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Is there an obligation to reduce one's individual carbon footprint?

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Moral duties concerning climate change mitigation are – for good reasons – conventionally construed as duties of institutional agents, usually states. Yet, in both scholarly debate and political discourse, it has occasionally been argued that the moral duties lie not only with states and institutional agents, but also with individual citizens. This argument has been made with regard to mitigation efforts, especially those reducing greenhouse gases. This paper focuses on the question of whether individuals in industrialized countries have duties to reduce their individual carbon footprint. To this end it will examine three kinds of arguments that have been brought forward *against* individuals having such duties: the view that individual emissions cause no harm; the view that individual mitigation efforts would have no morally significant effect; and the view that lifestyle changes would be overly-demanding. The paper shows how all three arguments fail to convince. While collective endeavours may be most efficient and effective in bringing about significant changes, there are still good reasons to contribute individually to reducing emission. After all, for most people the choice is between reducing one's individual emissions and not doing anything. The author hopes this paper shows that one should not opt for the latter.

Keywords: ethics of climate change; aggregate harm; collective duties; climate change mitigation; Parfit

Introduction

Philosophers and political theorists have successfully argued that climate change gives rise to substantial moral duties concerning mitigation and adaptation (Caney 2010, Gardiner 2010, Garvey 2008, Jamieson 2007, Page 2008, Shue 1993, Singer 2009, 2010). These duties are – for good reasons – conventionally construed as duties of institutional agents, usually states, sometimes the international community or federations of states such as the European Union. They are most often considered to be moral duties primar-

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ily of those countries that have contributed most to global warming in the past (Annex B countries according to the United Nations Framework Convention on Climate Change (UNFCCC) 1992)¹ (Gardiner 2010, p. 14) and possibly growing emitters too (so-called economies in transition – EIT). Yet, both in scholarly debate and in political discourse, it has been argued that the moral duties lie not only with states and institutional agents, but also with individual citizens of the above-mentioned countries (Singer 2009, 2010, Jamieson 2007, Cripps 2011). This argument has been made in particular with regard to mitigation efforts, especially with regard to the emission of greenhouse gases (GHGs) – most prominently carbon dioxide (CO₂) – or rather the reduction thereof.

This paper focuses on the question of whether individuals in industrialized (Annex B) countries have such duties to contribute to mitigation efforts by reducing their carbon footprint and thereby changing their lifestyle. Hence, I do not focus on moral duties individuals might have vis-à-vis an office they hold or the particular position of power they might occupy. Clearly, individuals who hold influential (political) positions usually have special duties related to that position.² The actions I am focusing on are actions individuals may take by choice and which are – in the current situation – not legally required. These are actions towards a so-called green lifestyle which aim at reducing one's carbon footprint.

Preliminaries

Assume that there is a moral duty to comply with emission reduction targets as specified in the Kyoto Protocol (see Annex B to the Kyoto Protocol). Here Annex B countries committed themselves to reduce their GHG emissions on average by 6–8% below 1990 levels between the years 2008 and 2012. The *Fourth Assessment Report* of the Intergovernmental Panel on Climate Change (IPCC) (2007) states that:

Delayed emission reductions significantly constrain the opportunities to achieve lower stabilisation levels and increase the risk of more severe climate change impacts. Even though benefits of mitigation measures in terms of avoided climate change would take several decades to materialise, mitigation actions begun in the short term would avoid locking in both long-lived carbon intensive infrastructure and development pathways, reduce the rate of climate change and reduce the adaptation needs associated with higher levels of warming. (Summary, p. 66)

For simplicity's sake in this paper I will only focus on GHG³ emission reductions and not on other means of mitigating global warming. There is some evidence that even full compliance with the targets of the Kyoto Protocol does not guarantee that dangerous global warming will be averted.⁴ The emission reduction targets specified in the Kyoto Protocol and

acknowledged in the Copenhagen Accord (2009) – which if realized presumably limit global warming to a 2°C increase on average temperature compared with pre-industrial levels – should thus be considered a minimum, not a maximum, target. Numerous scientists have pointed out that even a global temperature increase by 2°C will most likely have very harmful consequences for life on earth (e.g. WBGU (German Advisory Council for Climate Change) 2009). Furthermore, currently it is increasingly unlikely that even the 2°C will be met. The outcome of the 2011 COP-17 in Durban has been that while the parties have agreed on negotiating a binding treaty on climate change action by 2015, the treaty will not come into effect until 2020. Donald Brown thinks that ‘the Durban deal can be seen as almost insuring dangerous warming unless nations agree to make further emissions reductions before 2020’ (Brown 2011).

It follows from the urgency of the problem that the more emissions are reduced in the current situation the better. In the absence of a binding global treaty that effectively limits GHG emissions to the – presumably – desired extent, states should take voluntary action to reduce their GHG emissions. According to Ostrom (2010), ‘[w]e need to recognize that doing nothing until a global treaty is negotiated maximizes the risk involved for everyone’ (p. 556). However, it looks extremely likely that measures being taken by states and governments to reduce GHG emissions right now and in the near future will not be enough to avert dangerous global warming.⁵ It is in the light of this situation that the question of whether or not individual citizens should reduce their individual carbon footprints through voluntary actions (or omissions) – that is actions (or omissions) that are not legally required of them – becomes particularly important. I am assuming here that if effective national legislation on mitigating climate change was in place along with sufficient compliance, emission reduction targets could then be met.⁶ The focus of this article is whether or not individual citizens – at least those in Annex B countries – are morally required to take action towards mitigation while their respective governments – for whatever reasons – fall short of taking *adequate* measures to reduce GHG emissions.

In principle, individual citizens can perform a variety of actions towards climate change mitigation on different levels of cooperative action, including engaging in political activism, establishing or joining local initiatives to promote sustainable energy use, joining established political parties to work towards political solutions to the mitigation problem. Yet, the question I try to answer in this paper is slightly different, taking up a frequently uttered demand to bid farewell to an energy-intensive lifestyle. It is: are individual citizens in high emission countries morally required to reduce their day-to-day GHG emissions?

Demands to reduce individual GHG emissions have a strong intuitive appeal. Yet there are a number of reasons to be sceptical about them. In the public and in the scholarly debate different arguments have been brought

forward against individuals in industrialized countries having moral obligations to reduce their individual carbon footprint. Roughly, these arguments fall into three different categories:

- *No-harm view*: There is nothing wrong with individuals emitting GHGs as such. By using your car, using air travel, not insulating your house, etc. you do not cause any harm as an individual.⁷ As the individual act of emitting GHGs is not actually harmful, there is no obligation for individuals to refrain from it.

This argument refers to the negative duty not to cause harm or to contribute to harm and to violations of such duties. It expresses the commonly accepted view that violating a negative duty is a *prima facie* wrong and that an agent engaged in an activity which violates a negative duty is (*prima facie*) morally obliged to refrain from that activity. According to the *no-harm view*, emitting GHG on an individual level is not harmful and hence does not generate any moral duties to refrain from causing such emissions.

- *No-effect view*: No individual attempt to decrease carbon footprint would actually make a difference.

This argument is about forward-looking responsibilities. It expresses the view that one can only have a duty to act in a certain way if one's actions make a difference to the desired outcome. However, none of us is – individually – able to make a real difference to GHG emissions/concentrations in the atmosphere. Hence we have no obligation to refrain from causing such emissions.⁸

- *Overly-demanding view*: Even if it made a small difference to the better, demanding that one radically change one's lifestyle through substantially reducing one's carbon footprint would be too demanding in the light of the vanishingly small difference our actions make.

This argument is about demandingness and thereby – to some extent – also about proportionality. It says that we can have moral duties to act in certain ways only if – in order to comply with them – we do not have to sacrifice something of comparable moral importance.⁹ The argument about individual mitigation efforts would hence be that the gains are too small in relation to what the costs are. Radically changing one's lifestyle would cost the individual too much and have too little an impact in return.

In the following sections I will show how none of these arguments is entirely convincing and how – quite to the contrary – there are many good reasons for individuals taking action towards a less carbon-intensive lifestyle, in particular, if the actions form part of a collective effort.

The *no-harm view*

Generally, individuals who cause or contribute to harm thereby violate negative moral duties and must hence refrain from or stop contributing to such harmful activities. However, according to the *no-harm view*, this does not apply to individual GHG emissions. Given that the GHG emissions of any particular individual person make no direct and detectable contribution to global warming, adherents of this view conclude that there is nothing morally wrong with individuals emitting GHGs as such. By driving a car, travelling by aeroplane, heating my badly insulated house in winter and cooling it in summer, etc. *I as an individual* do not cause any harm. The amounts that *I individually* emit are not harmful. Through emitting GHG no single *individual* causes harm and violates negative moral duties. Hence, given that those individual acts of emitting GHGs are not harmful, there is no obligation to refrain from emitting.

In this section I want to show how the *no-harm view* is wrong because it ignores the moral relevance of sets of actions and the moral importance of other people's actions for one's own decisions. For this purpose, let me introduce by way of illustrating my argument an individual agent – Paula – who is in a position to reflect upon the individual choices she makes in everyday situations and who has a range of alternatives actually to choose from. Paula could ride her bicycle to work or take the car. She usually decides this on a day-to-day basis, depending on how lazy she feels. Paula will not stop global warming by riding her bicycle to work instead of taking the car. However, is she harming someone by using the car and thereby emitting approximately 0.01 tons of CO₂ each time she drives 25 kilometres to work and back?¹⁰ In the following I will discuss and eventually reject the claim that Paula causes no morally relevant harm when using her car.¹¹

Let us start with distinguishing between intrinsic and aggregate harms. Intrinsic harm is harm resulting from an action that is intrinsically wrong, such as killing another human being. For intrinsic wrongs and harms it is irrelevant how others act: killing someone, for example, remains intrinsically wrong even if that person would have been killed by someone else anyway. What matters is that *I* have a *prima facie* duty not engage in actions that are intrinsically wrong, regardless of whether it makes a difference to the overall outcome or not. It has been argued that emitting GHG is not intrinsically wrong because such emissions only cause harm when there is too much of them, that is, they are harmful only when very many other people also cause such emissions. And this is correct. GHG emissions are not intrinsically wrong, in fact, they are a natural phenomenon. However, GHG emissions are harmful in aggregation.

Aggregate harm is harm resulting from actions that are not intrinsically wrong, but harmful when they or their consequences accumulate.

As Lichtenberg (2010) says ‘there is nothing intrinsically harmful to the environment or other people in burning fossil fuels; the harms depend on the joint effects of many people’s actions’ (p. 568). For aggregate harms it is very relevant how others act: a harmless action can become a misdeed depending on what other people do. Knowingly contributing to aggregate harm, means to accept that if a sufficient number of other persons act in the same way, this will cause the respective harm. Applying this to the specific case of GHG emissions, it means that even though a particular emission of mine will not cause harm, it is harmful and hence wrong of me to cause the emission anyway.

Admittedly, arguing that we ought not engage in actions which – if a sufficient number of others acted in the same way – result in morally significant harm is somewhat unusual and raises a whole lot of questions about the moral status of actions we perform on a day-to-day basis and whose consequences in aggregation are far from straightforwardly accessible to us and to a large extent beyond our control. But perhaps, in a globalized world, we need to change to way we think about harm. Lichtenberg (2010) argues that the harm principle itself must be modified given the changing nature of life, in particular the global effects of our actions:

The model of harm underlying the classic formulation of the harm principle – discrete, individual actions with observable and measurable consequences for particular individuals – no longer suffices to explain the ways our behavior impinges on the interests of other people. (pp. 559–560)

In short, if we allow for a collectivized idea of harm – in addition to our ‘classic’ idea of it – we must accept that individual acts may be considered harmful acts if *together* with other individual acts they have a harmful effect. In the following, let me discuss an attempt to spell out what this means for the individual agent.

Elizabeth Cripps argues that a set of individuals can be responsible as a ‘putative group’ for harm resulting from the predictable aggregation of their individual acts (Cripps 2011). ‘Putative groups’ – a term borrowed from Larry May – are ‘collections of individuals who do not constitute formalized, acknowledged groups’ (p. 173). Such a ‘putative group’ ‘can be collectively responsible for harm resulting from the predictable aggregation of their individual acts, even if there is no intention to harm, or even to act collectively’ (p. 172).

According to Cripps, individuals can be held morally collectively responsible for the harms the aggregation of their individual acts has caused, if the following conditions are satisfied:

- Individuals acted in ways which, in aggregate, caused harm, and which they were aware (or could reasonably be expected to have foreseen) would, in aggregate, cause harm (although each only intentionally performed his own act);
- They were all aware (or could reasonably be expected to have foreseen) that there were enough others similarly placed (and so similarly motivated to act) for the combined actions to bring about the harm; and
- The harm was collectively avoidable: by acting otherwise (which they could reasonably have done), the individuals making up the putative group could between them have avoided the harm.

(Cripps 2011, pp. 174–175)

The putative group which causes morally significant harm acquires (positive) duties to do something about that harm. Any individual who forms part of the group by performing individually those acts which in aggregation cause the harm acquires corresponding derivative moral duties (Cripps 2011, pp. 175–176).

It is easy to see the parallel to harm through global warming caused by multiple individual emissions, which Cripps suggests: people who live in high-emission countries engage in individual acts in the process of which GHG are emitted. The aggregation of these acts causally contributes to a significant degree to climate change which causes a lot of harm. Individual emitters – the majority of them being full moral agents – all know that these harms are going to occur (condition 1), that a sufficient number of other people are acting in the same way (condition 2), and we could – often – act otherwise (condition 3). The last point is above all true for luxury emissions – such as driving fuel-intensive vehicles for fun – an activity that Walther Sinnott-Armstrong defends (Sinnott-Armstrong 2005). But it is probably also true about many of our everyday activities – such as driving the car to work instead of taking the bus or riding a bicycle – as does Paula in the example above. If we follow Cripps in her reasoning, it *does* matter for the moral evaluation of my actions what other people do. Note, however, that for Cripps it does not follow that any individual has direct duties to remedy the (aggregate) harm, but that these duties fall – first of all – to the group.¹²

However, one might find it highly counter-intuitive to accuse the individuals at all for harmful behaviour. One could argue that the harm – such as an increase in GHG leading to global warming – had occurred even if any particular individual – for example, Paula – had not acted in the way she did – for example, driven her car to work. When a particular action of mine will make no difference to whether or not a harmful outcome occurs, because the number of contributions of other agents to the harmful outcome (who act in the same way as I do) exceeds the number of contributions necessary of achieving the outcome, we speak of overdeter-

mined harm. The relation between Paula's GHG emissions and a harmfully high concentration of GHG in the atmosphere (which triggers global warming) can be considered a case of overdetermined harm.¹³ Whether or not Paula emits GHG – whether or not she even exists – makes no difference to the harmful outcome of global warming, because there are already enough others who contribute to global warming through their emissions. Paula's contribution is not necessary for the harm to occur.¹⁴ Consequently one could argue that Paula is not acting in a morally wrong way, because her act makes no difference to the outcome. Against this claim, one may hold that in the case of overdetermined harm one is wrong in performing the action because one increases the likelihood of the outcome to occur, or because one's action could be one of a set of actions necessary for the outcome to occur. The latter is an argument made by Parfit and Cripps (Parfit 1986, p. 70, Cripps 2011). Parfit (1986) argues that '[e]ven if an act harms no one, this act may be wrong because it is one of a *set* of acts that *together* harm other people' (p. 70).

If we subscribe to these arguments, what I am morally permitted to do becomes highly dependent on what other people are doing. Outcomes brought about by a large number of individual actions and agents have moral implications that differ significantly from our intuitions regarding *individual* actions and *individual* outcomes. Consequently, Parfit (1986) argues that:

we may need to make some changes in the way we think about morality. ... Common-Sense Morality works best in small communities. ... Until this century, most of mankind lived in small communities. What each did could affect only a few others. But conditions have now changed. We can have real though small effects on thousands or millions of people. (p. 86).

Parfit considers some conclusions from the morality of individual acts to the morality of collective acts 'mistakes in moral mathematics'. Apart from the mistake to ignore the effects of sets of acts discussed above, there are two more mistakes that are relevant for the problem of GHG emissions: ignoring small effects and ignoring imperceptible effects on very large numbers of people. In both cases it is – wrongly – assumed that the effects do not matter morally, because by themselves they are tiny or not perceptible. Yet these effects, argues Parfit (1986), however tiny or imperceptible they may be by themselves, can together greatly harm or benefit other people and are thus not to be ignored (pp. 70–82). He claims that

[w]e should cease to think that an act cannot be wrong, because of its effects on other people, if this act makes no one perceptibly worse off. Each of our acts may be very wrong, because of its effects on other people, even if none of these people could ever notice any of these effects. Our acts may together make these people very much worse off. (p. 83)

The argument from aggregation, namely that our individual actions are potentially harmful to others not by themselves, but because they are part of a set of similar actions which together cause harm, delivers very strong reasons in favour of individual emission reductions. Accordingly, Paula does have a *prima facie* duty to reduce her individual emissions and to not take the car to work. However, such individual omissions may not be the only – or the best way – to discharge duties regarding climate change mitigation. Even if we grant that by individually emitting GHG we are harming others, it is not clear what the best thing to do is in order to stop violating our negative duties. Keep in mind that Cripps considered the duties regarding mitigation to be primarily collective duties, that is, duties of the group (of emitters) to take action. I will come back to this point soon and focus now on the second argument brought forward against individuals taking action upon GHG reductions, the argument of making no difference.

The *no-effect* view

Instead of denying the harmfulness of individual GHG emissions and rejecting the claim that individuals violate negative duties in emitting GHG, one could also argue against a moral duty to reduce one's carbon footprint on a more consequentialist – forward-looking – notion: One could hold that – independently from whether or not our individual GHG emissions are harmful – nothing any individual person could do will stop global warming now, no individual action would even make a tiny difference. Along these lines scholars such as Sinnott-Armstrong (2005)¹⁵ have argued that since individual citizens cannot achieve anything substantial by themselves, they may maintain their (emission intense) standard of living and need not reduce their emission through individual actions or omissions. But they should, according to Sinnott-Armstrong, contribute to and work towards political solutions. He thinks anyone should be allowed to cause luxury emissions such as those resulting from driving a sports utility vehicle just for the fun of it, to use the example that he gives, but that one should contribute to bringing about a legal prohibition of such cars:

We should not think that we can do enough simply by buying fuel-efficient cars, insulating our houses, and setting up a windmill to make our own electricity. That is all wonderful, but it does little or nothing to stop global warming and also does not fulfil our real moral obligations, which are to get governments to do their job to prevent the disaster of excessive global warming.

(Sinnott-Armstrong 2005, p. 304)

The *no-effect* view holds that individual emission reductions – the reduction of one's carbon footprint – have no effect or an effect so vanishingly small that it is not of moral significance. According to the *no-effect* view, my

individual behavioural changes make *no morally significant* difference to the overall outcome. Hence I have no duty to change my individual behaviour. However, one may be sceptical of the claim that reducing our carbon footprint may not have a morally significant impact. In the following I will present two arguments against the *no-effect view*. I will proceed from the weaker to the stronger argument.

The first argument is that the *no-effect view* – like the *no-harm view* – ignores the importance of aggregate effects. Individual actions can make a difference, which, even though being very small taken by themselves, may still be morally significant, precisely because in addition to other persons' actions they could in fact make a real difference. If a great enough number of people reduce individual emissions a significant reduction of GHG emissions can be achieved. Parfit (1986) argues that if my action *together* with many other actions by other people can make a difference or can benefit others then it has moral significance and is what one ought to be doing:

(C10) When (1) the best outcome would be the one in which people are benefited most, and (2) each of the members of some group could act in a certain way, and (3) they would benefit these other people if enough of them act in this way, and (4) they would benefit these people most if they all act in this way, and (5) each of them both knows these facts and believes that enough of them will act in this way, then (6) each of them ought to act in this way. ... Even if each of them benefits no one, they together can greatly benefit these other people. (p. 77)

Parfit suggests that if one has the choice between two actions and one of these actions could – if it is also performed by sufficient others – produce some significant benefit for some people, one should choose this action over another which will not benefit anyone. So far, so good: Yet the problem seems to lie with the condition attached: only if sufficiently many other people perform the same action will it benefit others and only if each of them believes that enough other people will act in the required way too, each of them ought to perform that act.

It is, on the one hand, precisely the possible predictability – and actual prediction – of other individuals' actions which makes collaborative action possible and which makes it plausible to morally require individuals to take on their (fair) share in that collaboration. And it is, on the other hand, precisely the existing lack of certainty about how others will act which often enough frustrates attempts to collaborate and which makes it difficult to ascribe duties relating to collaborative action to individuals in groups that have no formal structure. In short: it is far from convincing to require individuals in unstructured or putative groups to contribute to an aggregate or collaborative outcome when it is far from clear whether sufficient others will also contribute in the required way. This becomes very obvious when formulating potential conditions for ascribing individuals' duties to act

towards a desirable collaborative or aggregate outcome. These could be sketched as follows: Individuals have a duty to perform individual acts towards a collaborative or aggregate outcome if:

- Individuals have the capacity and opportunity to act in ways which, if enough others also act this way, will have a morally highly desirable outcome.¹⁶
- They know that enough other people are highly likely to act this way, so that the desirable outcome will be achieved.
- Out of a range of comparable options this way of acting promotes the desired outcome best and is otherwise proportionate with regard to costliness-constraints.

These conditions are a sketch of the minimal conditions for ascribing individual duties to act towards collaborative or aggregate outcomes. Keep in mind that these conditions do not refer to individuals' duties in structured collectives,¹⁷ but only to duties of individual citizens outside of structured groups.¹⁸

Concerning the first condition, it is easy to see how this criterion can be met by most people. Most of us have the capacity and opportunity to individually act in ways which cause fewer emissions, that is, to reduce our individual carbon footprint. However, the second and the third conditions are very difficult to meet. As to the second requirement: Most of us do *not* know whether enough other people will also reduce their carbon footprint and – worse yet – it looks highly likely that they will not. As to the third condition: it is questionable whether there are no better – meaning more efficient and effective – ways to work towards an overall reduction of GHG emissions and whether adjustments of individual carbon footprints – within the limits of what is feasible and reasonable – are really the way to maximize emission reductions.

However, leaving the problem of efficiency and effectiveness aside for a moment, more can and must be said about the problem of predictability. Even though the predictability of other individuals' contributions – is subject to great uncertainty, it is not something that lies entirely outside the scope of our influence. We can – through our individual actions – influence other individuals' beliefs and actions. This takes us to the second – and, I believe, stronger – argument against the *no-effect view*.

Whether or not enough others are likely to act in the same way as we do – for example whether or not they are likely to reduce their GHG emissions – depends greatly on the context in which we act. Depending on such contextual factors, our individual actions may well make a significant difference in that they can influence others towards making a contribution. Even though any individual emission reduction, if taken in isolation, has no significant impact on overall emission reductions, individuals reducing

their carbon footprint may still have a significant impact on other people's behaviour. They may serve as a positive example, raise public awareness and trigger – more effective and efficient – collective types of action. Ostrom (2010) argues that 'discussions within the family and with neighbours in a community about actions that can be taken locally to reduce GHG emissions are important factors leading to the potential for positive change' (p. 555). She claims that '[a]s a result of this communication, some actors adopt a sense of ethical responsibility for their own carbon footprint' and:

Through these discussions and reading about efforts by multiple actors to reduce GHGs, individuals may recognize that they can achieve benefits as a result of taking costly actions that combine with the actions of others to reduce the threat faced by all. (p. 555)

This argument of motivating others through our own individual actions, however, applies less to isolated individual actions – such as a particular trip made by car (that is, to one particular event) – than to the general habit of deliberately abstaining from emission-intensive activities such as frequent car use or frequent air travel. Once again we see that the answer to the question of whether or not individuals' actions can make a difference depends on which effects of these actions we are focusing on. If focusing on individual emission reductions performed in isolation these may well appear ineffective with regard to the desired outcome: a significant reduction in emissions. But reducing one's individual carbon footprint can be effective in a different way: it can influence other people's actions. It may encourage others to do the same and thereby have effects way beyond those it has on overall emissions.¹⁹

To sum up, there are good arguments for the view that individual citizens in Annex B countries have some moral duty to change their respective individual behaviours based on the effect of these changes. Individual emission reductions may make only a small difference to overall emissions. But one's individual carbon footprint reductions may well make a difference on a different level: given that most individual actions do not occur in isolation – but in a particular social context – individual choices do not go unnoticed by fellow citizens. Such individual choices may well promote or trigger collective action, or serve as an example and raise awareness for a problem. But let us now turn to the last objection, the *overly-demanding view*.

The overly-demanding view

It could be argued that making substantial efforts to reduce one's carbon footprint would be overly-demanding on the individual agent. After all,

changes in lifestyle are all but easy and entail a substantial effort for most of us. According to the *overly-demanding view*, we cannot be required to make such a substantial effort, because we can have moral duties to act in certain ways only if we do not have to sacrifice something of comparable moral importance in order to comply with that duty. The argument about individual mitigation efforts of individuals would hence be that the gains of those acts are too small in relation to what their costs are.

I want to make two points about this argument. The first is a more general point about demandingness and the second focuses in particular on the problem of mitigation. As to the first point, it is plausible that moral duties should be limited by some proportionality constraint. However, being demanding is by itself no reason against a particular moral theory or a particular moral duty. As Goodin (2008) argued, '[i]f there are great gains in view, a morality is not wrong to demand proportionately great sacrifices from people to secure them' (p. 8). And indeed, the gains in view of GHG emission reductions appear extremely significant. If we can reduce emissions to a degree sufficient for limiting global warming to a maximum of 2°C, we will avert much harm from a great number of people, current and future generations. Much of our GHG emissions are in fact avoidable – if not luxury – emissions which are not necessary for our subsistence, while for the many of the people who are most harmed by climate change, people living outside of Annex B countries, basic goods are threatened (Shue 1993). Goodin (2008) furthermore thinks that the most important way in which morality can be too demanding is to be 'too demanding of our strictly limited attention' (p. 9). He argues that proper organization for collective action will help overcome such problems of moral demandingness (p. 10).

The second point regarding the problem of overdemandingness applies more specifically to the problem of climate change mitigation and GHG emission reductions. It is in fact not the case that a reduction of one's carbon footprint will necessarily be extremely costly to agents. In their policy paper, Dietz *et al.* (2009) provide a list of actions individuals can take in their immediate surroundings to significantly reduce household emissions in the United States, one of the countries with the most carbon-intense lifestyle in the world. Many of actions are low-cost or no-cost actions, others – such as upgrading of cooling and heating equipment – only require a one-time investment and in the long run pay off financially for the household. Many actions we can take would merely require us to change our habits, to make a bigger effort and to accept a little more inconvenience. And, last but not least, reducing GHG emissions not only may give rise to costs, but also may benefit us directly, as the IPCC (2007) states:

While studies use different methodologies, there is high agreement and much evidence that in all analysed world regions near-term health co-benefits from

reduced air pollution, as a result of actions to reduce GHG emissions, can be substantial and may offset a substantial fraction of mitigation costs.

(Summary, p. 59)

Finally, let me briefly comment on an alternative way of framing the over-demandingness objection. One could argue that while substantial and demanding carbon footprint reductions on part of individuals are in principle feasible, it would simply be unfair to make willing individuals take up the slack left by other capable and equally liable agents. This version of the objection applies an argument most prominently brought forward by Liam Murphy (2003) to the problem of climate change mitigation. Murphy argues for a 'collective principle of beneficence'. According to this principle, in situations where various agents must work together towards a morally required outcome, complying individual agents should not be required to make a greater sacrifice than they would have to make if everyone complied with their moral duty (pp. 86–87). Applying this principle to the case of climate change mitigation, one could argue that the failure to reduce global GHG emissions is a case of imperfect compliance with a (global) moral duty. Hence, so this version of the over-demandingness objection would go, individuals should not be required to reduce their carbon footprint to a degree beyond what their fair share of reduction would be in a situation of full compliance.

However, the question whether individuals should take action towards climate change mitigation is different from this problem which has been discussed in political philosophy as the question of whether complying agents should 'take up the slack' left by defecting agents (for instance, Miller 2011). There are two possible ways of applying the collective principle of beneficence to climate change mitigation: First, one could argue that all individual agents have a duty to reduce their carbon footprint and that no single one of them can be required to reduce more than she would have to under full compliance. This is problematic, because a substantial reduction in GHG emission cannot realistically be achieved solely by individual carbon footprint reductions, but it requires government action and policy measures. Hence, a duty to reduce GHG emissions must be different from the collective principle of beneficence as Murphy frames it. Second, the principle could be applied to all kinds of agents, not just individuals: governments, states and groups of states. These agents, one could argue, do not comply with their duty to reduce carbon emissions and do not contribute their fair share to climate change mitigation. But because no agent can be required to do more than her fair share would be under full compliance individuals need not take up the slack left by governments and states. Yet, this second application of the collective principle is also problematic as this is clearly not how Murphy constructed his argument. He did not distinguish different types of agents, their varying complexities, and the differing

duties of group agents in contrast to individuals' duties. Hence, independently of whether or not one agrees with Murphy's principle of beneficence and the resulting argument against taking up the slack, both fail to apply to the problem debated in this article and do not constitute an objection to individual carbon footprint reductions.

Individual mitigation and collective action

To sum up what has been said so far: most reasons against individual actions mitigating climate change – such as reduction of one's carbon footprint – vanish if instead of focusing on such acts in isolation we look at them in combination with actions by other agents. So far three arguments against individuals taking action regarding mitigation have been rebutted. (1) It has been shown that, contrary to the *no-harm view*, individual emissions in aggregation are actually harmful and as such constitute a violation of negative duties.²⁰ (2) Contrary to the *no-effect view*, individual emission reductions can have a morally significant effect in aggregation and as a way to influence others towards changing their individual behaviour. (3) Most individual emission reductions are, contrary to the *overly-demanding view*, not too demanding on individual agents, but the more such efforts form part of organized collective or collaborate action, the more efficient and effective will they be. These arguments deliver good reasons for individuals to reduce their GHG emissions in the current situation which is characterized by the absence of satisfying collective endeavours to reduce emissions.

However, one crucial question remains. Significant results in mitigation are far more likely to be achieved by collaborative or group action than by individuals acting in isolation. Collective endeavours are most likely to lead to significant reductions because they can tackle the corresponding tasks more efficiently and have a greater effect than individual actions. Hence, the question is: while individuals may well have *prima facie* duties – in the sense of strong moral reasons – to reduce their GHG emissions, do they not have even stronger reasons to contribute to collective mitigation efforts, that is, to perform individual actions which aim directly at establishing, maintaining or contributing to collective or collaborative endeavours? What are we – is every one of us – supposed to do? If an individual must choose between these two kinds of commitment, should she – generally speaking – opt for participation in a collective endeavour or else – if possible – enable, promote or trigger collective action? It is the latter duty which Parfit (1986) has argued for:

(C9) Suppose that someone has done the act, of those that are possible for him, whose consequence is best. It does not follow that this person has done what he ought to have done. He ought to have asked whether he is a mem-

ber of some group who could have acted in a way whose consequence would have been even better. If this is true, and he could have persuaded this group to act in this way, this is what he ought to have done. (p. 73)

It seems that what and how much each of us should be doing for climate change mitigation depends greatly on one's specific situation and the context in which one acts. The history of the green movement shows how from small-scale local citizens' initiatives a political movement may arise. Also, local initiatives – to which most of us can easily contribute – can have significant impacts on people's behaviour. Ostrom (2010) argues in favour of local-level and small-scale initiatives for mitigation and refers to scientific evidence for their growing success.²¹ She says that:

[w]hat we have learned from extensive research is that when individuals are well informed about the problem they face and about who else is involved, and can build settings where trust and reciprocity can emerge, grow, and be sustained over time, costly and positive actions are frequently taken without waiting for an external authority to impose rules, monitor compliance, and assess penalties. (p. 555)

Clearly, no individual citizen or citizens' group could take up the slack left by those governments which do not adopt appropriate legislation. Individuals cannot do their government's job, which is to provide the legal and political frameworks ensuring that mitigation-related duties can be and are fully discharged. But individual citizens can do *their* job: complying with the moral duties they have as inhabitants of high emission countries and with the political duties they have as citizens of states which have the power to achieve an efficient climate regime.²²

So what should each of us do if both options for action – individual reductions of one's carbon footprint and opportunities to contribute to collective endeavours – are available? Whether or not any particular individual should put more effort into individual emission reductions or into establishing or contributing to collective action is a matter that comes down to particular circumstance. Most of us can probably do a little bit of both. How strong our obligations to establish collective action are would – among other factors – depend on our 'collective ability'. This concept – introduced by Iris Young – reflects 'The relative ease with which people can organize collective action to address an injustice' (Young 2006, p. 129). She argues that 'Sometimes a coincidence of interest, power, and existing organization enables people to act collectively to influence processes more easily regarding one issue of justice than another' (p. 129). Individuals who have strong collective abilities may well be required to focus on establishing collective action at the expense of individual emission reductions. In the meantime, those of us for whom it is more difficult to establish collective action have good reasons to reduce our carbon footprint individually. While it is true

that collective endeavours and especially institutional solutions are generally more efficient and effective than any particular individual actions toward emission reduction, it is usually not the case that because of our limited resources (money, time, attention, etc.) we – individuals in industrialized countries – are forced to choose between reducing our own emissions and working towards an institutional solution. *Rather, for most of us, it is a choice between reducing our individual emissions and not doing anything.* I hope to have shown in this article that we should not opt for the latter.

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Notes

1. These include the 15 member countries of the European Union in 1997: Bulgaria, Czech Republic, Estonia, Latvia, Liechtenstein, Lithuania, Monaco, Romania, Slovakia, Slovenia, Switzerland, United States, Canada, Hungary, Japan, Poland, Croatia, New Zealand, Russian Federation, Ukraine, Norway, Australia, and Iceland.
2. With regard to special duties, see Goodin (1988). For the question how moral duties relate to one’s position in a group or collective, see Schwenkenbecher (2011) and Fahlquist (2009).
3. These include methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆), and, most prominently, CO₂.
4. The IPCC (2007, pp. 64–65) assumes that a temperature increase between 1.5 and 2.5°C may already have disastrous effects on some ecosystems, Arctic indigenous communities and small island communities.
5. At this point it should be briefly mentioned that the goal of mitigation is not to have no CO₂ emissions whatsoever. CO₂ is indispensable for the existence of life. Instead the goal is to stabilize GHG concentrations in the atmosphere at a level at which they do not trigger the so-called greenhouse effect and cause (further) global warming. However, it needs to be acknowledged that any particular reduction in CO₂ emissions has no direct effect on GHG concentration in the atmosphere and does not directly reduce global warming.
6. One way to ensure this would be to limit individual choices to emission-minimizing options. Emission-intense activities would be universally banned by law (as, for instance, the use of CFCs is currently). In this – admittedly as yet utopian – scenario nobody would have to worry about refraining from using their cars – at least not for reasons to do with emission reductions – because everyone’s cars would be environmentally friendly (fuel-intensive cars would

no longer be legal); or people would not drive to work, because cars would be banned from city centres, etc.

7. This has been argued, for example, by Walther Sinnott-Armstrong (2005, p. 293).
8. This has also partly been argued by Sinnott-Armstrong (2005): 'We should not think that we can do enough simply by buying fuel-efficient cars, insulating our houses, and setting up a windmill to make our own electricity. That is all wonderful, but it does little or nothing to stop global warming ...' (p. 304).
9. This formulation of the 'overly-demanding' view goes back to Peter Singer's claim that 'If it is in our power to prevent something bad from happening, without thereby sacrificing anything of comparable moral importance, then we ought, morally, to do it' (Singer 1972, p. 231).
10. According to <http://www.carbonfootprint.com/calculator>, she emits 0.01 tons of CO₂ if driving 50 km in a year 2000 Volkswagen Golf 3/5 door hatchback SE TDI 1.9 100 bhp, M5. If she does this trip 200 times per year, she is responsible for emitting 2 tons of CO₂.
11. In addition to the argument made here, there are other possible lines of argument to show that she is acting wrongly, apart from making a claim about harm. See for instance the argument Hud Hudson makes (Hudson 2008) or Larry May's concept of 'moral taint' (May 1992).
12. Consequently, Cripps construes the duties of the putative group as positive (remedial) duties rather than as negative duties of the individual members of that group. Her argument differs from that made in this article insofar as I claim that these individual members, because they contribute to harm, have violated a negative duty and hence have a (still negative) duty to refrain from such harmful activity.
13. To be precise, the relation between her emitting now and global warming in the future.
14. Strictly speaking, global warming is overdetermined by GHG emissions only in a specific sense. Overdeterminate cases are threshold cases. An outcome is overdetermined by the contributory actions if there is a certain threshold of contributions beyond which that outcome is brought about and the actual contributions to that outcome exceed that threshold. An infamous example of a case of overdetermination is that of a person being stabbed to death by five attackers while the injuries caused by the stabbing of three of the attackers would have sufficed to kill the victim. With regard to climate change, there is a sense in which beyond a certain concentration of GHG in the atmosphere the amount of the Earth's thermal radiation being reflected instead of vanishing into space. If that concentration is reached, a threshold is passed and global warming is triggered. However, this is an artificial threshold given that the greenhouse effect is a natural phenomenon which is necessary to keep the temperatures on Earth in a range that makes (human) life possible. While one can construe global warming as a threshold case, it is probably more obvious to construe it as incremental.
15. According to Sinnott-Armstrong (2005), 'It is better to enjoy your Sunday driving while working to change the law so as to make it illegal for you to enjoy your Sunday driving' (p. 304).
16. For simplicity I assume that it does not take all capable and available people to act in the required way, but only a sufficiently great number of them. For the same reason I also am ignoring negative threshold cases where it is coun-

terproductive if more people than necessary to achieve the outcome contribute (see Lawford-Smith 2011).

17. For the question of individual responsibility in structured groups, see, for instance, List and Pettit (2011, pp. 163ff.).
18. This does not mean that individuals in structured groups such as corporations, governments, NGOs, political parties, etc. do not have moral duties to contribute to morally important outcomes such as climate change mitigation. Yet, the way they assume their duties relating to their position in that structured group and in relation to the social function and aim of the group is different from how individuals in unstructured, loose or putative collectives.
19. A similar point has been made by Dale Jamieson (Jamieson 2007).
20. Let me point out the difference between the argument from a violation of negative duties delivered here and those endorsed in debates on global justice. Some of the arguments brought forward in the debate on the global dimensions of justice in general and the problem of global poverty in particular resemble arguments endorsed in this paper. In particular, the claim made by Pogge that the severe poverty which part of the world's population suffers from constitutes a violation of negative duties on part of the affluent. According to Pogge (2005), 'the global poor are being harmed by us' (p. 55) – 'us' meaning those who live in affluent countries, who impose an unjust global institutional order on the poor. Now the main way in which 'we' are doing this – and here lies the main difference to the ideas presented here – is through sustaining unjust institutions or rather through failing to make these more just, but not through the more or less direct effect of our aggregate individual actions. Without wanting to deny that they share some basic assumptions – such as that our moral duties extend to those at great distances to us – I do hold that both debates are also different in terms of how they argue for their point. In the global justice debate it is usually argued that harm is done by unjust institutional arrangements and not through the aggregation of individual actions. For the debate surrounding Pogge's theses see the Symposium on his book *World Poverty and Human Rights* (Pogge 2007) in *Ethics and International Affairs* (2005), 19(1).
21. Against a moral requirement to take individual action towards establishing group – or collective – action, the following objection could be raised: ensuring that mitigation efforts are taken is the task of the government and the relevant institutions, but not the business of individual citizens in the same way that ensuring the safety of basic transportation infrastructure – such as the safety of a road bridge – is. This is an argument that Sinnott-Armstrong (2005, p. 287) makes pointing to the existence of an institutional agent whose designated duty it is to ensure the safety of roads and bridges within its territory. However, I disagree with this kind of reasoning in two ways. First, climate change mitigation is distinct from providing transportation infrastructure in this regard. It is not only the governments' task to mitigate climate change; rather – and as I have previously shown – all of us have – negative and positive – prima facie duties to do something about global warming. Second, even though in an ideal situation Sinnott-Armstrong's argument makes sense it is not plausible under non-ideal conditions. Under ideal conditions we have an effective global agreement with regard to climate change mitigation and a sufficiently high level of compliance with that agreement. However, the current situation is clearly far from being such an ideal scenario. I agree with Sinnott-Armstrong that governments should adopt legislation that makes carbon-intense options for action unavailable or at least highly unattractive. But what

if they do not? If they do not discharge their duties to solve environmental problems, then it seems that as long as other agents – collective or individual – are capable of taking on – part of – that duty, then that is what they should do. This would of course include getting the government to do their job, as Sinnott-Armstrong suggests.

22. This means that while there could be more opportunities for individuals to choose emission-extensive action over emission-intensive actions, wherever they have the choice they should opt for – reasonable – environmentally sustainable alternatives. The reasonableness of those options depends – amongst others – on cost and effort attached the options, the availability of good options, available information, and levels of voluntariness and compulsion (Fahlquist 2009, pp. 116–177).

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