A Lockean Defense of Grandfathering Emission Rights

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A core issue in the debate over what constitutes a fair response to climate change is the appropriate allocation of emission rights between the developed and the developing world. Various parties have defended equal emission rights per capita on grounds of equity—the atmosphere belongs to us all and everyone should be allocated an equal share.[1] Others have defended higher emission rights per capita for developing countries on grounds of historical accountability: Developed countries are largely responsible for the threat of climate change due to their past emissions and, since they currently continue to enjoy the benefits thereof, they should be willing to accept lower emission targets.[2]

However, in reality we see that developed countries currently have much higher emission rates per capita and will continue to have higher rates than developing countries for some time to come. There is talk of 'grandfathering'—setting emission targets for developed countries in line with their present or past emission levels. What, if anything, can be said in defense of grandfathering?

Caney discusses grandfathering in and puts the matter very bluntly: "No moral and political philosopher (to my knowledge) defends grandfathering, presumably assuming that it is unjust."[3] Grandfathering can at best be defended by means of

pragmatic arguments. In *Realpolitik* we need to make some concessions in order to get all the parties on board. But this is like making concessions in negotiations with the Mafia. Nobody deems such concessions to be fair, but it sure beats the blood bath that may come about due to the lack of an agreement. Similarly, any agreement that would give developed countries more emission rights than developing countries would not be fair, but it sure beats the ice caps melting. This of course is not much in the way of a moral argument.

Neumayer does point in the direction of a moral argument for grandfathering: "It is sometimes suggested in the spirit of Locke and Nozick that a long history of emission rights might have established the right for developed countries to prolong current emission levels into the future and that such 'squatter's rights' can be derived from the common law doctrine of 'adverse possession' (e.g. Young and Wolf 1991 [*sic*])."[4] However, he also thinks that there is not much of a moral argument here, because "even Nozick (1974, p. 175) (…) acknowledged an appropriation of property rights can only be regarded as just if 'the situation of others is not worsened', which is clearly not the case with global warming."[5]

Young and Wolf actually do not mention squatter's rights or adverse possession, but they do write that there is a theory in support of grandfathering emission rights that "considers current emissions as a claim established by usage and custom"[6] and this is similar to existing policies of assigning fishing rights based on current catch levels. Sterner and Muller refer to a principle of "prior appropriation" (giving rights to first users) that can provide a "rights-based perspective" in support of grandfathering emission rights.[7]

Raymond provides the most extensive discussion of a Lockean justification of grandfathering in allocating claims to common pool resources. He argues that this

kind of justification is present in allocating grazing rights but absent in the allocation of emission rights for GHG emissions. He provides a purely positive account of why this is the case, citing five reasons (without any pretence that these are *good* reasons). Compare the usage of land with the usage of the atmosphere in GHG emissions. The usage of land is *tangible*, i.e. our labor affects a token plot of land, and *beneficial*, i.e. productive.[8] In contrast, in GHG emissions (i) we do not affect a token quadrant of the atmosphere and (ii) the emissions are just a by-product of the wealth-generating process. Furthermore, GHG emissions by developed countries (iii) have limited (if any) beneficial effects on developing countries and (iv) have long-lasting negative effects on the atmosphere. And finally, (v) inequalities in the usage of the atmospheric absorption capacities match economic inequalities in today's world.[9]

Authors who mention a moral argument for grandfathering emission rights have either done so in passing or with the aim to reject it. I will argue that we can make at least a sustained, yet qualified, moral argument in support of grandfathering emission rights on Lockean grounds. I will consider what the scope and limits are of such an argument and what place it should have in setting carbon emission targets for countries at different levels of development.

COPENHAGEN AND EQUAL EMISSION RIGHTS

Resistance to grandfathering on egalitarian grounds was very much present in the COP15 in Copenhagen. In the early days of the COP15 in Copenhagen, a document dubbed 'the Danish Text' was leaked to the *Guardian*.[10] The Danish government had prepared this text jointly with other developed countries as a discussion text, which,

once leaked, incited a huge outcry amongst developing countries. What were the contested issues in this document?

There are two issues that concern us here. First, the Kyoto protocol required developed countries to cut emissions, but not developing countries. The Danish text, on the other hand, imposes constraints on emissions of emerging economies which would be monitored by the international community. Second, the Danish text imposes a 50% *global* emission reduction from 1990 levels to 2050 and an 80% reduction for *developed* countries from 1990 levels to 2050. These requirements together with population level forecasts make it possible to calculate the projected emissions per capita that are required from *developing* countries. The *Guardian* reports that such calculations were carried out in a "confidential analysis of the text by developing countries" yielding projected emission rates for developed and developing countries at a ratio of roughly 2:1.[11] The calculations themselves are not uncontroversial. But let us bracket this issue. What concerns us here is that both (i) the imposition of emission cuts on a subset of developing countries, viz. on emerging economies, and (ii) projections of unequal emission targets by 2050, are deemed offensive and unfair by developing countries. From the point of view of the developing countries, as long as there is no convergence to equal emissions per capita, the obligation is on the side of developed countries to cut back emissions and any action by developing countries should be voluntary, since it is over and above the call of duty. And furthermore, developing countries expect that convergence be achieved much earlier than 2050.

In the end, the COP15 produced the "Copenhagen Accord"[12]. With this Accord, both developed and developing countries (excluding Least Developed Countries and Small Islands Developing States) have taken on responsibility for

setting emission-cut targets for 2020—though no specific targets were actually set at the meeting. Still, the phrasing is subtly different for developed and developing countries, suggesting a dissimilar type or level of obligation[13]: developed countries "*commit* to implement mitigation actions" (sect. 4, emphasis added) whereas developing countries "*will* implement mitigation actions" (sect. 5, emphasis added). Furthermore, developed countries commit to "predictable and adequate funding" (sect. 8) to developing countries approaching $30bn. per year by 2010-12 and increasing towards $100bn. per year by 2020.

With the Copenhagen Accord we are moving away from the binary position that treats mitigation efforts of developing countries as voluntary, and the efforts of developed countries as obligatory. But the language still suggests that, as long as we have no convergence towards equal emissions per capita, the level of obligation on developed countries is greater than on developing countries. And in exchange for developing countries obliging themselves to undertake mitigation efforts, the developed world has to increase its level of financial support for any mitigation undertaken by the developing world.

At the same time the Copenhagen Accord does move towards the task of setting emission-reduction-targets portfolios for countries at various levels of economic development through prolonged negotiations. Alongside concerns for equality and responsibility for past pollution, a concern to respect investments will carry some weight in these negotiations. So there is an urgent need to understand the moral weight of this concern. Nothing is gained by dismissing any attempt to defend policies that result in unequal emission rights in the near future as mere *Realpolitik*—as some form of expediency in accommodating unduly recalcitrant parties in negotiation that has no moral grounds. A proper understanding of the moral argument

for grandfathering is constructive in setting emission-reduction-targets portfolios for countries at various levels of economic development that are both realistic as well as morally justifiable.

THE LOCKEAN ARGUMENT: FROM PRIVATE PROPERTY IN LAND TO EMISSION RIGHTS

Here is a popularized version of the Lockean argument[14] in defense of private property rights with respect to land. Let there be a commons that is genuinely unmanaged and unproductive. Some people decide to fence in part of the commons to work the land. Suppose that every such act of homesteading is such that some are better off and nobody is worse off, where such welfare evaluations are understood in terms of reasonable preferences. This is the Lockean enough-and-as-good condition which Nozick dubs "the Lockean Proviso"[15]. Now some may decide to homestead larger plots, some smaller plots, all dependent on their needs and aspirations in life. Some people may choose not to homestead, since they would not derive any joy from such enterprise and they prefer to work for wages by selling their labor to homesteaders. But nobody is allowed to homestead a plot of land that is larger than what he or she can reasonably put to good use. That is the Lockean no-waste condition. Let us suppose that this homesteading constrained by both Lockean conditions goes on for a while. At some point it becomes clear that further homesteading would no longer satisfy the enough-and-as-good condition. The practice of homesteading is then stopped. The outcome of this process is that some people own smaller plots of land, some own larger plots of land and some own no

land whatsoever. But this does not make the procedure of allocating land or the resulting allocation unfair.

We now extend this Lockean argument for the allocation of land to the allocation of the atmospheric absorptive capacity. Before the industrialization, the atmosphere was a relatively unproductive commons. (Certainly it allowed us to breathe, but it is capable of doing so much more without interfering with our capability to breathe.) The atmosphere was capable of absorbing a certain amount of GHGs without adverse consequences, but there was, as of then, no technology emitting worrisome amounts of GHGs as by-products. Then we made technological advances—entrepreneurs came along and started using portions of this atmospheric absorptive capacity. Some used large portions, others used small portions—all depending on their needs and capacities. Initially this was done within the constraints of the Lockean enough-and-as-good and no-waste conditions: Many benefitted, nobody was made worse off, and all usage was productive usage.

At some point we came to realize that the atmospheric absorption capacity was running out—any expansion beyond present usage would impose harm, violating the enough-and-as-good condition. So we closed the commons. We were not to expand beyond present usage. Just like land usage (through homesteading) established claim rights over land, usage of atmospheric absorption capacity established claim rights over atmospheric absorption capacity. Once the commons was closed, we could trade these claim rights, but we could not simply increase them by starting to use another part of the commons, be it the commons of land or the commons of atmospheric absorption capacity.

Past usage establishes differential claim rights to present and future usage of the atmospheric absorption capacity, that is, to differential claim rights to emit GHGs.

Emitters can all continue to emit at their past levels. Any changes in emission rights must come through trade. People (companies, countries,…) certainly have unequal emission rights. But why would this be unfair whilst we had no objection to an allocation procedure of land that yielded unequal property rights?

As it stands this argument is problematic if not forthright laughable. And yet, while it is easy to question whether the Lockean argument for property rights in land is the whole story, it would be hard to deny that it has at least some appeal. Why would the same argument not have any appeal for emission rights? How is it that property rights in land are so different from emission rights? Certainly there are differences, but do any of these differences provide good reason to retain the right libertarian intuition for *property rights in land*, yet not retain it for *emission rights*?

GHG EMISSION RIGHTS *VS* PROPERTY RIGHTS IN LAND

I will consider three salient differences between the usage of land and the usage of the atmosphere and argue that none of these differences blocks my transposition of the Lockean argument to emission rights.[16]

(i) *Private goods versus common pool resources*. Land and the atmosphere are resource systems. What we consume is some portion of a particular capacity of the resource system. In the case of land, we consume a portion of the produce-yielding capacity of the land. In the case of the atmosphere, we consume a portion of the absorptive capacity of the atmosphere—i.e. the capacity of the atmosphere to neutralize GHGs over time so that they do not have any detrimental effect on the climate. Now land is a *private good*, i.e. it satisfies the conditions of rivalry and

excludability. As to rivalry, my consuming a portion of the produce-yielding capacity of the land subtracts from your opportunity to consume any such portion. As to excludability, barbed wire may exclude you from consuming any portion of the produce-yielding capacity of the land. Now in the case of the atmosphere, rivalry holds but not excludability. As to rivalry, relative to the constraint of global warming, my consuming a portion of the absorption capacity of the atmosphere reduces your opportunity to use any such portion. But there is no barbed wire. I cannot exclude you from setting up a business consuming additional units of absorptive capacity of the atmosphere. This, according to the orthodoxy, makes land into a private good and the atmosphere into a common pool resource.

Note that this does not say anything about how these goods should be governed. The term "private good" is deceptive in this respect. No claim has been made that such goods should be privately owned. To say that something is a private good is to say no more than that it is characterized by rivalry and excludability. To say that something is a common pool resource is to say no more than that it is characterized by rivalry and non-excludability.

Of course excludability is a matter of degree. It may be more or less difficult to exclude others from consuming. A stealth bomber also reduces the capacity to set up a polluting company—once it is located, it can be taken out. And before the invention of barbed wire it may have been more difficult to exclude people from trespassing on land. So there is a sliding scale from private goods to common pool resources. But still, land is on the side of private goods and the atmosphere on the side of common pool resources of this scale.

Does this block the analogy? Well let us move to the most well-known common pool resource, say a lake that has a certain fish-yielding capacity. I can't

stop you from putting another boat on the lake (non-excludability) but there is a threat of overfishing and exhaustion of fish stocks (rivalry). Let us see whether we can tell the same story about the lake as we told about land. The lake was originally an unproductive commons. Similar to farmers homesteading smaller or larger plots of land, fishers invested in fishing rods, trawlers, or whole fleets (depending on need and entrepreneurial spirit) and they thereby came to use different-size portions of the fish-yielding capacity of the lake. This was done respecting the Lockean conditions—leaving enough and as good for others and making sure that every fish caught is put to good use. The fishers thereby come to acquire claim rights in these fish-yielding capacities of the lake.

How should we give shape to these claim rights? In the case of land, we do so by partitioning sections of land and assigning property rights to them. This is effective, since plots of land tend to have fixed produce-yielding capacities and it encourages good stewardship of the land. Similarly, we may assign different-sized sections of the lake to various people. But alternatively, we may let fishers roam freely over the whole lake but impose quotas on how much they are allowed to catch. These quotas are set relative to past usage, which in turn is determined by the size of their investments. Now, in the case of the atmosphere, we cannot assign segments of the atmosphere to give shape to these claim rights. The only thing that we can do is to impose quotas relative to past use determined by investments.

Why is there this difference? In the case of land, the segment of the commons that one is working roughly determines the portion of the produce-yielding capacity of the commons that one is using, assuming good stewardship. This is also somewhat the case for the lake, though less so—fish move around and last year's good spot may no longer be a good spot this year. In this case, it may be better to assign quotas

rather than partitions to capture these claim rights. In the case of the atmosphere, this relation is absent—the segment of the atmosphere that one is "working" does not determine the portion of the absorption capacity of the atmosphere that one is using. Pittsburgh PA 'works' a very small segment of the atmosphere (simply by being adjacent to it), yet uses a huge portion of the atmospheric absorption capacity. So the weaker the correlation between the size of a partition in a resource system and the productive capacity of that partition, the more fitting it is to express claim rights in terms of quotas on resource usage rather than as property rights over partitions of that resource system. However, this does not undercut the Lockean argument. It only means that claim rights will not be translated into property rights over segments of the resource system but rather will be expressed in terms of quotas on permissible resource usage.

(ii) *Long-standing violations of the enough-and-as-good condition.* So far, we have considered cases in which we were vigilant and identified the exact point at which the enough-and-as-good condition was violated. But this did not happen in the case of GHG emissions. We are long past the point at which the atmosphere could comfortably absorb GHG emissions without there being any tangible effects on the environment or on the well-being of third parties. Due initially to a lack of the requisite scientific knowledge and later to the lack of political will, appropriations of the atmospheric absorption capacity have gone far beyond what is permissible on the enough-and-as-good condition.

Was there a time, say in the early days of the industrial revolution, when such appropriations did pass the enough-and-as-good condition? Well certainly the first steam engine in England did little harm—nobody in Tuvalu was worse off because of *that* little puff of GHG. And furthermore, the industrial revolution also benefitted

countries that were not themselves involved in emitting GHGs. Not only was there a sharp drop in poverty indicators in industrializing countries, but also in countries in which industrialization started much later.[17] I do not wish to downplay the horrors of colonialism and its connection to industrialization. For the purposes of our discussion, all that needs to be established is that, feasibly, there was at one point a period of time during which the appropriation of the atmospheric absorption capacity via industrialization satisfied the enough-and-as-good condition—i.e. a period during which negative externalities were not yet present (at least in the sense of posing a threat of climate change) and the overall effects of the industrialization on non-industrializing nations were non-negative.

So when did this time of unproblematic appropriations of atmospheric absorption capacity end? I do not know. Note that it ended earlier than the time when we *found out* about the threat of climate change due to excessive GHG emissions. At that time, one might argue, the inaction of developed countries due to the lack of political will became culpable (as opposed to illicit but non-culpable). Before that point in time, there was no culpability, since we simply did not *know* that appropriations of the atmospheric absorption capacity were wrong on grounds of violations of the enough-and-as-good condition. We are not interested here in when such appropriations became culpable, but rather when they became illicit, independently of our knowledge hereof. When was it the case that, from the perspective of an omniscient being, it was time to start worrying about the negative externality of the threat of climate change caused by industrialization? I do not know, but I submit that it was at a point in time when today's inequalities had roughly taken shape, bracketing development in some recently emerging economies.

Now let us return to land appropriations and fishing rights. Suppose that we

were to face the same problem of a late discovery of the fact that the enough-and-as-good condition had been violated. For instance, suppose that we cultivate orchards (of different sizes) through homesteading and then realize that these orchards are drawing on a common water source that cannot support fruit farming of such intensity. Or suppose that we only realize that we have permitted too many vessels to enter the lake when fish stocks are already in serious jeopardy. In each case, we need to cut back—but how should we cut back? Do we say that everyone in the vicinity – fruit-farmer or not, fishers or not – should now have equal access to the fruit-yielding capacity of the land or fish-yielding capacity of the lake and hence that larger operations should drastically downscale? I do not think so. We would, at least to some extent, respect differential investments made, especially the investments made at the time when these were morally unproblematic (in the sense of being licit, not in the sense of non-culpable). For instance, with fish stocks dwindling, the EU does not assign fishing quotas to the member states so that the allocated catch per capita is equalized. Rather, quotas are set with a sensitivity to the relative dependencies of national economies on fishery.[18]

When we catch violations of the enough-and-as-good condition too late, we bring in multiple considerations to rectify the situation. We may demand disproportionate sacrifices from those who are well off and hence more able to scale back. But at the same time, we may also turn away newcomers or target recent expansions. However, the argument that all who live in the vicinity should now have equal rights to the land or the lake carries little weight. When we did catch the violation of the enough-and-as-good in a timely fashion, such an appeal to equality had little weight. If we fail to catch it in time, matters become more complicated. But it is far from obvious why an appeal to equality should all of a sudden become the

sole principle of decision-making.

If this would be our policy in the case of farming and fishing, why would we act any differently in the case of industries emitting GHGs? Developed countries should be able to demand that, in deliberations, some respect be paid to their appropriations of the atmospheric absorption capacity that predate the cut off point at which the enough-and-as-good condition was first violated. When violations have been ongoing, this is not the sole principle, since we also need to impose rectification on illicit appropriations past this cut off point. And granted, these are for a large part due to growth in developed countries (but also to the GHG-intensive development of emerging economies). That *some* respect be paid to differential investments made during the time when there were no violations of the enough-and-as-good condition is common in such policy decisions. This, I take it, is the moral ground for grandfathering in setting caps on emission rights.

(iii) *The Structure of the Harm Infliction*. Locke's example of respecting the enough-and-as-good condition is one person drinking from a river without reducing another person's chance to drink.[19] So a violation would be a case in which upstream people take so much water that the supply of water to the downstream people is reduced (without offsetting gains in wellbeing from other sources). Or, think of a case in which the upstream people catch so much fish that the opportunity to catch fish for the downstream people is reduced. In these cases the constraint on one's actions comes from the harm that would be caused by reducing other people's opportunities to perform actions *of the same kind*.

However, this is not how the structure of the harm operates in the case of GHG emissions. If I emit excessively, then a third party will become harmed *in a very different way*. E.g. Tuvalu will be flooded and its inhabitants will have to move.

If we collectively consider this to be the kind of harm that we ought not to inflict, then it is the case that my excessive GHG emissions stand in the way of your emitting GHGs with the same intensity. So in the case of the upstream and downstream fishers, the harm caused by upstream overfishing is that it reduces the opportunities of the downstream fishers. In the case of GHG emissions, the harm caused by extensive GHG emissions affects third parties and has nothing to do in first instance with the opportunities of others to emit GHGs. It is only relative to the fact that we wish to avoid the harm to third parties that excessive GHG emissions reduce the opportunities of others to emit GHGs.

It is easy to import this restriction into the original problem of appropriating land from the commons. Suppose that there is land in abundance for farming, but even limited farming affects much needed recreational opportunities of urban consumers in the neighboring metropolis. So now the enough-and-as-good condition also kicks in because of harm to third parties. Suppose that we catch the effects on urban consumers in time and we block any new acquisitions or expansions of existing farming operations. Would we not simply respect existing farms as they are, assuming that the acquisition process was fair? Would the closure of the commons due to third-party harm provide grounds to strive for land reform on egalitarian grounds? I do not see why this would be the case.

It is not an objection to our analogy that the typical harm structure in the case of land is different from the harm structure in the case of the atmosphere. The reason is that if we impose the third-party harm structure onto land appropriation from the commons, then we could still run the standard Lockean argument. So the difference in harm structure does not block the analogy.

In conclusion, none of the distinctions outlined above between the commons

of land and the global atmospheric commons makes for a moral difference. The Lockean argument that can provide for a justification of unequal landownership due to differential appropriations through homesteading retains its relevance for the global atmospheric commons. For the commons of land, earlier appropriations and good stewardship within the Lockean constraints establish future claims and undoing these through egalitarian land reforms would be an injustice. Similarly, in the global atmospheric commons, certain earlier appropriations of the atmospheric absorption capacity establish future claims. An appeal to grandfathering aims to respect these claims. A radical egalitarian reform of emission rights without any concern for historically established claims is no less problematic than egalitarian land reforms without any concern for historically established claims.

INTERNAL AND EXTERNAL OBJECTIONS TO LOCKEAN EMISSION RIGHTS

But clearly it would be bordering on moral madness to tell India and the US that, since their GHG emissions per capita were, say, 1:100, at the time that climate change posed no threat, we will now fix the ratio of their future emission rights per capita at 1:100. So what can be said to modify this claim? For an answer to this question, we need to delve into critiques of Lockean thought. I distinguish between a critique that is external to Lockean thought and a critique that is internal to Lockean thought.

The critique that is *external* to Lockean thought echoes Nagel's response to Nozick – historical arguments that rest on appropriations from the commons are just one concern in determining what constitutes a fair division of land today. Other

concerns should carry weight as well.[20] Humanitarian concerns can be voiced—for example, the concern that nobody should be so disenfranchised so as to fall below a minimally decent standard of living. Egalitarian concerns can be voiced—in particular latecomers or future generations will object that they never had the opportunity to homestead land and are disenfranchised now due to no fault of their own. Utilitarian concerns can be voiced—namely, we wish to avoid allocations of property rights that are hugely suboptimal. These, as well as other concerns, should certainly be taken into consideration in the fair allocation of property rights today. But nonetheless, Lockean concerns should carry *some* weight at least in planning for earlier stages. Setting policy requires a careful balancing of all these concerns with particular sensitivities to the case at hand. And there is no algorithm that covers all cases. Similarly, in determining a fair allocation of emission rights, historical emission patterns of GHGs should carry some weight. But they should be balanced against other moral concerns—concerns that make historical appropriations less than sacrosanct and that typically moderate existing inequalities.

The critique that is *internal* to Lockean thought centers on the question of whether we should understand the Lockean conditions as constraining only the initial acquisition of the land, or the continued ownership of the land. To address this question it is useful to reflect on Nozick's intriguing observations on the legitimacy of continued well-ownership under conditions of desertification.

NOZICK'S WELL

Nozick discusses a case in which there are limitations on one's property rights due to

a change in circumstances. Suppose that a number of people have drilled wells (or, in Nozick's terms, water holes). The enough-and-as-good condition was satisfied, they have appropriated these wells and sell the water in a competitive market. (Nozick does not include Locke's no-waste condition.) Now conditions change and all wells run dry except for one. The owner of this well now has a monopoly position and can extract monopoly prices. Nozick suggests that this might be permissible if the situation came about due to this person's good stewardship (and, presumably, the poor stewardship of others) rather than just luck. But it is not permissible if it came about due to desertification and the simple good luck that this person owns a well in the only location where there is still water to be tapped.[21] What is going on here?

Nozick has little to say about why he holds these intuitions. In this section, I will assess whether we can give some kind of justification for Nozick's intuitions on the basis of the Lockean tools at our disposal. In the next section, I will then consider whether any of the insights gained from reflecting on Nozick's well may be useful in reaching a less extreme Lockean position on the allocation of emission rights.

Nozick's well suggests that the enough-and-as-good condition does not apply only at the point of the initial acquisition. But should we then just apply it continuously—i.e. private property of a resource is only justified if it is Pareto superior to the return of the resource to the commons? This, I think, would make a travesty of the institution of property. Suppose that I appropriated a piece of land that was an eyesore to the neighboring community. My appropriation was Pareto superior at the time—my intention was to create a beautiful orchard and everyone would benefit from this. But now, once the work is done, my continued ownership of the orchard may not be Pareto superior any longer. If the community is minimally responsible, many may benefit from a return of the orchard to the commons and

dedicate it to park land. One does not need to be a die-hard libertarian to agree that the exercise of eminent domain would not be acceptable in this case.

And yet we do examine whether appropriations continue to be justified as circumstances change. It is not sufficient that the initial acquisition satisfies the Lockean conditions. So what else is required for continued ownership in changing circumstances? Nozick's example suggests two such circumstances:

(i) Extracting monopoly rents on water would threaten people's subsistence. The government can revoke property rights when people's subsistence is being threatened. This is reminiscent of Hume's point that during famines it is permissible for the government to open up the granaries and divide the goods equitably—the property rights of the granary owner simply cease to exist.[22]

(ii) Monopolies create inefficiencies and the government can revoke property rights that, due to changing circumstances, have come to block the operation of the free market.

To distinguish these cases we could construct the following tests. Suppose that there are still multiple wells and a free market for water, but still, due to changing circumstances, the resource has become scarce and a hike in prices threatens the livelihood of the villagers. Could we then return the wells to the commons? If so, it is (i) that matters and not (ii). Suppose, on the other hand, that we are talking not about water but about a luxury goods like diamonds. There used to be multiple mines, but due to changing circumstances, one mine has remained open and now has a monopoly. Nobody's subsistence is threatened, but the owner of the mine does extract monopoly prices. Could we then return the diamond mine to the commons? If so, it is (ii) that matters and not (i).

However, neither one of these answers could provide the whole story, since neither accounts for the difference that luck versus good stewardship makes. An account of what Nozick is after should incorporate this difference as well. So how can we do that?

Think of the no-waste condition. There are two dimensions to this condition. First, I should not plant and harvest more than I can consume. Second, I should not homestead a piece of land that is bigger than what I am capable of working or willing to work (or to manage). The second dimension is quite interesting, because it does base my ownership on a willingness to work the land, i.e. on good stewardship. One should extend this aspect of the no-waste condition to continued ownership—the benefits of my continued ownership must be deserved by a continued willingness to work the land. And this is all the more so if these benefits become excessive and at the expense of the well-being of others.

So here may be the moral. Continued ownership, unlike initial acquisition, does not require *strict* applications of the no-waste condition and the enough-and-as-good condition. I can let my land lay fallow or leave my house unoccupied for short periods of time. I can hang on to my land or my house even though my continued ownership is not Pareto superior to its return to the commons. But if it is the case that there are *huge* gains to be made from a return to the commons (and hence that the Pareto condition on my continued ownership is massively violated), then I may lose my property rights. If it is the case that the stewardship of my property is *seriously* lacking, then I may lose my property rights. In other words, serious violations of the enough-and-as-good and no-waste conditions may jeopardize my *continued ownership*.

Furthermore there is an interaction effect. When there are serious violations

of the enough-and-as-good condition, then minor violations of the no-waste condition may tip the scale and cause a revocation of property rights. This is what we see with squatters' rights. If housing needs become acute, it may become more important for owners to establish continued usage in order not to lose property rights to squatters. With acute housing needs, the enough-and-as-good condition becomes more pressing. And when the enough-and-as-good condition is pressing, then even a slight waste (short-term non-occupancy) may jeopardize ownership.

And the opposite holds true as well. When there are serious violations of the no-waste condition, then a minor violation of the enough-and-as-good condition may tip the scale and cause a revocation of property rights. For example, suppose I seriously "waste" my land resources by being absent for a prolonged period of time. People start crossing my land to take a shortcut which provides them with a relatively minor benefit. If I were to exercise my property rights and hinder them from trespassing, then this would constitute a minor cost to them. But due to my absence, I fail to notice their trespassing. Then this may lead to a loss of property rights when the trespassers acquire an easement on my property through adverse possession, even if what is gained thereby for them is just a minor improvement in their situation, viz. the opportunity to take a shortcut.

Nozick's well is not accounted for simply by an appeal to blocking monopolies or fending off threats to subsistence. The logic is more complex. Certainly, monopolies or subsistence threats due to evolving patterns of ownership may constitute a violation of the enough-and-as-good condition. But there is also an interaction effect with the no-waste condition. If I am the only one exercising good stewardship, then clearly the resource was not wasted on me. I did not take more than I could manage—as a matter of fact I managed the resource extremely well in

comparison to others. So the no-waste condition—under a particular interpretation—is strongly respected. And if the no-waste condition is strongly respected, then the violation of the enough-and-as-good condition by itself is not enough to revoke my property rights.

IMPOSING LIMITATIONS ON LOCKEAN EMISSION RIGHTS

Let us now compare a case in which a strict regime of Lockean claim rights does have intuitive appeal to a strict regime of Lockean emission rights. The purpose of this exercise is to understand how it is that the internal and external critiques of Lockean claim rights do impose restrictions on their implementation. I am substituting a boating example for the earlier fishing examples, because it makes for a starker contrast with GHG emissions.

a. *Boating*. In 1800, there was a lake that lay in the commons. Except for some routine tasks (bathing, washing) it was barely used for anything. Recreational boating started taking off and over the years, some people have added larger and smaller boats to the lake. All was well until, say, around 1960, there was a threat of overuse. Additional boats would be unpleasant to present users (as well as other recreational users of the lake). All boat owners were granted licenses for their respective vessels (specifying sizes) and no further licenses were to be granted. So investments in recreation were respected and nobody was required to sell their boat. Newcomers or incumbents wishing to upgrade their boats can buy permits from present owners. Some trading has happened, but waiting times are long and, of course, many of these boat licenses can still be traced to families whose history in the

region goes back for centuries.

b. *GHG emissions*. In 1800, the atmosphere lay in the commons. Except for some routine tasks (e.g. breathing) it was barely used for anything. Industry started taking off and over the years, some countries have started using this atmosphere as a sink for GHGs – some to a larger extent, some to a smaller extent. All was well until, say, around 1960, there was a threat of overuse. (The 1960 figure is entirely fictional.) Suppose that, contrary to fact, we recognized this fact off the bat. Increased usage of the atmosphere as a sink in this manner would set us on the path to climate change. All users were giving quotas corresponding to their respective usage levels. So investments were respected and nobody was required to sell their companies. Newcomers or incumbents who wish to extend companies may buy permits from present GHG emitters. Some trading has happened, but of course, many of the presently industrialized countries are the countries that had the benefit of early entrance.

It strikes me that there is very little wrong with the case of recreational boating. This seems like a reasonable way to run such a common pool resource. As a newcomer to the region, I may find it somewhat upsetting that it is so difficult to obtain a license. One might want to tweak the policy somewhat so that newcomers who are persistent and show determination do have a chance to join the *Marina Bay Club*. But the basic idea of the policy is morally sound.

But if there is not much wrong with this regime, then what would have been wrong with handing out emission licenses to the various countries of the world in 1960 at the levels of GHG emission at the time? Clearly if we had had the knowledge and the nerve to do this, then we would have a world today not threatened by global warming but probably even more unequal in industrialization levels than what we

witness in the real world. In short, nobody would have stood for *that*. Such a regime would have blocked the rise of emerging economies. It would not just be grandfathering, which implies some time-horizons, but would provide a license for continued inequalities (in the absence of the unlikely event of developing countries buying their way into emission licenses).

So why is it that sauce for the goose is not sauce for the gander? What makes the gander so different?

Following our *external* critique of Nozick, one might say that in the case of boating, there are very few conflicting claims. There is no issue of respecting subsistence needs in this case and egalitarian ideals with respect to luxury goods just do not carry much weight.

One can also provide an *internal* critique. Such a critique shows that not even a sophisticated Lockean could insist on emission rights that are strictly determined by historical practice. The clue lies in the continued enough-and-as-good condition. In the case of boating, some people do miss out because they cannot obtain a license, but the loss is quite minimal. It does not threaten their livelihood, they can try to buy a license, there are other hobbies to practice and there are other lakes to drive to. But in the case of industrialization, countries who do not have emission licenses miss out radically in all aspects of life. How would newcomer countries gather the cash to buy emission rights? The lack of industrialization within their borders keeps them in dire poverty. There is little else to do and there are no other places to go. So emission quotas that are fixed by early industrialization division keys would violate the continued enough-and-as-good condition to such an extent that a correction is clearly needed—just like a correction was needed for Nozick's well owner who did not respect the continued enough-and-as-good condition.

Does this mean that we need to move as swiftly as possible to the equivalent of a radical egalitarian land reform—i.e. to equal emission rights per capita? I do not think so. Equal emission rights per capita is simply not the proper starting point for the allocation of common pool resources *in medias res*—as little as it is for the private good of land. If we had caught the onset of violations on time, then the proper *starting point* would be the existing allocation at that time. We then move away from this starting point because it strongly violates the continued enough-and-as-good condition—and we would move away with much more haste and determination than in the boating case.

What we learned from Nozick's well is that property rights can be revoked if there are serious violations of the enough-and-as-good conditions and I cannot justify my advantage by attributing it to my good stewardship. Now many people would be condemned to abject poverty if we were to continue with quotas set by the actual historic appropriations of atmospheric absorption capacity. This would be a serious violation of the enough-and-as-good condition. And an appeal to good stewardship would only go so far. The owner of the well that survived desertification through the owner's hard work might appeal to this. But could the Malibu-surfing heir to the well? Good stewardship wears off fast as we pass down the generations. So similarly, on grounds of the serious violation of the enough-and-as-good condition, we would wish to scale back developed countries' historic claim rights to the atmospheric absorption capacity. Initially we might wish to scale back conservatively in order to respect investments and good stewardship. But also the appeal to do it conservatively wears off as we make projections for future generations.

The no-waste condition is relevant to determine future emission rights and cuts in two ways. Relative to consumption patterns in the developing world, much of

developed-world consumption of the atmospheric absorption capacity is inefficient and frivolous. E.g. three of Socolow and Pacalaw's 15 "wedges" to cut global emissions aim at reducing end-user efficiency and conservation.[23] On such grounds, the developed world loses emission rights on grounds of failing the continued no-waste condition. On the other hand, the developing world violates the no-waste condition by the use of dirty industries and hence its poor performance in GHG emissions per unit of GDP. So they should commit to technological improvements in order to gain the emission rights that the developed world loses. The developed world violates the no-waste condition through inefficient and frivolous consumption, the developing world through irresponsible production. Portfolios of commitments to mitigation should be sensitive to different requirements generated by the no-waste condition for different countries, depending on how they may be liable to violate it.

Furthermore, one should not forget that developed countries do carry responsibility for expanding their emissions *past* the time that the commons were closed. Appeals to rectification are justified for excessive emissions by developed countries that occurred after the cut off point when the enough-and-as-good condition on initial appropriations was violated. This is a legitimate appeal to the *polluter pays* principle and can be invoked to argue for financial support to developing countries for mitigation and adaptation efforts.

CONCLUSION

My approach to GHG emission rights leads to a distribution of emission rights that will gradually become more and more egalitarian. But it does not get us to this point

by preaching an immediate, strong egalitarianism complemented by *Realpolitik*-style concessions to grandfathering devoid of any moral justification.

What I defend is a regime in which relative emission rights are negotiated by carefully balancing

(i) a concern for respecting differential investments, as determined by the pre-proviso-violation distribution of the GHG-absorption-capacity resource;

(ii) a concern for rectification on grounds of the *polluter-pays* principle, considering the illicit post-proviso-violation pollution levels of developed countries;

(iii) egalitarian concerns and a concern to raise developing countries above the subsistence level, on grounds of our external critique of Locke;

(iv) a concern that there is enough-and-as-good of the GHG-absorption-capacity resource left to support developing countries in their economic development, respecting the continued enough-and-as-good condition in our internal critique of Locke;

(v) a concern to reduce waste in both consumption and production, respecting the continued no-waste condition in our internal critique of Locke.

In practice this will lead to a regime with steadily converging but initially unashamedly unequal emission rights and with developed countries contributing financially to adaptation and mitigation through investment and technology transfer in developing countries.

What is not called for is a regime in which the obligation to reduce GHG emissions befalls only developed countries, in which they are branded as scoundrels for every inch that they deviate from equal emission rights per capita, and in which they are forced to foot the climate-change bill single-handedly as if developing

countries are owed Versailles-style wartime reparations. Such an attitude is both unwarranted and unhelpful in climate change negotiations that aim to yield feasible and morally justifiable solutions.[24]

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[1] See Darrel Moellendorf, "Treaty Norms and Climate Change Mitigation," *Ethics and International Affairs* 23 (2009), 264, n. 32 and Simon Caney "Justice and the Distribution of Greenhouse Gas Emissions," *Journal of Global Ethics* 5 (2009), 130–3 for an overview of philosophers and institutions defending this position.

[2] E.g. Henry Shue, "Global Environment and International Equity," *International Affairs* 75 (1999), 531–45, Eric Neumayer, "In Defence of Historical Accountability for Greenhouse Gas Emissions," *Ecological Economics* 33 (2000), 185–92 and Axel Gosseries, "Historical Emissions and Free-Riding," *Ethical Perspectives* 11 (2003), 36–60. For an overview of the debate see Caney "Justice and the Distribution of Greenhouse Gas Emissions," 133–5.

[3] Caney "Justice and the Distribution of Greenhouse Gas Emissions," 128.

[4] Neumayer, "In Defence of Historical Accountability for greenhouse gas emissions," 188. The reference is to H. Peyton Young and Amanda Wolf, "Global Warming Negotiations: Does Fairness Matter," *Brookings Review*, 10 (Spring 1992), 46-51. (This article is indexed by EBSCOhost under H. Peyton Young and Amanda Wolfberg, "Global Warming Negotiations.")

[5] Neumayer, "In Defence of Historical Accountability for greenhouse gas emissions," 188. The reference is to Robert Nozick *Anarchy, State, and Utopia* (Oxford: Blackwell, 1974).

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[7] Thomas Sterner and Adrian Muller, "Output and Abatement Effects of Allocation Readjustment in Permit Trade," *Climatic Change*, 86 (2008): 35-6

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[14] John Locke, "Chap. V. Of Property," in *The Second Treatise of Civil Government* (1690). http://www.constitution.org/jl/2ndtreat.htm (accessed March 23, 2010).

[15] Nozick, *Anarchy, State, and Utopia*, 175.

[16] My discussion draws on Elinor Ostrom, *Governing the Commons—the Evolution of Institutions for Collective Action* (Cambridge: Cambridge University Press, 1990): 1–58.

[17] E.g. consider the drop in deaths of infants under 1 year old per 1000 live deaths for select countries in Africa and Asia in the 19th and 20th century in Brian R. Mitchell, *International Historical Statistics—Africa, Asia & Oceania, 1750-2000*, (London: MacMillan, 2003), 80–83. Of course it is an open question whether these early infant death rates would have dropped in the absence of the industrialization in the West.

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[19] Locke, "Chap V: Of Property," Par. 33.

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[21] Nozick, *Anarchy, State, and Utopia*, 180.

[22] Hume, D. *An Enquiry concerning the Principles of Morals* (1889), Sect. 3, Part 1. http://www.anselm.edu/homepage/dbanach/hume-enquiry%20concerning%20morals.htm#sec3 (accessed 23 March 2010)

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