are used to create particular types of consumer subjectivities and shape consumer choice. We critically examine three narratives that offset producers are using to position carbon offsets and examine how these narratives are shaping circuits of carbon offset production and consumption. We assess the implications for the future governance of voluntary carbon offset markets and for the study of alternative consumption.

Keywords

Sustainable consumption; voluntary carbon offsets; governmentality; political ecology; climate change.

Introduction

In this paper we assess how the production and consumption of voluntary carbon offsets are inextricably linked through the practices of offset organisations¹. The growth of the voluntary carbon offset sector has been remarkable over the past three years as a range of actors seek to compensate for their greenhouse gas emissions by paying for carbon reductions elsewhere. While academic attention is starting to be directed towards the conditions through which this new commodity is being produced (Backstrand and Lovbrand 2006; Bumpus and Liverman; 2008), less attention has been focused at the processes through which it has been made possible to consume carbon offsets. The voluntary carbon market allows companies, public bodies and individuals the opportunity to purchase credits generated from projects that either prevent or reduce greenhouse gases entering the atmosphere, or that capture greenhouse gases from the atmosphere (HoC Environmental Audit Committee 2007). The voluntary market has grown rapidly in recent years: in 2006 a record 24 million tonnes of carbon was traded on the voluntary markets, worth US\$91 million (Hamilton et al. 2007). The rapid expansion of a novel product designed to mitigate climate change – a carbon offset – offers some challenges to existing scholarship on sustainable and ethical consumption. Such research has focused on particular types of product, principally fair trade goods (coffee, tea etc.) and local organic foods (see for example Barnett et al. 2005; Bryant and Goodman 2004; Guthman 2007; Reynolds 2002; Seyfang 2007). Voluntary carbon offsets differ from these traditional types of sustainable product in a number of ways. First, a carbon offset is not a tangible product – the purchase is greenhouse gas reductions in the atmosphere – so the consumer does not directly receive something in return (other than a certificate perhaps). Second, and related, purchasing carbon offsets offers no direct material benefit to the consumer, unlike, for example organic food products which have been shown to have taste and health benefits (Seyfang 2007). Third, the voluntary carbon offset market is currently relatively unregulated,

¹ This paper is based on initial research with carbon offset organisations and other key actors involved in the production of carbon offsets, including interviews and analysis of organisations' websites and promotional material. *Acknowledgements to be added.*

there are as yet no accepted international standards for voluntary carbon offsets, or widely-recognised 'eco-labels'. Carbon offsets therefore differ in this respect from fair trade and organic products that have established regulatory and labelling schemes (Guthman 2007).

In this paper, we suggest that the unusual, novel characteristics of voluntary carbon offsets mean that narratives about them and associated technologies have come to play a particularly important role in their production and consumption. It is through stories about particular carbon offset projects that these products have meaning and value. It is through images, brochures, website devices and offset packaged products that the consumption of offsets is made easy and habitual for consumers. The offset narratives and technologies also act to reassure consumers about what it is they are buying, given the absence of both a tangible product and regulatory standards. The significance of the "negotiated interface between consumers and the 'social life' of the commodity" together with the need to pay critical attention to "the relations of power in the material and discursive production of commodities and their regimes of exploitation" suggest that a 'commodity cultures' approach, informed by political ecology, offers a potential framework for analysis (Bryant and Goodman 2004: 348). Such an approach "attempts to capture the interplay between production and consumption as well as the meanings and materialities of commodities" (ibid. 2004: 348). This entails the acknowledgement that production and consumption are not opposite ends of a singular chain, but rather that circuits of production and consumption are deeply implicated in one another. We therefore draw on a wider tradition of consumption studies spanning both the production and consumption of commodities (Fine and Leopold 1993; Gereffi and Korzeniewicz 1994; Leslie and Reimer 1999). Such an approach makes space for the observation by Barnett et al. (2005: 23) that "ethical consumption... involves both a governing of consumption and a governing of the consuming self." Offset organisations - who establish offset schemes, purchase offsets for onward sale and, through various technologies, create offset markets – are a critical node in these circuits of production and consumption.

In undertaking an analysis of the commodity cultures of carbon offsetting, we first turn to consider the insights which can be derived from existing debates on sustainable and ethical consumption. We then concentrate on two key issues. First, on how carbon is made consumable. Here we examine the emergence and dynamics of the carbon offset markets. Second, on how consumer subjectivities are created through multiple narratives of carbon offset consumption. We explore these processes through examining what we assess as three dominant narratives in the carbon consumption marketplace: 'quick fix for the planet', 'global-local connections'; and 'avoiding the unavoidable'. If ethical consumption involves "a set of practices which mobilise a diverse range of motivations, incentives and desires" (Barnett et al. 2005: 27) we provide initial evidence of the sorts of practices which are being used to mobilise consumers to consume carbon offsets. In turn, we assess how the techniques and the practices they engender are coming under sustained critique, and the ways in which the circuits of offset production and consumption have responded. In conclusion, we reflect upon the differences and similarities between carbon offsets and other forms of sustainable and ethical production/consumption.

Understanding the consumption of carbon offsets

The analysis of carbon offsets speaks to an existing body of work on sustainable and ethical consumption. There is significant variation in how 'sustainable' or 'ethical' consumption is defined, with a critical issue being the 'extent to which the different positions imply

consuming more efficiently, consuming more responsibly, or quite simply consuming less' (Jackson 2006b: 4). The majority of work in this field has focused on policy agendas for (ecologically modern forms of) sustainable consumption (Jackson 2006a), radical alternatives to market-based production/consumption (North 2005; Seyfang 2001), and on practices of sustainable or ethical consumption (Hobson 2003; Hobson 2006a; Seyfang 2005; Seyfang 2007). In the latter approach, "cultural, psychological, and sociological models of consumption behaviour" have been adopted in preference to economic explanations of the drivers and patterns of consumption (Seyfang 2007: 106). While the focus is on the consumer, as a subject, participant or political citizen, Seyfang (2007: 106) observes that the ways in which theoretical perspectives "relate to practical sustainable consumption initiatives is under researched". Although some scholars have looked at how everyday consumption practices, such as showering (Southerton et al. 2004), have altered in response to environmental problems this remains relatively isolated from approaches which continue to configure consumption as an individualised activity so that "the drivers and mechanisms involved are seen to boil down to a matter of individual choice" (ibid. 2004: 3). Such a perspective neglects the ways in which "processes of consuming are configured by many aspects of production which have a structuring effect on what goods and services are provisioned, how those goods and services shape the consumption of related products, and how objects are used" (ibid. 2004: 7). Those analyses which have focused on the consumption of particular products have gone some way to counter this critique. To date this analysis of the consumption practices relating to purportedly sustainable or ethical products has largely been restricted to the fair trade products of coffee, bananas, cocoa and tea (Raynolds 2002), and organic food (Seyfang 2007). A study of carbon offsets therefore fits with the overall emphasis of sustainable consumption research on specific commodities. However, we suggest that offsets differ in important ways to fair trade and organic products because of their non-tangible nature, the lack of direct material benefits, and the current paucity of regulation or certification. In this novel and complex market, a critical issue concerns how consuming carbon offsets is made possible. In order to understand this process, a key focus is the process of commoditization itself. In their analysis of fair trade and sustainable rainforest products Bryant and Goodman (2004: 361) suggest that:

"... starting from processes of commoditization and associated narratives of development allows the researcher to go 'forward' into the processes and meanings of consumption as well as 'backwards' along the powerful socio-economic and ecological networks of production and development."

The consuming of carbon offsets is made possible through the processes by which carbon offsets are commoditized, and the narratives and practices through which this is accomplished. Focusing on these processes can illuminate the ways in which "individual dispositions to choose... are worked up, governed, and regulated by an array of actors who make possible certain forms of individualised conduct." (Barnett et al. 2005: 29). Drawing on the notion of governmentality, the emphasis here is on the multiple actors and practical, material, means through which the 'conduct' of ethical or sustainable consumption is governed. While governmentality has attracted significant recent attention in the geographical literature, some commentators suggest that a focus on "large scale programmes and political rationalities relating to the government of others and government by the state or state agencies" has left "little sense of the practical attempts or specific force-relations through which 'subjects' may be assembled and governed, or, indeed, the heterogeneous, relational, performative, and reflective manner in which particular subjectivities are constituted" (Merriman 2005: 239). To this end, Merriman (2005: 239) recommends a focus on "the role

of many less prominent and more mundane or backgrounded things and organisations which are entailed in translating rationalities of government into practical programmes.” The commoditization of carbon offsets is orchestrated through such mundane or backgrounded things in two respects. First, a range of taken for granted technologies and practices are used to enable their consumption – including websites, catalogues, images, scientific analyses, producer biographies and so on. Second, creating a market for carbon offsetting involves making ordinary practices – driving, flying, getting married, buying gifts - the subject of ethical consideration through the deployment of new narratives, or rationalities, about what such practices *should* involve. This is not to say that the governing of carbon offsetting is conducted through narratives which are transplanted wholesale through governmental technologies employed by those seeking to govern practice at a distance to the consumer. Rather, such narratives intersect with everyday practices which are already “*ordinarily ethical*” for “the very basics of routine consumption – a concern for value for money, quality and so on – can be seen to presuppose a set of specific learned ethical competencies”. (Barnett et al. 2005: 28, emphasis in the original). Governmental narratives and techniques, such as those formalised into programmes for encouraging sustainable behaviour may “evoke and bring in from, and out to, the periphery of awareness facets of the self, examined and evaluated against ... programme material” (Hobson 2006b: 297). Ethical or sustainable consumption practices therefore involve both the “governing of consumption”, conducted by a multitude of actors through governmental rationalities and techniques, and the “governing of the consuming self ... making one’s own life a project of self-cultivation” (Barnett et al. 2005: 31; see also Guthman 2007: 472-473).

A governmentality perspective highlights the ways in which the commoditisation and associated governing of consumption surrounding ethical or sustainable products is conducted by multiple actors through narratives and technologies which seek to invoke particular subjectivities (Barnett et al. 2005; Hughes 2001). To this end, Barnett et al. (2005: 30) suggest that “the power relations constitutive of ethical consumption practices rely upon deploying distinctively cultural forms of ‘government’, such as practice aimed at the cultivation of moral consciousness, of self-control, and of self-display”. At the same time, given the unusual, relatively complex characteristics of the product and the current lack of international regulation and labelling schemes for voluntary carbon offsets, it is imperative for offset producers and retailers to package knowledge in a credible, simple and coherent way for consumers. Governmental narratives and techniques also serve to disseminate information and to create ‘knowledgeable’ consumers (Guthman 2007: 472). For example, in relation to Fair Trade, Bryant and Goodman (2004: 358) suggest that “... the relative novelty of ideas underpinning fair trade requires detailed dissemination of information to Northern consumers saying what fair trade is and why it is needed. Indeed, such knowledge can be quite place-specific - for example, including information on what cooperative and community is producing the coffee being consumed.” A ‘commodity culture’ approach captures these complex interfaces between economy, cultural practices and specific sets of knowledge, circuits of production and consumption, and the “meanings and materialities of commodities” (Bryant and Goodman 2004: 348; see also Crang et al. 2003). This approach, informed by perspectives from governmentality set out above, can draw attention to the “negotiated interface between consumers and the ‘social life’ of the commodity” as well as to “the relations of power in the material and discursive production of commodities and their regimes of exploitation” (Bryant and Goodman 2004: 348).

In commodity cultures, Bryant and Goodman (2004: 349) argue, the embedding of commodities in alternative consumption practices through specific narratives “imprints and

circulates specific political ecological understandings of the biophysical environments and peoples to be ‘saved’”. The emphasis on the ‘political ecology’ of commodity cultures in Bryant and Goodman’s work is important for the analysis of carbon offsets. A political ecology perspective points to the significant impacts that consuming practices in the North have for people and environments in the Global South. In relation to carbon offsets, this is particularly important because the majority of voluntary offset projects are located in the Global South, and the credits are sold to consumers in the North (see Bumpus and Liverman 2008). Another important aspect of a political ecology approach is a strong critique of sustainable consumption as a solution to global environmental and development problems. It is suggested that ethical or sustainable consumption can obscure other pathways of sustainability not based on commodification and markets (Guthman 2007). Ethical consumption is seen as part of a wider trend of ‘roll out’ neoliberalism whereby the market enters areas it should not, there is retreat of the state, and increasing reliance on non-state actors to carry out vital governance functions (ibid. 2007). The inequalities of sustainable consumption are also highlighted, it is argued that only certain types of people can engage in ethical consumption, because of an economic price premium (Barnett et al. 2005; Bryant and Goodman 2004; Seyfang 2007). Together, these points highlight that the work of carbon offset narratives is not only to enable their consumption to take place, but to create different forms of commodity culture which have implications for people and environments North and South, and for the potential for addressing global environmental change. The implications for a critique of carbon offsetting are considered in more detail below. First, we turn to consider how processes of carbon commoditisation have occurred to make the consumption of carbon offsets possible.

Making voluntary carbon offsets

A carbon offset is novel and complex product, and critical attention therefore needs to be paid to how such a product is created. In its simplest form, offsetting involves the purchase of credits from greenhouse gas emission reduction projects in one place to counter the emissions of greenhouse gases in another place (POST 2007). However, there are different types of carbon offset: compliance credits are produced under strict international regulations and consumed principally by nation-states, whilst voluntary credits can be certified to one of several non-governmental standards, and consumed by corporations and individuals (Bumpus and Liverman 2008). The compliance market was established as a so-called ‘flexible mechanism’ of the Kyoto Protocol - the Clean Development Mechanism (CDM) – through which industrial countries can meet greenhouse gas targets by purchasing carbon credits from emission reduction projects in developing countries. In comparison, voluntary offset projects tend to be smaller, have a greater sustainable development focus (often described as social or community ‘side-benefits’), lower transaction costs, involve a wider range of methods or techniques, and are typically located in countries not active in the CDM (e.g. the non-Kyoto signatories USA and Australia, and African countries) (HoC Environmental Audit Committee 2007). Further, the voluntary offset market has developed independently of the international climate regulatory regime and anybody – NGOs, businesses, individuals – can produce and consume voluntary offsets however they choose: there are no widely-used international standards or regulations. Voluntary offsets differ in this way not only to compliance credits, but also to the majority of sustainable and fair trade products, which have well-established accreditation and labelling procedures (Guthman 2007). So although voluntary and compliance carbon offsets are similar in terms of their ultimate purpose – taking carbon out of the atmosphere - they differ significantly in their process of production

and their governance. It is for this reason that compliance credits and voluntary credits – known respectively as Certified Emission Reductions (CERs) and Verified Emission Reductions (VERs) - are treated distinctly by producers and consumers, despite an emerging trend for offset organisations to deal with both types of offset (see Table One). A common feature, however, is the location of offset projects predominately in the Global South (Boyd et al. 2007; Bumpus and Liverman 2008). As such, making carbon offsets is not just about climate change but also development and poverty issues, particularly for voluntary offsets where these carbon ‘side benefits’ are actively sought and promoted.

To date offset organisations themselves have been the main actors involved in the governance of voluntary offsets, as well as their production and retail. There are a number of different types of offset organisation: some span the whole production and consumption process from sourcing greenhouse gas reduction projects and managing their assessment and verification, to marketing and selling the resulting credits to consumers. Other offset organisations have a more restricted remit, simply buying and selling credits, more akin to a broker. The governance of the voluntary offset market has been fluid and loosely structured. The offset organisations active in the early formative stages of the voluntary market in the late 1990s (such as Climate Care and The Carbon Neutral Company) see themselves as influential, based on their knowledge, experience, and extensive portfolio of offset projects (Climate Care 2006a; Taiyab 2006). For example, Climate Care and the Carbon Neutral Company have plans to establish a UK independent voluntary offset industry association (Interview, Climate Care, October 2007). These long-established offset organisations also promote their role in developing the first carbon offset projects in advance of the Kyoto Protocol (Climate Care 2006a). Table One provides a summary of international voluntary offset organisations, of which there are one hundred and fifty five. Forty-five percent of these organisations have been established since 2005, indicating the rapid growth of the market, and its youth. In 2006 24 million tonnes of carbon was traded on the voluntary markets, and predictions are for the market to grow up to 400 million tonnes by 2010 (ICF 2006).

Table One – International voluntary offset organisations [inserted after References]

Partly because of the exponential growth of the voluntary market, and as a result of criticisms from activists and the media, attention has focused on formalising the governance and regulation of voluntary offsets, with a number of proposals forthcoming in 2007 from government and non-state actors (DEFRA 2007a; Hamilton et al. 2007). The UK government has sought to address concerns about lax standards in the voluntary market by proposing a controversial Code of Best Practice, which will only accredit use of compliance credits (CERs) in the voluntary market and would therefore potentially exclude many voluntary providers and projects (DEFRA 2007a). There is growing recognition amongst offset organisations that the process of making carbon offsets needs to be made more open and accountable (Climate Care 2006a; Harvey 2007). The industry response has been to push through a number of new international voluntary offset codes and accreditation schemes; there are five due for launch in late 2007 and 2008. As one manager at an offset provider described it “we have gone from the sublime to the ridiculous” (Interview, Project Developer, UK voluntary offset organisation, October 2007), hinting at the dangers of having too many standards competing against one another, as well as too few. The international standard seen as most likely to become the market leader is the Voluntary Carbon Standard, developed in close consultation with several voluntary offsets organisations and led by The Climate Group, the International Emissions Trading Association (IETA) and the World Business Council for Sustainable Development (WBCSD) (The Climate Group 2007). For the foreseeable future,

however, voluntary offsets are likely to remain a non-fungible type of carbon credit, unlike CERs, which are fully tradeable and interchangeable. Through the narratives used by offset organisations, particularly the ‘global-local connections’ narrative, voluntary credits remain linked to the places and communities where they were produced. In contrast CERs have been designed specifically to be disassociated from their place and method of production – an essential step in enabling them to become fungible. As one interviewee explained:

“... traditional commodities are a 2-D financial instrument, whereby you have the name of it - it is carbon - and you have a unit price, and everything else is a factor of that. So if you have a CER priced on the market... you know you can buy 10 CERs at market price and it doesn’t matter where they have come from. But as soon as you start bringing in VERs it is like a 3-D or 4-D element because a VER has all these non-tangible marketing-related pieces of colour. So that is great in one way but actually it raises a lot of issues...”

(Interview, CEO, UK voluntary offset organisation, October 2007).

The process of commoditising carbon offsets has therefore been one which has involved both international institutions and national governments in establishing the basis for carbon markets, offset organisations in the development and retail of offsets, and a range of other organisations – the media, think tanks, NGOs – in shaping the emerging regulatory landscape. Critical too has been the role of offset consumers. In terms of total carbon volumes purchased in the global voluntary offset market, 80% of customers are corporations, 12% government, 5% individuals and 2% NGOs (Hamilton et al. 2007). Table One includes examples of major corporate clients of offset organisations, including Sky News, BHP Billiton, and The Body Shop. The need to tailor the production and consumption of offsets to the corporate consumer is clearly visible in the narratives and technologies of offset commodity cultures that we examine in detail below. This figure of the ‘corporate consumer’ challenges the conventional economic assumption of a consumer as a rational individual, and also the assumption prevalent in analysis of ethical and sustainable consumption which is focused on individual consumers, albeit enmeshed in various networks and circuits of production, commodification, and practice. Consumption, as practiced by corporate entities, is not only a practice of ‘governing the self’, but of governing a collective, in relation to the performance of other such organisations and social expectations. In a recent analysis, Hughes (Hughes 2006: 1010) suggests that “with the advent of corporate responsibility programmes, firms and managers increasingly are asked to engage in knowledge creation and learning in order to rise to a new set of challenges concerned with stakeholder engagement and ethical business practice”. A recognition of the variety of offset consumers reinforces the need to move away from the “grossly oversimplified” notion of “placeless” consumers (Malpass et al. 2007: 642). As Malpass et al. (2007: 642) argue, “fair trade consumers, for example, will often belong to particular networks, often associated with particular sites”. In the case of voluntary carbon offsets, these networks and sites are predominantly corporate, and practices of self-governing are conducted under various forms of public gaze. In the next section, we seek to analyse the commodity cultures and narratives through which the consumption of carbon offsets is facilitated and governed and the consumer subjectivities invoked.

Voluntary offset narratives

In their analysis of the political ecology of alternative consumption, Bryant and Goodman (2004: 344) identify two distinct ‘commodity cultures’: ‘conservation-seeking’, associated

with practices of ‘Edenic myth-making’ through which forms of ‘green’ consumerism are invoked; and ‘solidarity-seeking’, forming the basis of fair trade consumption narratives and practices. In our analysis of the emerging voluntary carbon offset market we find a more complex, tangled picture in which three embryonic commodity cultures are simultaneously being created and critiqued. Here, we focus our analysis on the governmental narratives and techniques being deployed by offset organisations in the attempt to establish carbon offsetting as a commodity and the ways in which particular consumer subjectivities or ‘ethical dispositions’ are being invoked through these governmental tactics. The three narratives which we have identified are: ‘quick fix for the planet’; ‘global-local connections’; and ‘avoiding the unavoidable’. We demonstrate that these narratives and techniques are a crucial component of the network of production and consumption of voluntary offsets: it is through these practices that voluntary offsets have been actively marketed, packaged and communicated to the public and corporations. Voluntary offsets have had to be made easily understandable to potential consumers because they are a novel, complex product and because they are not a necessary purchase designed to satisfy a material need. Voluntary offsets hence differ significantly from compliance credits, or CERs, which are required under the international Kyoto Protocol, and are typically only consumed by already knowledgeable actors (such as nation-states; offset organisations; carbon brokers). We demonstrate how the production and consumption of offsets is intricately linked: the production process has shaped the narratives that have emerged to enable and facilitate the consumption of carbon offsets, and in turn the narratives have influenced a number of aspects of production. In particular, in the last part of this section, we examine how the narratives of voluntary offsets have led to a set of critiques which are, in turn, significantly reshaping circuits of carbon offset production and consumption through the emergence of several new codes and standards.

Quick Fix for the Planet

The basis of the first carbon offset narrative which we identify is in the science of climate change. Here, the argument is made that climate change is an urgent problem of planetary proportion and that action is needed straight away. Emphasis is placed on the severity and imminence of the risks of dangerous climate change. Offset organisations such as the Carbon Neutral Company use quotes on their web site from scientific assessments such as the Stern Review and the IPCC to emphasise the risks of climate change and the need for urgent response (The Carbon Neutral Company 2007a). Undertaking voluntary carbon offsetting is portrayed as a legitimate solution because of its immediacy – any consumer can purchase offsets now, rather than undertaking perhaps more fundamental and (so the argument goes) slower changes to behaviour. Equally, voluntary carbon offsetting can be undertaken without the need to wait for the machinations of international negotiations to reach their conclusions. In a sense, international, legally sanctioned action through the Kyoto Protocol is portrayed as ‘fiddling while the planet burns’. The UK voluntary offset retailer Climate Care epitomises this narrative in its 2006 Annual Report, stating that:

“Making changes in our lifestyles and the way societies and economies operate will take a long time, and the reduction will come only slowly. On the other hand *offsets let us make 100% emissions reductions cost effectively and quickly*. If you have limited money, and even less time to act, then we cannot responsibly ignore the huge impact they could have on providing a short term solution – in effect giving us the time to make the other changes we need.”

(Climate Care 2006a, emphasis added: 6).

Voluntary offsetting is seen to offer a means of response that is more efficient and one that can do more in terms of overall carbon reductions in the atmosphere. The efficiency of offsetting, in terms of the speed of response, the low transaction costs involved, and its economic efficiency ('bang for buck'), are all stressed. In short, voluntary offsetting is an effective response to an emergency situation:

'Offsets are an essential part of an effective climate policy precisely because they can be implemented quickly and at a relatively low cost. Given the level of emissions reductions that must be achieved to stabilize the climate, the growing sense of urgency for immediate action, and the societal cost savings that offsets represent, offsets are an indispensable component to real climate change solutions'
(Climate Trust 2007).

The possibilities of the 'quick fix' narrative are influenced and structured by the production process of voluntary offsets. There is a pervasive underlying reference and comparison to compliance offsets: compliance offsets are slow and bureaucratic, whilst voluntary offsets are dynamic and have more of an entrepreneurial dimension, as the managing director of a UK voluntary offset organisation describes:

"we've always felt it was our role to go beyond the compliance market. What we are here to do is to give people the chance to do more than is being done through the compliance market... so that is what [we've] focused on, identifying opportunities where we can fill holes that are not being filled by Kyoto".
(Interview, UK voluntary offset organisation, July 2007).

However, the 'quick fix' narrative relies for this dynamism on a peculiar ability of the voluntary offset market to sell carbon credits in advance of them actually being generated, so called 'future accounting' practices (HoC Environmental Audit Committee 2007). This 'advance selling' – where there is a (temporal) mismatch between the consumer's emission and the offset organisation's emission reduction - is not permitted in the compliance market, where credits can only be generated and transacted once projects are in operation, and the carbon benefit to the atmosphere can be quantified and proved. In part, 'quick fix' carbon offsets are made possible by the loosely governed, unstandardised practices of the voluntary market, where offset organisations themselves have individually reached a decision about what is deemed to be a reasonable period between selling an offset and producing it (typically around six to twelve months). In this regulatory context, offset retailers increasingly favour greenhouse gas reduction technologies that yield relatively quick carbon returns, such as energy efficiency and renewable energy (see Climate Care 2006a: 6). For example, a project replacing conventional light bulbs with energy efficient compact fluorescent bulbs will start yielding carbon reductions immediately, in comparison to a sequestration project such as tree planting, where actual carbon benefits to the atmosphere are up to seventy years in the future. In effect the sale of the offset is quick for producers and for consumers, but not necessarily quick for the atmosphere (see critique below). The ability to consume 'quick fix' carbon offsets is therefore dependent on a certain set of production practices, inexorably linking consumption and production in a commodity circuit (Bryant and Goodman 2004).

At the same time, the narrative's emphasis on a fast and efficient response to climate change is mirrored in the techniques and practices through which carbon offsets are sold. As Merriman (2005: 239) suggests "many less prominent and more mundane or backgrounded things" are important in the processes of "translating rationalities of government into

practical programmes.” In relation to ‘quick fix’ offsets, a range of everyday artefacts and practices are drawn into an arena of ethical consumption. Website devices and techniques that allow easy, rapid purchase of offsets by consumers also facilitate and reinforce the ‘quick fix’ narrative. Many retailers’ websites have a ‘one click to save the planet’ simplified purchasing arrangement for buying offsets, or the ability for customers to send a text to offset their emissions (see Figures One and Two). Similarly, the UK retailer Climate Care has offset package deals, where customers can quickly purchase carbon offsets for a year’s air travel or a wedding (Climate Care 2007). The carbon offsets required for a ‘carbon neutral baby’ have also been pre-calculated in this way – making it simple and easy for consumers to make a purchase (The CarbonNeutral Company 2007).



Figure One – Website devices/ ‘buttons’ to allow quick purchase of offsets for a range of different activities. (source: <http://www.co2balance.uk.com/>).



Figure Two – Website advert for a text message service to purchase offsets. (source: <http://www.carbonbalanced.org/>)

There are parallels here with the ‘conservation-seeking’ commodity culture identified by Bryant and Goodman (2004). The consumption of ‘quick fix’ carbon offsets is framed within a narrative which puts planetary survival at its heart. However, rather than seeking to connect to some other, ‘Edenic’ world, the emphasis is on connecting climate change to the here and now. Through the enrolment of everyday activities (purchasing a flight, a journey to work) and significant life events (weddings, babies, funerals), this narrative seeks to make addressing climate change part of the ‘ordinarily ethical’ world of consumer choices (Barnett et al. 2005) without it raising significant ethical dilemmas or requiring consideration or deliberation. The assumptions behind some of these ‘package deals’ reveal just how far offsetting can be integrated into a ‘normal’ or ‘aspirational’ mode of consuming. For instance, the assumptions behind the retailer Climate Care’s offset package deals are that holidays include one long distance and three short distance flights per year while a wedding includes 150 guests and honeymoon flights². ‘Quick fix’ carbon offsets both raise the ethical dilemmas of everyday life to the fore and at the same time provide a quick fix to consumer dilemmas (whether or not take a holiday abroad) and for businesses seeking to fulfil some notion of corporate environmental responsibility. For example, the UK House of Commons

² See: <http://www.climatecare.org/calculators/gift/> (accessed November 2007)

Environmental Audit Committee in its report on the voluntary carbon offset market, notes how: “Claiming ‘carbon neutrality’ is clearly a growing draw for businesses and will consequently change the behaviour of some companies and bring them into the voluntary carbon offset market” (2007: 15).

Global-local connections

While the first narrative focuses on the science of climate change and the urgency of the problem, a second narrative takes a different perspective, stressing the ‘global village’ within which addressing climate change takes place. Here, the spatiality of climate change and carbon offsetting are at the fore. First, the argument is made that there are no physical geographical barriers when it comes to offsetting: the atmosphere does not mind where emission reductions are made because atmospheric gases mix globally. For example, one offset organisation argues that ‘greenhouse gases spread throughout the atmosphere. So releasing pollution anywhere will increase CO₂ levels everywhere. And clearing pollution anywhere will slow net emissions growth everywhere.’³ To reinforce this point, images of global earth systems science (graphs, models, planets) litter the retailing of carbon offsets (Figure 3). Emission reductions, the message suggests, can take place globally.

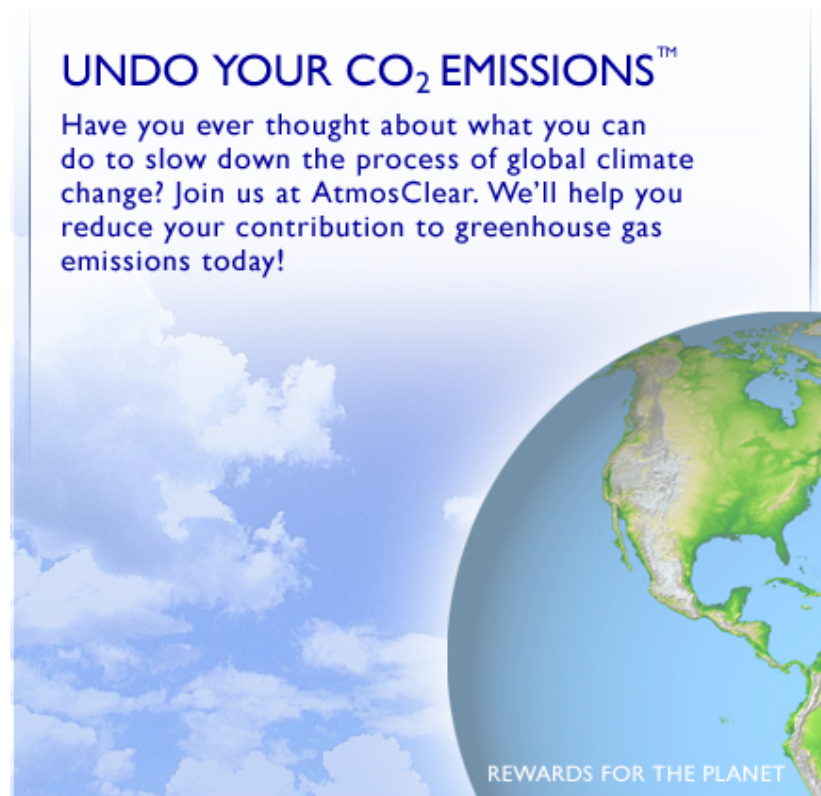


Figure Three – Image of the Earth and global atmosphere on an offset organisation’s website (source: <http://www.atmosclear.org/>).

³ See: <http://www.mycarbondebt.com> (accessed November 2007).

The second step in the argument is that there may in fact be specific advantages to be gained by reducing emissions in certain places – particularly the Global South. As emission reductions are cheaper in the Global South (because of lower costs of land and labour), and also because of the possibility of technology transfer or ‘leapfrogging’ through innovation, reducing emissions there may be positively beneficial, rather than simply a move to shift responsibilities for action (Rousse 2007). The economic argument surfacing here echoes long standing narratives about comparative advantage:

“just as businesses often open manufacturing facilities in developing countries to lower costs and increase margins, developed countries and private companies will look to the comparative advantage of developing countries for investments in carbon offsets The current inefficiency of many developing countries in terms of GHG emissions per unit of economic output means that investments there could potentially achieve a greater environmental effect than the same investment in a more GHG efficient developed country” (DiNicola et al. 1997: 2).

“In comparison to industrialized countries, the same amount of funding can avoid much more greenhouse gases if spent in developing countries, where technology is often still basic.”
(Atmosfair 2007)

A narrative which therefore appears to stress the global opportunities for offsetting in fact lends itself to arguments in support of specific places for emissions reductions. This global-local connection is reinforced through attempts to provide a ‘human face’ to offsetting and realise sustainable ‘side benefits’, such as conservation, poverty reduction, or meeting other corporate social responsibility goals. There is a perceived consumer desire for known projects and personal links. For example a media officer at a UK voluntary offset organisation explains how:

“...it is very important to be able to make it real to people, especially as carbon is so abstract.. community-based projects are colourful and personable and they involve real people and things that people can engage with, so you don’t have to talk to them about hydrofluorocarbons... you can talk about cooking your evening meal without having a smoke-filled kitchen...”
(Interview, UK voluntary offset organisation, October 2007).

Compared with the compliance or CDM offset market, voluntary offset producers are seen to be particularly adept at sourcing projects in the Global South that meet both carbon and sustainable development criteria:

“The strength of the voluntary carbon offsets markets is its ability to support a diversity of projects: including those that are small; those that bring additional sustainable development benefits; and those found in countries which are currently under-represented in compliance market projects.”
(HoC Environmental Audit Committee 2007: 27).

The global-local connections narrative tries to make carbon offsets understandable and appealing to consumers through a focus on defined projects in the Global South (see for example Envirotrade 2007; Plan Vivo 2007). This is achieved in two related ways. First, offset organisations have borrowed already familiar narratives about sustainable development

and poverty alleviation in the Global South from the fair trade movement (Bryant and Goodman 2004). These narratives reassure consumers that carbon offsets are a type of sustainable and ethical product, albeit a rather unusual one. In other words the narrative demonstrates that the ‘social life’ of carbon offsets (ibid. 2004) has parallels with other more familiar sustainable and ethical products. There is a strong association here with political ecology debates linking consumption in the North to people and environments in the Global South (Blaikie 1999; Bryant and Goodman 2004). The global-local narrative embraces the core idea of political ecology that it is possible for Northern consumers to have a real connection to producers to the Global South – a ‘short’ commodity chain, where distance is not a barrier (Guthman 2007; Reynolds 2002) - as Goodman explains, “the commoditization of fair trade facilitates a material and discursive “scale jump” (Glassman 2001) that, in effect, stitches consumers to the very places and livelihood struggles of production via embedded ethical, political and discursive networks” (Goodman 2004: 893). Images of beneficiaries - pictures and stories of places, individuals and projects who are benefiting from the purchase of offsets is a critical means through which the performance of this narrative takes place (Figure 4). As with Bryant and Goodman’s (2004) analysis of the commodity culture of fair trade, here a consuming disposition of solidarity is invoked.



Figure 4 – Image of beneficiary of carbon offset projects (source: http://www.carbon-clear.com/l_project_philosophy.php).

However, the narrative goes beyond merely seeking to invoke a sense of personal connection and obligation. In endeavouring to make carbon offsets understandable and appealing to consumers, the ‘side benefits’ of carbon offsets are stressed. Many offset organisations emphasize the additional benefits to carbon reductions such as poverty alleviation, reduced indoor pollution, and preserving rainforests. These, unlike carbon reduction, are tangible and visible and serve to remove doubt as to whether offsetting is a ‘good thing’. As the web site for offset provider CarbonClear notes:

“We emphasise the use of VERs because their lower transaction costs allow us to support many worthwhile, community-level projects that would be too small to qualify under more bureaucratic systems. VERs allow us to link the sale of carbon credits to tangible benefits at the community level.”
(Carbon Clear 2007).

In effect, actively linking carbon reduction to projects and people allows carbon to have a tangible or material presence. Expert endorsement of particular projects is used to provide additional legitimacy, particularly for the social and development aspects of projects (see for example Bill Oddie's endorsement of tree planting projects for Carbon Footprint 2007). Further meaning is added if the carbon reduction is associated with a project that has special resonance for the consumer, for example if the project is located in a place a consumer is travelling to, or if it has links with corporate geographies of production. For example the Born Free Foundation (2007) suggests that travellers to Africa offset their flights by paying for reforestation in Kenya, and a number of other offset organisations allow consumers to choose to offset with particular regional projects.

In some cases, however, there is a discourse that runs counter to Global South initiatives, that emphasises instead the need for developed world local offsetting. The Carbon Neutral Newcastle initiative, for example, provides offsetting in the North-East region of the UK (Carbon Neutral Newcastle 2007). There are strong parallels between this narrative and some of the complex geographies of environmental consumption around food – where narratives of fair trade and local consumption are jointly articulated (Bryant and Goodman 2004; Raynolds 2002; Seyfang 2007). Rather than seeking to determine whether one particular project or location represents a ‘better’ form of offsetting, many retailers offer consumers project choice on their websites to capture the range of ‘side benefits’ in which consumers may be interested. This is particularly significant in relation to corporate clients, where both protection of brand (through the selection of carefully vetted projects) and the need for distinction (“our brand is greener than your brand”) have led to the use of menus to enable large corporate actors to create their own bespoke selection of offsets, through options such as the Carbon Neutral Company’s (2007b) ‘International Communities Portfolio’.

As with the ‘quick-fix’ narrative, the global-local narrative highlights the circuits within which the production and consumption of voluntary carbon offsets takes place. The narrative is producer-driven - voluntary projects are presented as a corrective, or a counterpoint to compliance market projects which have tended to neglect sustainable development issues and do not incorporate ‘side benefits’ because it impairs the fungibility of credits. Simultaneously, however, the narrative is consumer-orientated: it strives to make carbon offsets meaningful and real for consumers by linking carbon reductions with other visible actions and familiar issues such as poverty alleviation and sustainable development.

Avoiding the unavoidable

The third narrative moves away from discourses of global science and the global village to focus specifically on the drivers of increasing greenhouse gases in the atmosphere. The appeal is made to rationality and reason – once you have reduced emissions of greenhouse gases through the reduction of demand for energy and switching energy supply, offsetting is the only option available to negate the negative environmental consequences of the ‘unavoidable’ remaining emissions. For example, Action Carbone, a French offset retailer, explains the justification for offsets as follows:

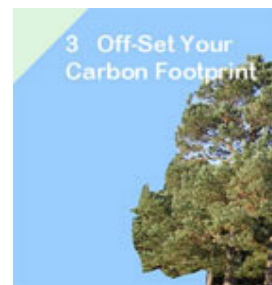
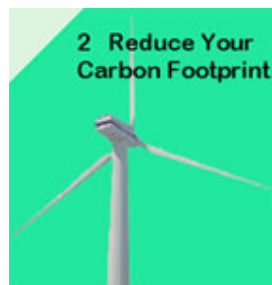
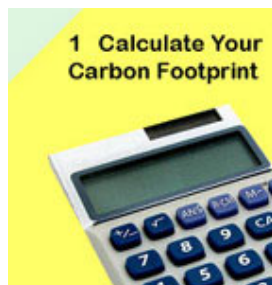
“We can choose not to travel by plane when going on holiday, or take the bike instead of the car for our inner-city trips and we can try not to over-heat our homes. But it is not always possible to avoid taking the car or the plane or to forego central heating. For some jobs, you just need your individual car because of the distance between

home and work, and sometimes you can't help but take the plane to reach destinations that are far away ... For some trips, we just don't have the choice.”
(Action Carbone 2007).

The narrative appeals to, and fosters, knowledgeable and responsible consumers who use offsets as part of a package of other carbon reduction practices. In this way ‘avoiding the unavoidable’ narrative is about self-control and “governing of the consuming self” (Barnett et al. 2005: 31). In contrast to ‘global-local’ narrative the production of the offsets is not emphasised – the focus is squarely on the consumer. It differs too in this respect to conventional notions of ethical and sustainable consumption because the narrative is not about typical political ecology issues such as poverty alleviation, the Global South and ‘shortening’ the production-consumption chain. It is instead focused on Northern consumers holistically assessing and modifying their actions and purchases in response to climate change. As such, the narrative actively embraces a whole range of carbon practices, habits, behaviours which these Northern consumers – whether individuals or businesses - are engaged in. The offset purchase is positioned at the end point, or culmination of, other consumption activities, and through an extensive process of calculation, measurement and audit of carbon it becomes possible to quantify this purchase. Two technologies or devices are an integral part of the narrative, allowing consumers to undertake this audit of their climate change impact *before* purchasing offsets. First, the notion of an ‘energy hierarchy’ as a basis for decision-making and planning – reduce, renew/replace, then offset – modelled on the waste hierarchy. There is energy hierarchy information on most offset organisations’ websites about other measures consumers should be taking to reduce energy use and use renewables (see Figure Five). Advice on carbon offsetting in the Financial Times, for example, advocates that:

“Offsetting should never be the first step in any carbon-neutral strategy. Instead, companies should seek to reduce their impact on the climate by wasting less energy ... Companies should only offset what emissions they cannot eliminate.”
(Harvey 2007: 5).

The hierarchy approach is particularly aimed at corporate customers, where offsetting is organised and shaped through companies’ carbon management strategies. For businesses offsetting is sold as a cornerstone of becoming ‘carbon neutral’, with the kudos that is implied to bring (see CarbonNeutral Company 2007). Indeed, the term ‘carbon neutral’ has come to be intimately associated with the idea of a hierarchy, where responsible corporations make internal carbon reductions first. So popular has this term become that ‘carbon neutral’ has been named the New Oxford American Dictionary’s Word of the Year for 2006 (Treehugger 2007).



Low Carbon Hierarchy
1. Reduce. Avoid energy use then reduce through energy efficiency and redesign of products & services
2. Replace. Use low carbon renewable energy where possible &/or clean & efficient fossil fuel technology
3. Neutralise. Offset the unavoidable carbon emissions

Figure Five – Examples of the offset energy hierarchy

(sources: <http://www.carbonfootprint.com/index.html>;
<http://www.oursouthwest.com/lowcarbon/>)

The carbon calculators on retailers’ websites are the second device or technology that embodies and facilitates the narrative. The calculators allow consumers to quantify and evaluate their carbon impact, and hence identify those emissions that are deemed to be unavoidable. The calculators are particularly aimed at individual consumers visiting the offset organisations’ websites, allowing them to assess their carbon informally on a personal basis. Although there is limited evidence about how and why individuals purchase carbon offsets (see HoC Environmental Audit Committee 2007), a survey by a leading UK offset organisation indicated that seventy percent of their consumers had taken action to make their own homes more energy efficient (Climate Care 2006b), suggesting consumers do engage with the ‘avoiding the unavoidable’ narrative. With corporate consumers the carbon audit process is usually carried out in a more formal and extensive manner, often in conjunction with the offset organisation as part of an overall carbon management strategy (CarbonNeutral Company 2007). More widely, under this narrative offsetting is seen as part of the mix of methods needed in order to achieve radical cuts in emissions – the 60% and 90% carbon reduction targets that have been discussed in the UK, for example (DEFRA 2007b).

Critiques of the narratives

Our analysis of the alternative narratives of carbon offsetting has highlighted a number of underlying tensions in the process of making carbon offsets: scientific, technical, political, economic and ethical. These tensions have been voiced in several recent negative reports and media coverage about offsetting which include many direct criticisms of the three offset narratives (Davies 2007; FERN 2005; Harvey and Fidler 2007; Smith 2007). In this section we consider the two principal types of criticism directed at carbon offsets: ethical and technical. We then evaluate the effect of these critiques on voluntary offset production through an assessment of recent proposals to regulate the voluntary offset market. The impact the critiques have had in shaping offset production clearly demonstrates the existence of well-defined interconnected circuits of offset production and consumption, in which offsets organisations themselves play a crucial role.

Criticisms from an ethical perspective echo long standing academic debates in political ecology, as well as environmental and development activist groups, about development projects, especially those that highlight neo-colonial attitudes and practices, and the

downsides of neoliberalism and market environmentalism (Bond and Dada 2004; Lohmann 2005; Sinks Watch 2007). These neo-colonialism debates have most relevance to the 'global-local connections' narrative discussed above. The chief concern is that the Global South is being used as a means of cleaning up the waste produced by the developed countries in the North (FERN 2005; Lohmann 2006). This includes questions of unfair terms of trade (whether the prices paid for carbon reductions are too low), the unequal distribution of the benefits of carbon reduction projects, the lack of local participation in decisions about carbon reduction projects, and the bias towards large centralised forms of energy generation rather than local renewable energy (Bond and Dada 2004, Boyd et al 2007). The focus of this critique, particularly in the media, has tended to be voluntary offset projects (see for example Kennedy and O'Connor 2007). This perhaps stems from the fact that it is voluntary offsets that the general public are most engaged with, because in reality voluntary offsets are more focused on delivering sustainable development benefits to the Global South than the compliance market, as discussed above. A second ethical critique, which applies most strongly to the 'avoiding the unavoidable' narrative, is that emissions are not in fact, unavoidable, but rather can be considered as luxuries with the effect that offsets are seen as paying for your 'indulgences' (Smith 2007); flying is where the debate rages here (see for example Davies 2007).

A second key strand of criticisms of offsets stems from technical and scientific (often field-based) evaluations (Harvey 2007, Rouse 2007; Taiyab 2006; Minns 2007). The main issue in this set of more detailed debates is the additionality of carbon offsets, i.e. whether offset projects are more than 'business-as-usual' and saving additional carbon over other policies - and hence whether offsets provide the sort of 'intensive care' the planet is seen to need (Harvey and Fidler 2007; HoC Environmental Audit Committee 2007). The additionality criticism has been addressed in several media programmes including a UK television documentary (Dispatches: The Great Green Smokescreen) which quoted local participants as saying that projects would have occurred even without carbon finance (Channel Four 2007). The compliance market has strict methods for assessing additionality in which projects must show that carbon finance is allowing for additional reductions compared to a baseline or to alternative projects, and several of the voluntary offset standards recently launched or in the process of being developed concentrate on bringing voluntary credits closer to the CDM standard (see for example The Climate Group 2007).

The timing of greenhouse gas reductions is a second area of technical critique. The extent to which offsets can provide a fast response or 'quick fix' has been contested, especially in slow growing forests, and in many instances in the voluntary market credits are sold before emissions reductions are achieved (HoC Environmental Audit Committee 2007). The timing of greenhouse gas reductions has, for example, been a critical issue in the consultation about establishing a UK Code of Practice for voluntary offsets, with the government suggesting a time lag of six months between customer purchase of an offset and an equivalent carbon credit being purchased by the offset organisation (DEFRA 2007a). There is a related third critique about the accuracy of carbon measurement: issues around whether scientists have the tools and expertise to account for the emissions reductions being made through individual projects (and hence their overall contribution to the global atmosphere) (FERN 2005; HoC Environmental Audit Committee 2007). A final technical critique is that offsetting can only ever be a 'drop in the ocean' in relation to the radical shifts in the production and consumption of energy that are required because the total greenhouse gases removed from the atmosphere are modest compared to growing overall emissions (FERN 2005).

The consumption of offsets is, as our analysis of the offset narratives and the critiques has shown, subject to increasing political contestation. In direct response to the media commentary, celebrity endorsement, and degrees of public confusion, both state and non-state actors are stepping into the arena with attempts to recommend particular forms of offsetting through various new standards and codes of best practice. In this way critiques of offsetting are significantly reshaping the production process, thereby demonstrating the interconnectedness of offset production and consumption and the existence of closely linked *circuits* of production and consumption. There has been a tension in debates about voluntary offset regulation between whether to focus just on carbon, or whether to incorporate sustainable development and other 'side benefit' into codes and standards. The UK government's approach, in its consultation for a UK Code of Practice on voluntary offsetting, makes the 'carbon-only' argument, suggesting the voluntary market should be restricted to CERs (DEFRA 2007a). However, other attempts to regulate the market through partnerships between non-state actors - offset organisations, corporations and NGOs – have tried to account for other factors aside from carbon in developing criteria for the offset production process. There are several different standards which have recently been launched, or in the process of being developed (see HoC Environmental Audit Committee 2007). For example the Voluntary Carbon Standard (VCS), developed by an industry consortium led by The Climate Group, IETA and the WBCSD, was launched in November 2007 (The Climate Group 2007). Mark Kenber, policy director of The Climate Group and co-chair of the VCS Steering Committee, outlined the strong regulatory rationale for the VCS at its launch at the London Stock Exchange:

“The Voluntary Carbon Standard means business and consumer buyers can now trust the offsets they buy. Its robust quality assurance will trigger a new global confidence in the voluntary market from corporate buyers, consumers, and policy-makers.”
(The Climate Group 2007)

Similar regulatory and quality justifications are put forward by developers of other voluntary market standards. For instance the Gold Standard, developed by a non-state consortium led by WWF and operational since 2003, is marketed using the strapline “Premium quality carbon credits” (The Gold Standard 2007). The investment bank Morgan Stanley itself launched a Voluntary Offset Standard in July 2007 in direct response to criticisms of the voluntary market and the concern that these critiques will ultimately negatively impact upon the compliance market. As Olivia Hartridge, head of carbon origination at Morgan Stanley explains:

"It would be a real shame for any doubts to be cast on the regulated carbon market because of activities happening in the non-regulated [voluntary] market. That is part of the reason that we stepped in to raise standards"
(Murphy 2007).

These examples demonstrate that the main industry response to critiques of offsetting has been to undertake a process of self-regulation in an attempt to restore credibility and assure governments that voluntary offsets are credible products. There are parallels with other industries here in terms of self-regulation being developed in an attempt to ward off state initiatives. What is particularly interesting about the case of voluntary offsets is how strongly the offset narratives and their critiques are shaping the production process through the development of new codes and regulations. The debates about regulating the voluntary market illustrate how closely the circuits of offset production and consumption are linked.

Further, we suggest that offset organisations occupy a critical position within these circuits. Not only are they in many instances leading the development of new regulatory standards, but they are also responding in a direct way to feedback from consumers (most notably large corporate consumers) about the types of offset projects they wish to buy credits from. Certain large corporations and celebrities have been exposed by high profile media coverage of offset projects that have not delivered credits, or have had questionable sustainable development ‘side benefits’ (Channel Four 2007; Kennedy and O’Connor 2007). Offset organisations are now highly sensitive to consumers’ preferences about offset projects, and certain types of high risk projects are avoided because, as a manager at a UK offset organisation explained with reference to community-based fuel stove projects, “...these projects are more rounded and embedded in culture and trying to explain that to people.... is challenging... people want to know where their money is going...” (Interview, October 2007). In this way voluntary offset organisations have acted as key intermediaries between consumers and offset production. They are positioned at a critical node in circuits of production and consumption, influencing the practices, narratives, governance and regulation of voluntary offsets.

Summary and conclusions

Purchasing voluntary carbon offsets is emerging as a new type of consumption practice within complex carbon economies, which have multiple pathways. In this paper we have suggested that analyses of the new carbon economy, in which offsetting is playing an increasingly pivotal role, need to direct attention not only at how such commodities are produced, but also at how they are consumed. Voluntary offset organisations have historically played a key role in not only the production and consumption of offsets, but also their governance. However, with the 2007 UK consultation on the Code of Best Practice for voluntary offsetting, signs are now emerging that the state is stepping in to play a more pivotal role (DEFRA 2007a). Moreover, with voluntary carbon offsets it is corporate consumers who are most active in the market. The ‘top down’ creation of forms of ethical consumption and the role of large corporate players in practice of consumption is one unusual dimension of carbon offsets in comparison to more typical sustainable and ethical products such as coffee and fair trade goods. A second unusual feature of carbon offsets is their intangibility and novelty – customers do not actually purchase a material good for which they have a required need – and this is a key reason why offset narratives have played such a critical role in shaping how this product is consumed and made understandable by consumers.

Despite these distinct differences, carbon offsets have similar complex geographies to other areas of environmental and ethical consumption such as organic food and fair trade products (Bryant and Goodman 2004; Reynolds 2002; Seyfang 2007). These complex geographies include multiple narratives and practices, and combine public and private forms of regulation. Narratives and their associated technologies are critical here in connecting offset consumption and production, and in so doing create new consumption arenas and spaces, as Goodman explains in the context of fair trade:

“The production of meanings in the consumption of fair trade foods is both material and semiotic in the imaginary of fair trade commodities, that, while involved in connecting the places of consumption and production, *also makes place* through morally-tinged markets, premiums and standards”
(Goodman 2004, emphasis added: 896).

We have demonstrated how offset narratives have been important not just in semiotic but also material terms, in ultimately influencing the effectiveness of voluntary carbon markets in taking greenhouse gases out of the atmosphere. But there is a critical difference between our analysis and others in the field of sustainable and ethical consumption. Goodman, for example, talks of the development of 'discursive fields' around fair trade products as the 'second moment of production' (2004: 898): narratives are produced and then consumed. We find this approach too linear and static to be applied to voluntary carbon offsets. In their roles as creators, buyers and sellers, offset organisations are alert to how consumption practices 'produce' narratives (or want to), which in turn feeds back to influence production. The process is reflexive rather than linear; there is a delicate interplay between offset narratives, consumption and production, with offset organisations positioned at a critical juncture between them. Making carbon offset consumption possible is in many ways taking place from the top down, as offset organisations, corporations, NGOs and the state compete to define and provide 'ethical' consumption in relation to climate change.

References

- Action Carbone. 2007 "Action Carbone - homepage." Retrieved 10th August 2007, from http://www.actioncarbone.org/main_fr.php
- Atmosfair. 2007 "Atmosfair - FAQs - Why does Atmosfair support climate protection projects in developing countries?" Retrieved 23rd November 2007, from <http://www.atmosfair.de/index.php?id=176&L=3>
- Barnett, C., P. Cloke, et al. 2005 "Consuming ethics: articulating the subjects and spaces of ethical consumption." *Antipode* 37(1): 23-45
- Blaikie, P. 1999 "A review of political ecology: issues, epistemology, and analytical narratives." *Zeitschrift fur Wirtschaftsgeographie* 43: 131-147
- Bond, P. and R. Dada, Eds. 2004 *Trouble in the Air: Global Warming and the privatised atmosphere*. (Durban SA, Center for Civil Society)
- Boyd, E., M. Gutierrez, et al. 2007 "Small-scale forest carbon projects: Adapting CDM to low-income communities." *Global Environmental Change* 17(250-269)
- Bryant, R. L. and M. K. Goodman 2004 "Consuming narratives: the political ecology of 'alternative' consumption." *Transactions of the Institute of British Geographers* 29: 344-366
- Bumpus, A. and D. Liverman 2008 "Accumulation by decarbonisation and the governance of carbon offsets." *Economic Geography* (in press)
- Carbon Clear. 2007 "Carbon Clear - How Carbon Offset Works." Retrieved 23rd November 2007, from http://www.carbon-clear.com/0_how_it_works.php
- Carbon Footprint. 2007 "Pledge a Tree in your Local Area." Retrieved 12th October 2007, from <http://www.carbonfootprint.com/shop2.html>
- Carbon Neutral Newcastle. 2007 "Carbon Neutral Newcastle - Projects - About our Projects." Retrieved 12th October 2007, from <http://www.carbonneutralnewcastle.com/projects/>
- CarbonNeutral Company. 2007 "Client Case Studies." Retrieved 12th October 2007, from <http://www.carbonneutral.com/pages/clientcasestudies.asp>
- Channel Four. 2007 "Dispatches - The Great Green Smokescreen, broadcast Monday 16 July 2007 8pm." Retrieved 28th November 2007, from <http://www.channel4.com/news/articles/dispatches/the+great+green+smokescreen/589267>
- Climate Care. 2006a "Climate Care Annual Report 2006." Retrieved 11th July 2007, from http://www.climatecare.org/media/documents/pdf/climate_care_annual_report_06.pdf

- Climate Care 2006b Unpublished on-line customer survey. (Oxford, Climate Care)
- Climate Care. 2007 "Climate Care Gift Offset calculator." Retrieved 11th October 2007, from <http://www.climatecare.org/calculators/gift>
- Climate Trust. 2007 "The Climate Trust - Your Path to a Stable Climate." Retrieved 23rd November 2007, from http://www.climatetrust.org/about_offsets.php
- Crang, P., C. Dwyer, et al. 2003 "Transnationalism and the spaces of commodity culture." *Progress in Human Geography* 27(4): 438-456
- Davies, N. 2007 The inconvenient truth about the carbon offset industry. *The Guardian*. (London)
- DEFRA 2007a Consultation on establishing a voluntary Code of Best Practice for the provision of carbon offsetting to UK customers. (London, Department for Environment, Food and Rural Affairs (DEFRA)): 56
- DEFRA. 2007b "DEFRA news - Draft Climate Change Bill published." Retrieved 13th March 2007, from <http://www.defra.gov.uk/news/latest/2007/climate-0313.htm>
- DiNicola, A., D. J. Jones, et al. 1997 Opportunities for forestry investment in Asia and the Pacific through carbon offset initiatives. (Rome, Asia-Pacific Forestry Sector Outlook Study Working Paper Series (FAO), no. 29)
- Envirotrade. 2007 "Envirotrade - our projects." from http://www.envirotrade.co.uk/Pages/envirotrade_projects.htm
- FERN. 2005 "FERN Briefing Note June 2005 - Carbon 'offset' - no magic solution to 'neutralise' fossil fuel emissions." Retrieved 12th October 2007, from http://www.fern.org/media/documents/document_884_885.pdf
- Fine, B. and E. Leopold 1993 *The world of consumption*. (New York, Routledge)
- Gereffi, G. and M. Korzeniewicz, Eds. 1994 *Commodity chains and global capitalism*. (Westport, US, Praeger)
- Goodman, M. 2004 "Reading Fair Trade: political ecological imaginary and the moral economy of fair trade foods." *Political Geography* 23(7): 891-915
- Guthman, J. 2007 "The Polanyian Way? Voluntary food labels as neoliberal governance." *Antipode* 2007: 456-478
- Hamilton, K., R. Bayon, et al. 2007 State of the Voluntary Carbon Markets 2007: Picking Up Steam. (London & Washington, New Carbon Finance and Ecosystem Marketplace)
- Harvey, F. 2007 A guide to good carbon offsetting. *The Financial Times*. (London)
- Harvey, F. and S. Fidler 2007 Industry caught in carbon 'smokescreen'. *The Financial Times*, 25th April 2007. (London)
- Hobson, K. 2003 "Thinking habits into action: the role of knowledge and process in questioning household consumption practices." *Local Environment* 8(1): 95-112
- Hobson, K. 2006a "Bins, bulbs and shower timers: on the 'techno-ethics' of sustainable living." *Ethics, Place and Environment* 9(3): 317-336
- Hobson, K. 2006b "Environmental psychology and the geographies of ethical and sustainable consumption: aligning, triangulating, challenging?" *Area* 38(3): 292-300
- HoC Environmental Audit Committee 2007 The Voluntary Carbon Offset Market. Sixth report of session 2006-07. (London, The Stationery Office Ltd.)
- Hughes, A. 2001 "Global commodity networks, ethical trade and governmentality: organizing business responsibility in the Kenyan cut flower industry." *Transactions of the Institute of British Geographers* 26: 390-406
- Hughes, A. 2006 "Learning to trade ethically: Knowledgeable capitalism, retailers and contested commodity chains." *Geoforum* 37(6): 1008-1020
- ICF 2006 Voluntary Carbon Offsets Market: Outlook 2007. (London, ICF consulting)
- Jackson, T., Ed. 2006a *The Earthscan Reader in Sustainable Consumption*. (London, Earthscan)

- Jackson, T. 2006b Readings in sustainable consumption. *The Earthscan Reader in Sustainable Consumption*. T. Jackson. (London, Earthscan): 1-27
- Kennedy, D. and A. O'Connor 2007 To cancel out the CO₂ of a return flight to India, it will take one poor villager three years of pumping water by foot. So is carbon offsetting the best way to ease your conscience? *The Times*. (London 28th August 2007: 10
- Leslie, D. and S. M. Reimer 1999 "Spatializing commodity chains." *Progress in Human Geography* 23: 401-420
- Lohmann, L. 2005 "Marketing and Making Carbon Dumps: Commodification, Calculation and Counterfactuals in Climate Change Mitigation." *Science as Culture* 14(3): 203-235
- Lohmann, L. 2006 *Carbon trading: a critical conversation on climate change, privatisation and power*. (Uppsala, Mediaprint)
- Merriman, P. 2005 "Materiality, subjectification, and government: the geographies of Britain's Motorway Code." *Environment and Planning D: Society & Space* 23: 235-250
- Murphy, M. 2007 Call for beefed-up carbon standards. *The Age*. (Melbourne 29th October 2007
- North, P. 2005 "Scaling alternative economic practices? Some lessons from alternative currencies." *Transactions of the Institute of British Geographers* 30(2): 233-235
- Plan Vivo. 2007 "Plan Vivo Carbon Management and Rural Livelihoods - Projects." Retrieved 12th October 2007, from <http://www.planvivo.org/px.planvivo/scheme/projects.aspx>
- POST 2007 POSTnote no.290 - Voluntary Carbon Offsets. (London, The Parliamentary Office of Science and Technology (POST))
- Raynolds, L. T. 2002 "Consumer/Producer links in fair trade coffee networks." *Sociologia Ruralis* 42(4): 404-424
- Seyfang, G. 2001 "Community Currencies: Small Change for a Green Economy." *Environment and Planning A* 33(6): 975-996
- Seyfang, G. 2005 "Shopping for Sustainability: Can sustainable consumption promote ecological citizenship?" *Environmental Politics* 14(2): 290-306
- Seyfang, G. 2007 "Cultivating carrots and community: local organic food and sustainable consumption." *Environmental Values* 16: 105-123
- Sinks Watch. 2007 "SinksWatch - an initiative to track and scrutinize carbon sink projects." Retrieved 28th November 2007, from <http://www.sinkswatch.org/>
- Smith, K. 2007 *The Carbon Neutral Myth: offset indulgences for your climate sins*. (London, Carbon Trade Watch): 80
- Southerton, D., H. Chappells, et al., Eds. 2004 *Sustainable consumption: the implications of changing infrastructures of provision*. (London, Edward Elgar)
- Taiyab, N. 2006 *Exploring the market for voluntary carbon offsets*. (London, International Institute for Environment and Development (IIED))
- The Born Free Foundation. 2007 "Offset your carbon emissions with the Born Free Foundation." Retrieved 23rd November 2007, from <http://www.bornfree.org.uk/get-involved/carbon-offsetting/>
- The Carbon Neutral Company. 2007a "Climate Change Overview." Retrieved 28th November 2007, from <http://www.carbonneutral.com/pages/climatechange.asp>
- The Carbon Neutral Company. 2007b "The International Communities Portfolio." Retrieved 28th November 2007, from <http://www.carbonneutral.com/cncalculators/flightsdetsintc.asp>
- The CarbonNeutral Company. 2007 "Tiny Toes - Baby Gifts." Retrieved 12th October 2007, from

<http://carbonneutral.com/shop/details.asp?productid=945&productname=Tiny%20Toes%20-%20Baby%20Gifts>

The Climate Group. 2007 "VCS Launch - A New Quality Assurance for the World's Carbon Market." Retrieved 19th November 2007, from

http://theclimategroup.org/index.php/news_and_events/news_and_comment/vcs_launch_a_new_quality_assurance_for_the_worlds_carbon_market/

The Gold Standard. 2007 "The Gold Standard - latest news." Retrieved 28th November 2007, from <http://www.cdmgoldstandard.org/index.php>

Treehugger. 2007 "Word of the Year: Carbon Neutral." Retrieved 12th October 2007, from http://www.treehugger.com/files/2006/11/word_of_the_yea.php

Name of Offset Organisation	Year founded	Primary Market	Global	Major clients	Project Originator	retails CERs as well as VERs
3 Phases	2001	USA	N			
3C	2003	Germany	Y	Credit Suisse, Toyota, Deutsche Bank		
A2G		Spain	Y			
Action Carbone	2006	France	N			
Ag Cert	2005	Ireland	Y	BHP Billiton, EDF Trading, ESB, BP		
AGL		Australia	N			
American Forests	1990	USA	N			
Atmosclear	2004	USA	N			
Atmosfair	2005	Germany	Y	Opedo, lastminute.com, electrolux		
Australian Carbon Traders	2004	Australia	N	landcare		
Baseline Emissions Management	2007	Canada	N			
Be Green Now	2006	USA	N			
Blue Source	2001	Australia	N	J.B. Hunt, Blue Lake, Val Verde		
Bonneville Environmental Foundation	1990	USA	N			
Bendigo Bank	2007	USA	N			
Breathe Easy Now	2007	Australia	N			
Blue Ventures Carbon Offset	2007	UK	N			
C Level	2000	UK	N	Brighton and Hove City Council, The Bodyshop		
Camco	2000	UK	Y	Worldbank IBRD, DFID		
Canopy	2001	Australia	N	Mitsubishi Motors Australia, Northern Group		
Carbon Accountable	2007	UK	N			
Carbon Aided	2006	UK	N			
Carbon Capital Markets	2006	UK	N			
Carbon Clear	2005	UK	N	innocent, comic relief, london business school		
Carbon Fund	2003	USA	N	Calvert, Dell, orbitz, lancome		
Carbon Leaf		UK	N			
Carbon Managers	2007	UK	N	The Keyboard Company		
Carbon Negative Worldwide	2007	UK	Y			
Carbon Neutral - MenoftheTrees	2007	Australia	N	Govt of WA State Fleet, Western Power		
Carbon Offsets Ltd	2006	UK	N			
Carbon Passport	2007	UK	N			
Carbon Planet	2000	Australia	Y			
Carbon Positive	2006	Australia	N			
Carbon Resource Management	2006	UK	Y			

Carbon Smart	2006	UK	N			
Carbon Ventures	2001	USA	Y			
carbonfootprint.com	2005	UK	N			
CarboNZero		New Zealand	N	WWF - NZ, Intercity Group, Meridian Energy		
CarbonZero (CA)	2007	Canada	N			
Certified Clean Car	2005	USA	N			
Clean Air Pass	2005	Canada	N	Oxford Dodge, Provincial Chrysler		
Clean and Green	2005	USA	N			
Cleaner Climate	2006	UK	N	Adobe, Sirius		
Climat Mundi	2006	France	N	Moët et Chandon, Mac Donald's France		
Climate Care	1997	UK	Y	Landrover, David Cameron		
Climate Change Capital	2004	UK	Y			
Climate Company	2006	Germany	N			
Climate Exchange	2003	USA	Y			
Climate Focus	2004	Holland	Y			
Climate Friendly	2003	Australia	Y	Sustainability Victoria, WWF-Australia		
Climate Neutral Group	2002	Holland	N	Triodos, PricewaterhouseCoopers		
Climate Partner	2004	Germany	N	McDonalds, O2		
Climate Save	2005	USA	N			
Climate Stewards		UK	N			
Climate Trust	1997	USA	N	Delta Airlines, Patagonia		
Climate Warehouse	2007	UK	Y			
Climate Wedge	2006	UK	Y			
CO2 Australia	2004	Australia	N	Baker & McKenzie, City of Sydney, Qantas		
CO2 Neutraal		Holland	N			
CO2 Solidaire	2002	France	N			
co2balance	2003	UK	N	Scottish Executive, Environment Agency		
CO2e	2000	UK	Y			
co2logic		Belgium	N			
COCO2	2007	UK	N			
Community Energy	2001	USA	N			
Conservation Fund	2000	USA	N	Dell, Universal studios		
Conservation International	2006	USA	N			
Coolaction	2000	UK	N			
Cool Earth	2007	Canada	N	Rough Guides, Morgan Stanley		
Correct Carbon		UK	N			

Driving Green		USA	Y			
EAD Environmental		USA	N			
Easy Being Green	2005	Australia	N	BHP Billiton, National Parks and Wildlife Services		
Easy Carbon	2006	China	N			
e-BlueHorizons	2006	USA	N			
Econergy	1994	USA	Y			
EcoSecurities	1997	UK	Y			
Elementree	2006	Australia	N			
Environmental Defense Fund	2002	USA	N			
Environmental Transport Association		UK	N			
Envirotrade	2002	UK	N			
Equiclimate	1998	UK	N			
Erase My Footprint	2006	UK	N			
Face Foundation	1990	Holland	N			
Flying Forests	2007	UK	N			
Future Camp	2001	Germany	N	Deutsche Bahn, Linde		
Future Climate Australia	2006	Australia	N			
Future Forests	2007	UK	N			
Futuro Forestal	1994	Germany	N			
Global Cool	2007	UK	N	Various celebrities		
Green Between	2007	USA	N			
Green Earth Carbon Offsets	2007	Canada	N			
Greenfleet	1997	Australia	N	Sky News, Europcar, Honda		
Green Seat	2001	Holland	N	The Dutch Senate		
Greenstone Carbon Management	2006	UK	N			
Growaforest	2005	UK	N			
Impatto Zero	2003	Italy	N			
Iniciativa Verde	1992	Brazil	N			
KlimaFa	2006	Hungary	N	Dell, The Vatican		
LandcareCarbonSMART		Australia	N			
LiveNeutral	2005	USA	N	DuPont, American Electric Power		
MGM International	2003	USA	Y			
MMA Renewable Ventures	2001	USA	N			
Moor Trees	1999	UK	N			
mycarbondebt	2007	UK	N			

MyClimate	2002	Switzerland	Y	Ben and Jerrys, Lufthansa		
MyClimate Austria	2002	Austria	N			
MyClimate Norway	2002	Norway	N			
Native Energy	2000	USA	N	Interface, Green Mountain		
Natsource	1998	USA	Y			
Neco	2004	Australia	N			
Offset Carbon Company	2007	UK	N	c£ flooring		
Offsetters (CA)	2005	Canada	N	VanCity, Trek Travel		
One Carbon	2002	Germany	Y			
Origin Energy	2007	Australia	N	Lend Lease, STA travel Australia		
Plan Vivo	1998	UK	N			
Planetair	2005	Canada	N			
Planktos		USA	N			
Prima Klima	1991	Germany	N			
Pure	2006	UK	N	Tesco Energy, Unravelit		
Reduce My Footprint	2007	UK	N			
Reforest The Tropics		USA	N			
Renewable Choice Energy	2001	USA	N			
Ripple Africa	2007	UK	N			
SELF	1998	USA	N			
South Pole Carbon		Switzerland	Y			
South South North	1999	South Africa	Y			
Spectron Group	2000	UK	Y			
Sustainable Travel International	2002	USA	N	FIFA World Cup, Continental Airlines		
Target Neutral	2006	UK	N			
Terrapass	2004	USA	N	Ford, expedia.com		
The C-Change Trust	2006	UK	N			
The Carbon Consultancy	2007	UK	N			
The Carbon Neutral Company	1997	UK	Y	Sky, Reed, Land Securities		
The Converging World	2007	UK	N			
The Nature Conservancy	2007	USA	N			
Third Direction	2006	Singapore	N			
TICOS	2007	UK	N	Corsican Places, Gambia Experience		
TIST	1999	USA	N			
Trading Emissions	2005	UK	N			
Tradition Financial Services	1985	UK	Y			

Tree Canada	1992	Canada	N			
Treeflights	2003	UK	N			
Trees for Cities	1993	UK	N			
Trees for Life	1999	UK	N			
Trees for the Future	1998	USA	N			
Trees for Travel	2007	Holland	N	ABN-AMRO		
Tree Smart	2006	Australia	N			
Trexler Climate&Energy Services	1998	USA	N			
Tricorona	2005	Sweden	Y			
Vanrenewable	2005	Canada	N			
Vertis Environmental Finance	2001	Hungary	N	E-ON, Siemens		
World Land Trust-CarbonBalanced	1989	UK	N	Allied Irish Bank, David Attenborough		
Zerofootprint	2006	Canada	N	Air Canada, Toyota		

Table One – International Voluntary Offset Organisations