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Climate change, intellectual property rights and global justice

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Abstract

International negotiations on anthropogenic climate change are far from running smoothly. Opinions are deeply divided on what are the respective responsibilities of developed and developing countries with regard to the reduction of greenhouse gas emissions and the alleviation of the negative effects of global warming. A major bone of contention concerns the role of intellectual property rights (especially patents) in the development and diffusion of climate-friendly technologies. While developing countries consider IPRs as a formidable barrier to the rapid transfer and the widest possible diffusion of such technologies, developed countries, by contrast, see IPRs as a vital prerequisite for the development and transfer of these same technologies. This debate shows some similarity with the earlier debate on patents and access to lifesaving medicines, although there are also important differences.
In our contribution we will explore both the analogies and the differences with this earlier debate. To provide a focus for our discussion, we will examine whether something similar to the *Health Impact Fund* (HIF), which has been proposed by philosopher Thomas Pogge as a reasonable solution to the ethical dilemmas of protection and accessibility in the field of pharmaceuticals, can also be elaborated for the development and diffusion of climate-friendly technologies. Thus the central question is how an analogous 'Climate Impact Fund' would look like and how it would work. This whole exercise will also yield a normative yardstick for assessing the various designs for a Green Climate Fund or a Technology Mechanism that are currently on the table of the international climate negotiations.

Keywords: technology transfer, distributive justice, health impact fund, development aid

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Introduction: from medicines to climate change

Although several developed countries, most notably the US, don't see climate change as an issue of global justice and refuse intellectual property (IP) rights to be placed on the agenda of international climate negotiations, it appears to us that this position is hardly justifiable. From the realization that the absorptive capacity of the earthly atmosphere for greenhouse gases (GHG) emissions is limited, it is a small step to conclude that the use of this scarce good represents an issue of distributive justice. The most straightforward position to take is that all human beings have equal rights to use this global 'sink' and should therefore be allotted equal quotas of emission permits. We admit that in the current political climate such a view sounds extremely radical and cannot pretend to be (politically) 'realistic', but we want to defend it as the ethical default position. Whoever wants to deviate from this line, we claim, assumes a huge burden of proof. Special pleadings (like "the American way of life is non-negotiable") will not be allowed to pass this hurdle.

There would be no urgent ethical need to raise the issue of IP rights in connection with climate change if equal rights to use the global GHG sink were indeed a political reality. Likewise, in a world with a much more equal distribution of income and wealth between and within nations, patents on medicines would not have become a big ethical issue either. However, given pervasive socio-economic inequality, the worldwide patent system is indeed unjust because it orients pharmaceutical research to serving high-income markets and denies poor people access to affordable drugs. For climate change the ethical issue is even more salient as companies from those countries that bear a large part of the historical responsibility for causing global warming stand to gain from selling proprietary mitigation and adaptation technologies to the countries that will suffer most from it and see their own development prospects eclipsed. Often a deal may not even be concluded when monopoly prices make the cleaner technologies unaffordable – as if it were not in everybody's interest to realize possible GHG emission reductions immediately everywhere and not only after expiry of the 20-year patent term. Meanwhile the debate on patents has been largely narrowed down to the question whether they facilitate or block technology transfer. Numerous commissioned studies attempt to show that patents are not an obstacle after all but a facilitator for technology transfer, just like in the earlier debate on IPRs and medicines many reports 'proved' that patents are not the main barrier for access to drugs. Needless to say, such conclusions are crucially dependent on the design of the inquiry and the framing of the questions (cf. DeCamp 2007: 82-87).

The health impact fund idea

In the pharmaceutical area, the so-called Health Impact Fund has been proposed as a remedy to address the inherent injustice of the international patent system (Hollis and Pogge 2008). This Fund offers an alternative way of rewarding innovative pharmaceutical companies on the basis of their product's contribution to lowering the global disease burden (measured in terms of quality-adjusted life years (QALY)) rather than sales to prosperous consumer markets. Thus this impact metric substitutes for the criterion of purchasing power and thereby partially corrects the injustice entailed by the unequal distribution of the latter. It also allows to avoid the well-known deadweight losses of monopoly. One of the proponents of the Health Impact Fund has suggested a similar solution for dealing with environmentally beneficial innovation: "So this is my proposal: a reward fund, sponsored by governments, that would offer to pay innovators on the basis of the ecological benefit of their invention on condition that they are willing to give up their patent-protected mark-ups" (Pogge 2010: 540). In this paper we want to elaborate this suggestion for the problem of climate change by exploring the possible architecture and roles of a 'Climate Impact Fund'.

Is this idea suitable for climate friendly technologies?

Ideally, an analogous Climate Impact Fund should have a double task: reduce greenhouse gases emissions and provide relief measures for climate change adaptation. The fund should aim at a wide impact across all areas, but it becomes immediately evident that the same metric for assessing impact, and thus fixing the reward's sum, cannot be used for both mitigation and adaptation. It might be possible to construe a formula for a broad impact metric for mitigation, based on the reduction of greenhouse gas emissions against some default baseline. For adaptation, it seems much more difficult too construe such an encompassing metric, because of the heterogeneity of the various coping strategies.
Pogge is right when he says that "[i]n those cases of innovation where you can measure the value of the invention in respect to a socially important purpose, it makes much more sense to at least offer the innovator the opportunity to sell the innovation at the lowest feasible cost of

production, and then be rewarded [by the fund] for the innovative effort…" (Pogge 2010: 540), but this statement leaves many justice concerns open. Can we pursue this one "socially important purpose" on its own? What is the social cost of pursuing the envisaged strategy? Are we sacrificing too much for reaching our goal efficiently? Should we use the fund to address other justice issues, e.g. like the right to share in the advancement of science?
In what follows we will deal with a series of complexities that have to be dealt with when drafting a Climate Impact Fund.

Difficulty 1: Mitigation and/or adaptation

Technologies that aim at climate change mitigation are usually not the same as technologies needed for adaptation. It is not completely inconceivable that some technologies might have an impact on both needs and special guidelines have to be drawn for those cases. A central problem will be to choose what the fund should aim at, mitigation or adaptation, or whether it should address both. If it is decided that such a fund should promote technologies that address both needs, again one has to justify what percentage of the available resources should be dedicated to each need. We could state that technologies for mitigation should receive a percentage *x*, taking into account the needs of future generations, the integrity of the biosphere and overall needs or wishes of the people who will be paying for the fund. Technologies needed for adaptation would receive the remaining share, while taking into account issues of global justice, here a debate has to come into place, with the mission to specify in how far issues like ability to adapt to climate change, historical emissions and vulnerability should be taken into account while determining the allocation of fund's monies.
A relevant consideration for the division of the Fund between mitigation and adaptation objectives is the following. If a worldwide emissions trading system with a cap on the overall amount of emissions (ideally based on equal per capita quotas for emission permits) were in place, the *ethical* need for devoting monies of the Fund to mitigation purposes would be correspondingly diminished. The reason is that such a system of 'carbon trade' would itself generate a strong *effective* demand for new mitigation technologies, even with a monopoly mark-up due to patents. (In such a system, poorer parties who do not need their allotted quotas to the full could sell their surplus permits to richer parties and would thus be compensated – in this way the system would to some extent take care of justice requirements). But of course, there is as yet no worldwide emissions trading system and chances that such a system will soon be installed are rather bleak. However, in the approaching post-Kyoto regime developing countries are asked to take up mitigation responsibilities even in the absence of a worldwide system of emissions trading. This would put a heavy burden on their economic development, which might be relieved by preferential access to mitigation technologies. Hence in our very imperfect real world a Climate Impact Fund could still play a welcome role in rewarding, and thereby facilitating access to, mitigation technologies.

Difficulty 2: fair shares or impact maximization?

When deciding for a broad impact metric for climate change mitigation, we should still pose the question if some areas of industry will enjoy many more benefits then other areas and if there are any immediate justice concerns with this outcome. We can recall the "socially important purpose" of reducing greenhouse gases emissions and say that if it is much more cost-effective to reduce emissions in one particular area, there is no major counterargument for not generously incentivizing this one area. If we can easily cut emissions in this one area

is due to the fact that historically no great effort was done in making that business more sustainable, would turn out to be something that will be of no practical concern for the fund. The problem of climate change adaptation is much more multifaceted. When linking rewards to impact, no matter if focussing on one single factor or a complex algorithm for its measurement, a certain utilitarian compromise has to be made and some particular needs of minorities have often to be dropped for the sake of satisfying the well-being of larger groups. In how far a fund with the central goal of maximizing impact can forgo any issues of historical emissions and vulnerability or fail to reserve special funds for people who will continue to find themselves below a certain (even bluntly established) threshold of well-being has to be cautiously studied, especially when it seeks the support of countries and organisations that are signatories to a series of Human Rights Charters.

Difficulty 3: Low-tech or high-tech solutions?

As having an impact, especially in climate change mitigation, is not bound to providing highly scientific innovations, a restriction of what might be rewarded, and what not, has to be justified in order not to appear arbitrary or selective. Since its first formulation, the HIF has found it necessary to restrain through one way or another the type of innovations apt to be rewarded by the fund (Hollis and Pogge 2008, idem. 2009). This restriction favours break-through science and fails to incentivize the production of social programs or non-patentable, but potentially high impact innovations.
The strong technology divide between developing and developed countries will make it very difficult to find consensus on what kind of solutions should be incentivized. If there is a bias in favour of technology, we will not have to find consensus only among those who produce new technologies and those who do not, but also among those who are considering being the future manufacturers of the ready products and those who are not.
To take an example, we can relatively easily measure the impact an optimized engine that reduces emissions for luxury racing boats will have; it may even considerably save fuel expenses for its rich owners. On the other hand, since we cannot measure impact thus not establish reward size of a non-technological method of motivating people to live more sustainably, like making freely accessible and entertaining a documentary movie showing the vulnerable position people face in smaller Pacific islands, it will not be eligible for the funds monies, even if it will reach a much higher impact by causing a behavioural change, than the technological fix in the first case, and will definitely have secondary benefits enjoyable by many more people.
This type of problem is difficult to address, since in order for the impact fund idea to be seen as a real alternative to exploiting patents in the traditional way, it should not be perceived as prize money that one might be able to get by laudable conduct, but it has to appear as a legitimate salary. The inventor has to be able to estimate the size of the reward in order to attract investors.

Difficulty 4: Self-consuming improvements?

Pogge believes that such kind of fund will incentivize the production of low-tech innovations such as improved cooking stoves (2010: 542). When dealing with innovations destined to people with limited resources, especially those for whom we can safely predict that they will increase their consumption as more resources come within their reach, we have to reflect on how their behaviour will change by introducing more efficient devices. It will be very welcome for the sake of public health if people with an improved stove will boil their possibly harmful water more often, as they will have more fuel disposable since they are

using a more efficient stove. Controversially, the use of a broad impact metric, that measures the actual reduction of greenhouse gases emissions, will give this innovator a very poor reward or non at all.

Difficulty 5: Use and ownership of technologies

Unlike medicines most climate-friendly technologies contain a fairly big bundle of patents. The fund will not be rewarding a single object, which will be used in its original form throughout the fund's payout years. It is quite common to seek for a license to use subcomponents that will make one's invention more efficient or appealing – often on a year-to-year basis. Especially the electronics industry profits through this dynamic. A Climate Impact Fund should maintain this dynamic and it will be quite hard, or even prohibitively expensive, to elaborate a measurement mechanism that might spell out the reward required for the fund's goal.
Technologies become obsolete not only with an evolving state of the art, but especially with agricultural innovations, through a change in environmental conditions. Here again the mechanism should not incentivize the production of seed varieties that will too soon become inappropriate for the targeted number of beneficiaries.

A global justice conception

The mentioned difficulties raise multiple questions of distributive justice. Can we establish a climate impact fund without a shared notion of global justice?
As far as this very preliminary exposition shows us, we have come to the conclusion that establishing a fund for the climate, in its broadest sense, will be bound to be buried in negotiation problems, as too many important sections have to be agreed upon by a huge diversity of stakeholders and a clash of conflicting values seems virtually inevitable. The impact fund idea has potential, as it could incentivize the widespread diffusion of technologies at production cost, especially the technologies designated for those with much lower purchasing power. It also gives an incentive for products to be not only sold, but for training people in using them properly (Pogge 2010). Making use of the scalable nature of the impact fund, a proposed Climate Impact Fund should start by incentivizing those technologies whose impact can be assessed by a broad across-the-board metric (in close analogy to the HIF use of the QALY metric). Establishing a working basic impact fund that already shows some success might increase the willingness of governments to reach consensus for deciding how to incentivize the production of technologies for the other, more difficult to measure, fields of need.

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