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Compensation Duties

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0. Abstract

While mitigation and adaptation will help to protect us from climate change, there are harms that are beyond our ability to adapt. Some of these harms, which may have been instigated from historical emissions, plausibly give rise to duties of compensation. This chapter discusses several principles that have been discussed about how to divide climate duties—the polluter pays principle, the beneficiary pays principle, the ability to pay principle, and a new one, the polluter pays, then receives principle. The chapter introduces several challenges to these principles from the literature, before discussing which policies and institutions might be relevant to compensation, whether internationally (e.g. the Green Climate Fund) or intergenerationally (e.g. Broome and Foley's World Climate Bank). It also describes some recent successful climate cases which require both the Dutch government and a private firm to act in accordance with climate targets to avoid potential rights-violations. Finally, it discusses one of the most important international concepts with respect to compensation: the Loss & Damage pillar of climate policy.

[Keywords: beneficiary pays principle, burden-sharing, climate change, climate justice, compensation duties, distributive justice, ethics, global justice, Loss and Damage, polluter pays principle]

1. Introduction

One fundamental issue in climate ethics involves the question of how to share the climate burden. Philosophers and economists often use the term "burden" to include the costs of a variety of duties ranging over mitigation, adaptation, and *compensation*. In the chapter, I

discuss different theories of burden-sharing as well as their relationship to theories and practices of compensation.

When discussing compensation duties, we might be interested both in theoretical principles and in practical policies. The questions that I focus on in this chapter are therefore twofold. First, what grounds or principles give rise to duties of compensation? Second, what policies or mechanisms can be used to facilitate the relevant compensation? Such mechanisms could, for instance, allow for international or intergenerational transfers.

The first question, what gives rise to these duties, also helps inform who the rights- and duty-holders are. Following previous chapters which address mitigation [Bourban] and adaptation duties [Grasso], this chapter begins by discussing three influential burden-sharing principles which distribute duties, along with the dialectical pressures that led to them being adopted (Section 2). While these principles have various strengths and weaknesses, one especially relevant consideration for the purposes of determining compensation is that these three principles do not directly distinguish between mitigation, adaptation, and compensation duties. This concern helps to motivate a distinct, fourth principle which takes compensation payments to be a way of internalizing externalities. This principle justifies transfers both to and from emitters, separates compensation duties from mitigation and adaptation duties, and generates the right incentives.

This leads to a discussion of the next question, about the policies and institutions that could be used for compensation (Section **Error! Reference source not found.**). This section illustrates some of the policies and institutions that are relevant for compensation, including the complex relationship between Loss & Damage and compensation.

The chapter concludes with thoughts about why we would want a principle that determines the level of compensation (Section 4).

2. Four Justifications of Compensation

The usual way that burden-sharing has been discussed in the literature implicitly makes two key assumptions: first, it assumes that we think of the impacts of climate change as a global net negative burden or overall cost; and second, it assumes that all emitting is unjust—meaning, for instance, that all benefits accruing from it constitute unjust enrichment. The burden may well involve elements associated with a mix of mitigation, adaptation, and compensation measures, but these elements are not always disaggregated. In short, the principles in this debate all aim to answer the question: What gives rise to duties to pay or compensate? This section begins by discussing three influential principles of burden-sharing, all of which build on these assumptions: the polluter pays principle (PPP), the beneficiary pays principle (BPP), and the ability to pay principle (APP).

The section then goes on to argue for a new principle which rejects the implicit framing assumptions. The principle, firstly, takes climate change to be a heterogenous *constellation* of externalities aimed at different groups and individuals at a variety of scales; secondly, it takes compensation to be a forward-looking way of generating the right incentives for mitigation and adaptation; and, thirdly, does not treat emitting as in itself morally wrong or unjust, it only considers emitting *without engaging in transfers* that address the harms and benefits of emissions as wrong.

Note that, while all principles may apply at any level (e.g., the level of individuals, regions, firms, and states), others, including others in this handbook [Bourban and Grasso], discuss the identity of the duty-holders. Also note that, while I discuss these principles in isolation, several theorists (Caney 2012, Dietzel 2019) endorse combinations of these principles where satisfying one principle might be necessary, but not sufficient, to be a burden-sharer. While that might help address some objections, it opens up new ones regarding whether there are sufficient numbers of duty-bearers to cover much or all of the climate burden, given more stringent criteria. However, such combinations are beyond the scope of this chapter.

The section discusses the polluter pays principle in subsection 2.1, the beneficiary pays principle in subsection 2.2, the ability to pay principle in subsection 2.3 and finishes with a new principle, the polluter pays, then receives principle, in subsection 2.4.

2.1. Polluter pays principle

The first principle, the polluter pays principle, holds that the polluter (in the climate context, the emitter) should pay for the costs of climate change. Intuitively, we could say "you break it, you bought it." This principle is not only intuitive, but also has relevance in international law, since it was originally introduced in November 1974 by the Organisation for Economic Cooperation and Development. They proposed this principle for the costs of preventing, controlling or compensating for pollution.

Many philosophers have endorsed versions of this principle, especially early on in climate ethics discussions (Gardiner 2011, Caney 2005, Baer et al. 2009, Shue 1999). However, subsequent philosophical work has raised several issues with polluter pays.

The first issue is the dead polluters objection (Frisch 2012, García-Portela 2019, Meyer and Roser 2010, Caney 2006, Page 2008). This objection is that, given the timelags involved in the effects of climate change, some nontrivial percentage of historical emissions came from those who are now dead. If the duty-bearer is dead, it is unclear whether the duty (or the corresponding right) remains; it is unclear whether descendants should compensate those harmed by their ancestors' emissions (Gosseries 2004).

One response is to change the level at which the principle applies, specifically by taking the duty-bearer to be a larger entity such as a firm or a state, neither of which die alongside even key members of their previous body (Page 2012). It seems plausible that states are the

appropriate bearers of duties even when their composition has substantially changed such that current membership is very, or even fully, distinct from the emitters in question.

Defenders of the objection respond that, if we consider responsibility to be *actually* or *ultimately* grounded in individual duties, this level-changing response may be unsatisfactory because duties do not appear to survive the individuals.

The second issue is the polluters may be blamelessly or excusable ignorant of the effects of their emissions (Roser and Seidel 2017; Zellentin 2015). While there is reasonable debate about when agents are culpable with respect to ignorance of the climate effects stemming from emissions, many philosophers think that, at least starting in the last decade of the twentieth century, it is no longer plausible to claim ignorance (Bell 2011). Since responsibility is traditionally meant to satisfy both control and epistemic conditions, non-culpable ignorance appears to imply lack of responsibility. Plausibly, we can conclude that non-responsible parties are not liable (Wündisch 2017a, 2017b).

One response is that the climate change associated with even post-1990 emissions may be very significant. Indeed, Heede (2014) together with Ekwurzel et al. (2017) have shown that we can trace a majority of historical anthropocentric (non-land use change) emissions to a surprisingly small number of private and public entities (also cf. Shue 2017). Some scholars are concerned that this response is insufficient, since pre-1990 emissions and climate threats arising from natural variability (Wallimann-Helmer et al. 2019) may not be thereby addressed.

Another response is that nonculpable ignorance is not the relevant concern, since the question for moral responsibility is whether knowledge would have counterfactually *changed* what was done (Butt 2017). In other words, ignorance is no excuse if it would not have changed behavior. Given that post-1990 emissions are continuous with—indeed, greater than—pre-1990 emissions, even nonculpable ignorance is no excuse. A rebuttal to this concern is that, while actual behavior has not changed, actual later behavior is not the relevant comparison class. While actual later behaviour is indicative, it need not be equivalent to the historical counterfactual.

The third issue is that, due to the non-identity problem, there may be no fact of the matter about who was harmed by the emissions (Page 2012). This issue begins by supposing that the metaphysical identities of individuals are sensitive to the precise gametes and timing of conception. If so, then large-scale policy changes, which are likely to have effects on many contingencies, including when and who conceives, are likely to change the metaphysical identities of those within outcome populations. Parfit's (1986b) original non-identity problem is meant to be an axiological or evaluative challenge or concern, and was meant not to have deontic implications (Parfit 1986a) but many have averred and taken it to have them (e.g. Broome 2012). For instance, if duty-bearers and rights-bearers are fixed by metaphysical identity and metaphysical identity is fixed by biological facts, then there may be no determinate future individuals that we have duties to, since some choices may lead to some contingent future individuals and other choices may lead to others. Furthermore, it may be that individuals

whose identities depend on the initial choices made would have no complaint against current people who make choices that lead to them, when the alternative would not include them (even if the circumstances make their lives worse than others that would have existed in alternatives) (Boonin 2014).

These and other issues have led philosophers to endorse a principle which seemingly does not require that individuals, who may no longer be alive or may not have acted differently, are considered to be duty-bearers. Instead, the issue is that resources were unjustly acquired and whichever beneficiary controls them should pay.

2.2. Beneficiary Pays Principle

The second principle, the beneficiary pays principle, holds that those who are subject to enrichment from unjust climate contributions are liable for paying for the climate harms (Atkins 2018, Barry and Kirby 2017, Butt 2007, 2014, Lawford-Smith 2014, Neumayer 2000). If this principle is correct, then we can follow the money instead of the emitters. This avoids the objections that the emitters may be dead or excusably ignorant and appears to address the non-identity problem (Das 2014, but cf. García-Portela 2022).

However, there are several objections to this principle. The first issue is whether the beneficiaries have to give up their benefits because they (knowingly or unknowingly) accept them (Gosseries 2004) or because they fail to give them up (Butt 2014). Meyer and Roser (2010) point out that those who benefit from past emissions have no choice with respect to whether they are provided these benefits. Adding to this, García-Portela (2019) argues that both accepting and failing to give up these benefits could be unreasonably demanding and that it would be unfair to count them as voluntarily retaining these benefits, when these benefits are sizeable or inextricably infused into their lives.

A second issue is that, if the benefits from climate change are to be relinquished, this generates the wrong incentives when different beneficiaries are not sufficiently distinguished (Mintz-Woo and Leroux 2021). For instance, as climate change advances, we should expect there to be greater demand for climate goods and services. We would want there to be a market signal to firms and businesses to provide those climate goods and services; if there are expectations that, legally or morally, these firms and businesses should relinquish their climate gains (after all, these are benefits generated from enrichment from an unjust process—climate change), then there would be no such market signal. In short, there would be no profit motives for firms and businesses to contribute to climate responses. Part of the issue may be that climate beneficiaries have not been sufficiently distinguished in the beneficiary pays principle literature.

A third issue parallels one with the polluter pays principle: just as the polluter pays principle wrestled with dead polluters, the beneficiary pays principle may have to consider dead beneficiaries (Caney 2006). If the burden falls upon beneficiaries but some of them die, do the other beneficiaries have to make up the shortfall? Atkins (2018), defending the beneficiary pays principle, suggests that they do not and that only the living beneficiaries have to pay the

proportion of the compensation costs that would be required if all of the beneficiaries were alive.

However, I believe that the beneficiary pays principle theorist has a stronger response than for the polluter pays principle theorist. If, as the beneficiary pays principle theorist suggests, we are able to determine where the benefits come from, we can track the benefits that the dead beneficiaries would have been obliged to pay to others. If we follow these resources far enough, we should be left with all living beneficiaries. After all, beneficiary pays principles do not imply that only *direct* beneficiaries should reject or give up their resources, but beneficiaries in general.

However, this leads to the fourth, and most fundamental, challenge to the beneficiary pays principle. Tracing the beneficiaries of past emissions is extremely difficult (Page 2012). While Heede's (2014) work can give us some rough idea of how much historical emissions can be traced to firms, the question of how the proceeds or profits of those emissions were distributed is considerably less tractable. Consider, for instance, that the immediate beneficiaries are not the executive management of those firms, but shareholders. Furthermore, not only are the shareholders diffuse, but also many of them benefitted via small proportions of their investments within larger portfolios or indexes which the shareholders did not track themselves. In other words, not only would the beneficiaries not be traceable in practice, but also many of them might have been unaware in which companies they invested in the first place.

This issue is that determining the benefits and the beneficiaries is extremely challenging, even if (counterfactually!) everyone involved was morally motivated to give up or not accept these benefits. No one denotes a certain bank account 'oil profits' and proceeds to bequeath that named account to their descendants. Instead, various uses of resources, whether ill- or fairly-gained, contribute to various purchases which can be challenging to disentangle. Furthermore, in the process of profiting, the beneficiaries multiply: not only is the decision-making CEO a recipient of profits and, thus, a beneficiary, but also so are shareholders and janitors. And not only these, when any of them *use* these profits to purchase goods and services, the shopkeepers are also beneficiaries. Immediately, these resources proliferate throughout the economic system in ways unrecognizable to the various beneficiaries. Not only are they unrecognizable, they are not recorded so it is difficult to subsequently try to trace these transfers. Page's (2012) strong claim that "*all* existing wealth is to some extent tainted by the activities in the past and present that produce climate change" is plausibly thus an implication of the beneficiary pays principle, but could be seen as an implausibly strong reductio of that same principle.

Atkins (2018) takes this potential reductio head-on. He argues that, practically speaking, we should treat everyone in developed industrialized countries as direct or indirect beneficiaries. Beyond the concern that this is a very strong claim, it also might lose dialectical advantages over polluter pays principles, since it seems reasonable to say developed industrialized countries are also direct or indirect polluters.

In short, if compensation is meant to track the particular benefits of the emissions, this looks very difficult to spell out. If it is meant to track general benefits, then concerns such as the dead polluters objections or the non-identity problem seem to be, relatively speaking, less concerning to the polluter pays principle theorist (García-Portela 2022). However, some believe that both polluter and beneficiary pays are insufficient given the advancing threats of climate change, so compensation should be provided by whomever is most capable of doing so. I discuss this in the next section.

2.3. Ability to Pay Principle

The third principle, the ability to pay principle, acts as a backstop to the polluter pays principle and the beneficiary pays principle. Often, it is distinguished from the latter two by saying that it is 'forward-looking' since it does not rely on historical fault or cause whereas both the polluter pays and beneficiary pays principles are concerned with the initial emissions and the identity of the emitters or their proceeds, respectively. This makes the polluter and beneficiary pays principles 'backward-looking'.

The ability to pay principle acts as a backstop in the sense that, should the objections to the other two principles be sufficiently morally or practically dispositive, we can still address the climate burdens by assigning remedial responsibilities (Miller 2008). The ability to pay principle assigns duties to pay for addressing climate burdens by considering the capacity of different countries to pay. In other words, the question is who is best placed to cover the costs (looking forwards) as opposed to who had the appropriate historical connection to the emissions (looking backwards).

Once again, there are several objections that could be raised. A first objection is that, while many agree that 'ought' implies 'can' (meaning that your duties have to track your capacities), it is not generally the case that 'can' implies 'ought' (which seems to be the basis for capacities to cover the cost of climate burdens justifying duties) (Roser and Seidel, 2017). It is true that there is the capacity for countries that are wealthier to cover climate burdens, but this is not sufficient for the claim that they have these duties. The ability to pay principle becomes more plausible when put in the dialectical context where other principles have failed, but, according to this objection, it is still unjustified. A stronger version of this objection is that, even if we grant that remedial responsibilities are a normatively justifiable concept, this does not imply that these countries should cover the cost of climate burdens—it just implies that they should cover the cost of the most egregious unremediated threats. There is no guarantee that these threats are climate-related. Perhaps global poverty or easily scalable medical interventions are more egregious or tractable—indeed, a lot of research suggests that this is the case (MacAskill 2015, Singer 2009). Even if we accept that there are remedial responsibilities, there is no guarantee that this will license covering the costs of climate burdens in the world as it contingently is.

A second objection is that this principle takes too narrowly an economic point of view: if we are concerned merely with economic capacity, this neglects potentially mitigating factors. For instance, some wealthy countries have acted more ambitiously to curb climate change and some poorer countries have pursued policies that exacerbate climate change. Intuitively, the polluter pays and beneficiary pays principles account for the origin of the climate problem but, since the ability to pay principle is explicitly forward-looking, it does not incorporate or account for these factors. The intuition here is that backward-looking considerations are morally important, so an *exclusively* forward-looking principle misses the mark.

Another version of this second objection is that the ability to pay principle addresses the capacity, but not where that capacity came from (Atkins 2018, Moellendorf 2012). In short, we might be concerned that this principle is too simplistic. For instance, if the source of the wealth is in developing technology for mitigation (e.g., renewable energy innovation), we would not want that wealth to be redistributed because it might generate perverse incentives or undermine profitable activities that are needed for addressing climate challenges (Mintz-Woo and Leroux 2021). This concern with generating the right incentives motivates an alternative to the preceding three principles; the goal of this principle is to generate transfers that properly respond to all the effects (more specifically, the *unpriced* effects or externalities) of emissions. I discuss this in the next section.

2.4. Polluter Pays, Then Receives Principle

The three principles enumerated above (polluter pays principle, beneficiary pays principle and ability to pay principle) rely on the framing assumptions that we are considering some global net negative cost (i.e. the burden) and that emissions constitute an injustice.

A new, alternative principle—the polluter pays, then receives (PPTR, pronounced "Peter") principle—denies both of these assumptions (Mintz-Woo and Leroux 2021, Leroux and Mintz-Woo 2023). This principle is built on the idea that compensation should be tied to the effects of an action (so is directed towards those affected by emissions and so is backward-looking) but that this compensation has a specific purpose (so sets the right incentives by being commensurate with the effects of the emissions and so is forward-looking).

The intuition is that the polluter (the emitter), through every unit of emissions, generates a complex set of effects at different spatio-temporal scales. We can think of this as the *constellation* of externalities, with arrows starting at the emitter but ending at different affected parties. Most of these externalities are (net) harms because the climate effects are negative, with some of these impacts being very harmful and some less so, some of the impacts being (or close to) neutral because the climate effects are minimal or not morally relevant, and a few of the impacts being (net) positive, because there are some groups that benefit from climate change (whether at a regional level, sectoral, or individual level). In the next few paragraphs, I discuss some evidence for this claim. Here, the externalities we are concerned with are externalities in the technical economic sense where the actor (the emitter) has effects on third parties (those affected by climate impacts) who cannot prevent the action, where

those effects are unpriced for the actor (meaning, for instance, that the emitter does not pay for the climate harms that they cause). In circumstances with externalities, we should expect that there will be overemitting relative to the social optimum (Mintz-Woo 2022).

Why should we expect that some have net positive effects from climate change? To begin, we should recognize that the vast majority of effects of climate change are harmful, and even those that have positive effects from climate change may only have these positive effects over medium timescales and under moderate warming (Mintz-Woo and Leroux 2021). However, especially if we consider regional and sectoral scales, we are likely to see some net beneficiaries.

For instance, we should expect that, with increasing climate change, demand for tourism will decrease in already warm parts of the world (e.g. Spain and Italy) and will increase in cooler parts of the world (e.g. Norway and Sweden). So from the point of view of the Swedish tourism sector, climate change effects may be net positives. This is not to say that the *overall* national or international effects are positive (although they may be) because perhaps this increased demand in some regions (e.g. Sweden) is at least offset by decreased demand in others (e.g. Italy).

Similarly, we should expect that, with increasing climate change, the terroir associated with California would shift north, perhaps to Oregon or British Columbia, producing net productivity increases in vineyards in these northern regions.

In general, climate change may benefit either the quantity or quality of products (the wine or tourism experience). While those benefits are much smaller than the costs of climate change in aggregate, some of them will be significant enough at smaller scales that groups will have net positive benefits.

Having suggested that at least a few will benefit, it is now possible to explain the idea that the polluter pays, then receives: for the *negative* externalities, the polluter pays in proportion to the negative climate impacts; for the (more limited) *positive* externalities, the polluter receives in proportion to the benefits from the climate windfall, i.e. the quantity or quality of products. Only once the payments from the emitter are made should transfers to the emitter be enacted. There is an important complexity that this involves: not all benefits from climate change justify payments to polluters. Note that this principle is *also* correct in the limit case where there are no positive net regional or sectoral winners (in this case, it roughly correlates with the polluter pays principle, albeit for different reasons).

Mintz-Woo and Leroux (2021) distinguish between passive and active winners, where passive winners gain from climate change without making changes in production (i.e. because the quantity or quality is improved), and active winners gain from climate change due to changes in production (i.e. because they are new market entrants, or because they change their production methods to take advantage of new climatic conditions). For instance, if a farmers' grapes are better due merely to the changed climate, payments are justified to the emitters in

line with those improvements. In contrast, if a farmer changes their farming practices (e.g. changes seeding times, or moves to a new plot of land, or starts a new farm to reap climate benefits), then this would not justify such payments. While this is a principled distinction in theory, it may be difficult to measure in practice, although comparison with hypothetical baselines is far from unfamiliar in economics (a common example is opportunity costs, which are defined in terms of the best unchosen—and therefore counterfactual—alternatives).

What justifies this distinction between active and passive winners? Morally, we might say that those who change their practices have earned, or deserve, their gains, following familiar desert-based theories of justice. On these theories, the relevant issue is that the agents have a 'desert-basis' that is under the control of the agent and is appropriately related to the reward (Brouwer and Mulligan 2019; Olsaretti 2008).

Practically, there is an important issue with incentives: if we believe that all those who benefit from climate change should relinquish their gains from climate change, then morally speaking we do not think those who make a profit in *responding* to climate change should keep those gains. But this has major practical costs. For instance, as the climate is warming, we need both new workers and new firms to respond to climate change (e.g. providing the workforce to install green energy sources or the capital to invest in climate adaptation research and development). If we thought that all climate gains should be relinquished then morally speaking there should be no profits associated with these climate responses, meaning that morally speaking no one should earn profits from these responses—meaning that there is no incentive to engage in these kinds of responses. Climate responses need a profit motive, so this is practically unworkable.

This leads to two practical reasons to adopt this principle over the other three. First, there might be practical value in using polluter pays, then receives in discussing with emitters over the other three because it treats all effects of emissions similarly, instead of ignoring positive externalities. This could practically matter because, in determining how to address emitters, a big stick plus a small carrot is a much better motivators than *just* a big stick. Second, the view that we transfer from emitters (or the beneficiaries or the wealthy) to those harmed is not the appropriate response to externalities *in general*.

Consider, for instance, a case of large positive social externalities. For instance, suppose some innovator develops some very efficient way of transmitting information or training lots of people in some complicated procedure, and makes a lot of money. Suppose that the innovation also generates a lot of positive externalities (e.g. we now have a much larger supply of medical experts and some diseases become easier to treat). It is not the case that we want all the gains from the innovation to be transferred to the poorest; indeed, we could justify extra transfers from society to try to compensate the innovator for the positive social externalities of their innovation.

Note that we might wish to do this regardless of whether the innovator made a lot of profits on their initial innovation; it is merely in light of the positive social externalities that we would

want to incentivize. To illustrate, many university educators are in the public sector and generate extra value for society by their research and teaching activities. We could incentivize more or better education by making transfers to account for those positive externalities. We should use similar reasoning even in cases with very different combinations of externalities, like climate change, because that generates a more socially consistent approach to externalities.

This section has argued that instead of thinking of compensation as a function of a global net cost, we should think of it as connected to the various effects (more particularly externalities) of emissions. Once we do that, we see that most of these effects are harmful (negative externalities) but a few are beneficial (positive externalities) and we see that transfers from the emitters to those harmed *as well as* transfers from those who benefit to the emitters can be justified. Mintz-Woo and Leroux (2021) call this the polluter pays, then receives principle. This principle helps to highlight some unintended problematic consequences of the beneficiary pays principle.

3. Methods and Institutions of Compensation

When introducing compensation mechanisms, it is worth distinguishing between methods and institutions of compensation that ties compensation to existing or historical emissions and those that are independent of such emissions. Adapting familiar terminology used above, I propose we call the former "backward-looking compensation methods and institutions" and "forward-looking compensation methods and institutions".

This section surveys a selection of such methods. In the first subsection, we discuss carbon pricing (carbon taxes and cap and trade), the Green Climate Fund (GCF), and John Broome's World Climate Bank. In the second subsection, we discuss compensation that is based on historical emissions including legal (tort law) and policy (Loss & Damage) mechanisms.

2.1. Forward-Looking Compensation Methods and Institutions

This section discusses methods and institutions for payments having to do with current and future emissions, or *forward-looking compensation* methods and institutions. We can think of policies that are generally used to change incentives within countries (carbon pricing policies) and we can also think of institutions which are generally intended to distribute climate funds between countries and generations to those who need or deserve it (represented here by the Green Climate Fund and John Broome's suggestion of a World Climate Bank).

Within countries, we need to change incentives so that it is easier to make green (sustainable) choices and harder to make brown (unsustainable) choices. Economists tend to favor carbon pricing policies. These can be separated into carbon taxes (sometimes called "price instruments") and cap and trade (sometimes called "quantity instruments") (for a survey of these methods, cf. Mintz-Woo 2022). Carbon taxes add a fixed cost to each unit of emissions

(e.g. $50 for each ton of carbon dioxide) whereas cap and trade lets the price vary but sets a specific number of permits to emit (i.e. subject to a "cap") and allows those permits to be traded, generating a market price for the permits. Carbon taxes have the advantage of being predictable in terms of price; cap and trade has the advantage of being predictable in terms of amount of carbon allowed. While there is some debate about which is superior, with economists tending to favor carbon taxes (High Level Commission, 2017) and others, especially political scientists, tending to favor regulation instead of carbon pricing (e.g. Green, 2021; Stokes, 2020), I have argued that pricing carbon in one of these forms is more important than which type of carbon pricing is ultimately adopted (Mintz-Woo, 2022).

Both kinds of carbon pricing policies can produce revenue for the government—carbon taxes produce tax revenue and cap and trade can generate funds if the permits are put up for auction. That revenue can be distributed either nationally or internationally to compensate for climate harms (it can also be used for other purposes, such as addressing (or as Mintz-Woo 2021 argues in response to Tank 2020, even reversing) potentially regressive impacts of these costs). They can also be used to respond to shocks where there is need to green or on-shore supply chains and churn is inevitable; they help incentivize green recoveries (e.g. to COVID-19, Mintz-Woo et al., 2021). There are several mechanisms and institutions that can assist with this kind of international and intertemporal distribution, but I will bring attention to two that I think are especially notable and relevant for moral philosophers.

First, one of the most ambitious attempts to deal with international equity in the United Nations Framework Convention on Climate Change context is the Green Climate Fund (GCF). While the GCF has received limited attention in the philosophical literature, it is intended to be a major international compensation and financing instrument, supporting mitigation and adaptation measures in the developing world (Govind 2012, Park 2012). It is forward-looking, in that pledges have no necessary connection to either current or previous emissions.

However, it is severely underfinanced relative to pledges, exacerbated by former President Donald Trump's decision to leave the Paris Agreement (Bowman and Minas 2019). If properly funded, the GCF could be a major contribution to climate responses in the developing world, and an indication that the developed world recognizes the importance of its financial capacities in helping address climate change. Unfortunately, despite some contributions [very notably, one of former President Barack Obama's last actions in office—three days before leaving—was transferring $500 million USD to the GCF (Slezak 2017)], its underfunded status sends a considerably different signal to developing countries (Sprinz and Bünau 2012 point out that this reasoning links compensation with the policy pillar that was subsequently called Loss & Damage, discussed in the next subsection).

While the GCF is aimed at international distribution of funds for compensation and assistance, a more philosophically interesting institution tries to address the question of intertemporal distribution. In a series of articles, John Broome, both alone (2013, 2016) and with Duncan Foley (2016), has argued that the most important thing about climate change is that, if we are not able to address it at some cost to ourselves, perhaps we can address it at some cost to

future people. If both of these are options, then that presumes that there must be some ways of making future people pay. In other words, the proposal is that future people compensate *us* for mitigating climate change. (It is a second-best proposal according to Broome; he believes that the first best proposal would be that we mitigate now and pay for it ourselves. But in the absence of sufficient ambition, he believes that this is a good second-best proposal.)

His proposal raises two main questions: are there sufficient benefits to mitigating climate change to make this possible and, if so, what kind of institutions could result in something like future people paying?

The first question this proposal raises is whether it is feasible, i.e. whether we could be sufficiently compensated that we would be as well off, even given the costs of mitigation, and that the climate benefits to future people would be worth at least as much as their compensation to us. Broome's answer is straightforward: climate change is a large-scale externality, meaning that it is a harm that is not priced for the emitter. If emitters are rational, that implies that they would create much more climate change than would be socially optimal. In other words, if rational, the social costs are greater than the private benefits. So that means that reducing those extra emissions will generate more social gains than the cost to the emitters. In other words, there is a scope for overall gains by reducing emissions. At present, those gains are mostly felt in the future (and some by people who do not yet exist) and the costs of mitigation are mostly felt in the present. Broome proposes we can compensate the present for the costs of mitigation and, in theory, those costs are less than the social benefits (reduced climate change) so compensation from the future to the present could make everyone better off.

That leads to the second question: how could we do it? Obviously, such compensation is not causal: future people cannot affect the present (in particular, they cannot transfer funds to us!) Broome's mechanism is more subtle. He suggests that we can effectively have transfers from them to us by *reducing what we give to them*. What do we give to the future? On the one hand, we give all kinds of built and conventional capital (like roads, bridges and hospitals) as well as natural capital (like forests and biodiversity). Reductions in what we leave for the future is effectively a transfer from the future to ourselves. For instance, at a macroeconomic level, we can spend less maintaining built infrastructure and use the money saved to invest in green products and services. That effectively transfers from the future to the present (cf. Broome and Foley 2016 for more details).

There are many other complexities to the proposal. For instance, in order to cover the costs of behavioral changes, we might need funds that also (metaphorically) borrow from the future. Broome suggests that we would need long-term bonds that governments can credibly cover. Bond buyers will produce the funds now (and have to be promised a handsome payment later in a capitalist system to do so) and they have to be confident that their contracts will be honored. Broome and Foley (2016) suggest that we should have a large, trustworthy institution that they call a World Climate Bank that can ensure that the bondholders do not have to worry. But the purpose of the present chapter is not to cover all of these details; it is to indicate that,

at least in principle, an institution and set of policies have been proposed that would jointly generate compensation for current people to mitigate and make those the in the future pay for it (by receiving less of other things than they would have otherwise).

While this is not an exhaustive list, it is indicative of ways that compensation can be arranged in a forward-looking manner, generating incentives for current and future behaviors to be green and climate-friendly.

2.2. Backward-Looking Compensation Methods and Institutions

Beyond such forward-looking compensation methods, we might be interested in backward-looking compensation. In other words, we might be interested in compensation for climate harms that were caused by previous emissions. In this context, I will briefly draw on two theoretically important areas of discussion: climate litigation and the closely related policy pillar of Loss & Damage, because these areas are particularly interesting for environmental philosophers.

While some early optimistic accounts of the potential for climate litigation (Ganguly et al. 2018) may not have panned out, the new field of climate litigation is quickly growing. Although many closely-followed cases have been dismissed due to lack of standing (e.g. the Ninth Circuit's decision in *Juliana v. United States*), two cases in the Netherlands have yielded relevant and important decisions. These are cases where defendants were found to have breached a duty of care; this conclusion implied that they had to act more aggressively in terms of mitigation. On the one hand, these are not directly about compensation at this point. On the other hand, several authors in applied and political philosophy have expanded similar lines of reasoning to argue that compensation is due (cf. Grasso and Vladimirova 2019 and entries in Moss and Umbers, 2020, especially Moss 2020).

First, in *State of the Netherlands v. Urgenda*, the Supreme Court of the Netherlands found that the Dutch government had failed to sufficiently act in accordance with the threat of dangerous climate change. The Urgenda Foundation had argued that, partially because the Netherlands had committed to a carbon reduction target and partially because of the threats to human rights that dangerous climate change posed, the government had commitments to reductions which were beyond the reductions that had been achieved. The decision found that the limited actions violated a duty of care to Dutch citizens (van Zeben 2015).

Second, in *Milieudefensie et al. v. Royal Dutch Shell*, The Hague's District Court found that a private company (in this case, Royal Dutch Shell) could have obligations to reduce its emissions because they have an unwritten standard of care in Dutch civil law to help address climate change (Macchi and van Zeben 2021). This case also depended on the *Urgenda* decision, by linking dangerous climate change to potential human rights violations (even limited to Dutch citizens).

While these cases are bound up in specifically Dutch law, where international soft law plays a larger role than in many countries, it is very interesting that courts have found that both the government and private entities can be required to mitigate their emissions. While it is still contested whether or how these kinds of cases can apply in other jurisdictions and contexts, they give us some ideas about how the rapidly growing field of climate litigation could evolve.

The next set of policies that are of especial moral relevance revolve around what the United Nations Framework Convention on Climate Change process calls "Loss & Damage" (L&D). This term harkens back to legal theory, where damages are harms (usually of physical objects) that can be remedied or replaced whereas losses are absences (again, usually of physical objects) that cannot be replaced. For instance, the climate impact of a storm could be damage to a dwelling; that would be a harm; destruction of an artistic or historical artifact, in contrast, could constitute a loss. While L&D is a contested term (Boyd et al. 2017), in this context, the relevant issue is that these are often taken to be impacts of climate beyond adaptive capacity (Burkett 2014). In other words, we can see effects of climate change *beyond* both our ability to mitigate (that is, prevent climate change by reducing the greenhouse gases in the system) and our ability to adapt (that is, protect ourselves from extreme weather events associated with climate change) (Dow et al. 2013; Wallimann-Helmer et al. 2019). Intuitively, we can think of L&D as the effects of climate change that it is now too late to address.

It does not require a great argumentative leap to suggest that L&D should be addressed by support and compensation. Indeed, that is what many developing and small-island states have argued (Schinko et al. 2019; Sprinz and von Bünau 2012). Developed countries have responded that potential climate impacts beyond the ability to adapt should not be considered subject to liability or compensation. The result in the Paris Agreement was both inclusion of an article (article 8) for L&D (thus differentiating it procedurally and practically from existing mitigation and adaptation processes) and an explicit denial that this article constituted a basis for legal liability or compensation. Normatively speaking, Lees (2017) has pointed out that even if this article does not serve as a basis for legal liability, it could serve as a basis for (moral) *responsibility*.

The moral importance and interpretation of this negotiated outcome is open to question. On the one hand, many, especially the developing and small-island states, took L&D to be a basis for—if not synonymous with—financial compensation for harms beyond the capacity to adapt. On the other hand, we might think that some of the areas of coordination mentioned in the Paris Agreement (like emergency preparedness and risk insurance) could serve as indirect methods of compensation. This practically important policy issue has received disappointingly little attention from moral philosophers [some exceptions include Boran 2017, Garcia-Portela 2018, García-Portela 2020, McShane 2017, Roberts et al. 2017, Shockley and Hourdequin 2017 (and others in that special issue they discuss) and Wallimann-Helmer (2015)].

The most morally important issues here revolve around how L&D could conceptually be distinguished from mitigation and adaptation, whether there is different responsibility for funding along these different dimensions (and, if so, on what basis), and what epistemic

standards are appropriate or required to attribute L&D to different emitters. This is doubly important if we believe that there are distributive justice (as well as compensatory justice) reasons to compensate for L&D, given that these will occur disproportionately to countries that are already poorer and vulnerable.

4. Conclusions

The purposes of this chapter were to introduce two major questions in the context of climate compensation and to canvass some indicative answers to these two questions.

First, on which grounds might compensation duties be justified? Common answers include the polluter pays principle, the beneficiary pays principle and the ability to pay principle. A newer principle gives more guidance about compensation and justifies it in a different way; this principle is called the polluter pays, then receives principle.

Second, the chapter discusses examples of policies or institutions that could be used to make (compensatory) transfers. In terms of predominantly forward-looking policies or institutions, we might be interested in both international and intergenerational transfers. In this chapter, the example of an international transfer institution is the Green Climate Fund, which is meant to provide resources to countries which need support for mitigation and adaptation. The example of an intergenerational transfer institution is Broome and Foley's (2016) World Climate Bank.

In terms of predominantly backward-looking policies or institutions, this chapter introduces the burgeoning discussions of climate litigation and the policy pillar of Loss & Damage. Both of these are only currently being tested and refined; more moral interventions could be impactful in current policy discussions.

As climate change advances, we have to move beyond the issues of mitigation and adaptation; unfortunately, with the limited action so far, we can expect to see major climate impacts and harms being visited on many. In disproportionately many cases, this will exacerbate existing international inequalities. The moral, legal, and political importance of climate compensation—and the associated questions of the content and character of compensation duties—can only increase.

5. Cross-References

To Bourban (Mitigation) and Grasso (Adaptation). Also to Carducci (Climate Change and Legal Theory) and Obst (Responsibility for Climate Harms) and Wallimann-Helmer (Climate Change, Policy and Legitimacy).

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7. Index Terms (20-25 index terms)

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