

Close Examination of the Principle of Global Per-Capita Allocation of the Earth's Ability to Absorb Greenhouse Gas

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In this Article we attempt to narrow the gap between developed and developing countries' respective perceptions of justice in the context of climate change. We show that, in spite of its intuitive appeal, the equal per-capita argument is not grounded in any general moral principle and therefore cannot provide an answer to the question regarding what would be a fair allocation of emission rights. We argue that the underlying moral theory is global distributive justice theory, which unfortunately can only be of very limited help. We briefly discuss the various particular principles/considerations that are offered in the literature either in support or in criticism of the equal per-capita allocation and find that upon close analysis they generally support the developing countries' view, but not a per-capita allocation of emission rights. We conclude with a practical suggestion.

INTRODUCTION

Global greenhouse gas (GHG) emissions are about double the earth's absorptive capacity, resulting in a steady increase of atmospheric GHG concentration. There is a global consensus on the need to stabilize "greenhouse gas concentrations

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in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system,”¹ and that this implies holding “the increase in global average temperature below 2°C above preindustrial levels.”² Achieving this target most probably requires stabilizing CO₂-equivalent (CO₂-e) concentrations at 450 ppm.³ Considering that we are already at 440 ppm CO₂-e, and that 2.5 ppm is added each year, the 2°C target seems unrealistic.⁴ We will therefore assume the target to be 500 ppm CO₂-e, suggesting that emissions must peak in less than ten years.⁵

Reaching this target would incur significant costs, on the order of two percent of the global Gross Domestic Product (GDP) per year, assuming globally efficient abatement policies. Partial coverage, or even full coverage with non-harmonized mitigation schemes,⁶ would be much costlier than a uniform global mitigation scheme such as a global cap-and-trade regime⁷ or harmonized carbon taxes.⁸ Under a uniform global scheme, the marginal

1 United Nations Framework Convention on Climate Change, May 9, 1992, S. TREATY DOC. No. 102-38, 1771 U.N.T.S. 107, available at <http://unfccc.int/resource/docs/convkp/conveng.pdf> [hereinafter UNFCCC]. 194 states and one regional economic integration organization are parties to the UNFCCC, see *Status of Ratification of the Convention*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/essential_background/convention/status_of_ratification/items/2631.php (last visited July 17, 2012).

2 Conference of the Parties on Its Sixteenth Session, Addendum, Part Two: Action Taken by the Conference of the Parties, *Decision 1/CP.16: The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action Under the Convention*, art. I.4, U.N. Doc. FCCC/CP/2010/7/Add.1 (Mar. 15, 2011), available at <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=2>.

3 INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC), CLIMATE CHANGE 2007: SYNTHESIS REPORT (Abdelkader Allali et al. eds., 2007), available at http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf.

4 See NICHOLAS STERN, A BLUEPRINT FOR A SAFER PLANET 39 (2009).

5 *Id.* at 40.

6 For example, national caps on emissions with no ability to trade, or carbon taxes with rates that differ across countries.

7 Under a global cap-and-trade regime, a cap is set on the amount of GHG that can be emitted globally. This total amount is then allocated to countries in the form of permits to emit. The countries allocate, or sell, the permits to firms, which either use the permits for their own emissions or sell them to other firms for their use. This results in the placing of permits in the hands of the firms that value them the most, that is, it achieves GHG mitigation at the least cost to the world.

8 Under a harmonized carbon tax regime, the same tax is applied to GHG emissions

abatement cost would be equalized across countries, allowing the world to take advantage of the least costly mitigation opportunities first. Moreover, under partial participation, emissions leakage, that is, the increase in emissions by nonparticipating countries due to the global relocation of energy-intensive firms and increased use of fuels elsewhere as decreased demand in participating countries lowers world fuel prices, would make the cost even higher — possibly too high to be realistically considered, depending on which countries participate.⁹ In other words, under partial participation not only the 2°C target, but also the 500 ppm CO₂-e target, is unlikely to be met. International cooperation is therefore necessary to implement the least costly global abatement scheme. However, achieving cooperation is a daunting task, made even more difficult because of fundamental disagreement between developed and developing countries over the just allocation of costs.¹⁰

Agreement on what constitutes a just allocation of costs is crucial to reaching international cooperation on climate change mitigation. The reason is simple: Climate change is the purest possible example of a collective action problem. If countries behaved strategically, stabilization of GHG concentrations would not be achieved. Each country must be assured that all other countries will contribute their fair share. Countries that believe that the agreement is unfair will not sign it, or tend to shirk even if they do. Once countries start shirking, the entire agreement will collapse.¹¹

(sorted by type, if applied to additional types) all over the world. The tax is set at the level estimated to bring down global emissions to the desired level, reaching the same goal as cap and trade. The tax causes the polluter to internalize the harm, achieving GHG mitigation at the least cost to the world.

- 9 See Joshua Elliott, Ian Foster, Sam Kortum, Gita Khun Jush, Todd Munson & David Weisbach, *Unilateral Carbon Taxes, Border Tax Adjustments and Carbon Leakage*, 14 THEORETICAL INQUIRIES L. 207 (2013) (assessing the excess cost of partial coverage compared to a uniform global mitigation scheme).
- 10 See GRACIELA CHICHILNISKY & KRISTEN A. SHEERAN, *SAVING KYOTO* 124 (2009) (“[T]he conflict between the rich and the poor nations is the cause of Kyoto’s uncertain future”); ANDREW DESSLER & EDWARD A. PARSON, *THE SCIENCE AND POLITICS OF GLOBAL CLIMATE CHANGE* 188 (2010) (“The negotiations of mutual mitigation effort must address the conflict between industrialized and developing countries at the heart of the current deadlock”); RICHARD B. STEWART & JONATHAN B. WIENER, *RECONSTRUCTING CLIMATE POLICY: BEYOND KYOTO* 1 (2003) (“Developing countries have staunchly opposed any limitations obligations”).
- 11 See SCOTT BARRETT, *ENVIRONMENT & STATECRAFT*, at xiv (2003) (“Fair agreements are focal. They are also the only agreements likely to be self-enforcing — in the long run, anyway.”).

In light of the above, the question we present is how to allocate, across all countries, the right (e.g., permits) to emit GHG up to the point at which the GHG concentration in the atmosphere reaches 500 ppm CO₂-e. A very popular answer to this question is that all people have equal rights in the atmosphere and hence every person on earth has an equal right to emit GHG.¹² For practical reasons, it is assumed that although the rights belong to individuals, the permits would be allocated to countries according to the size of their populations (equal per-capita), because expecting individuals to trade permits on a global level is too complicated.¹³

The equal per-capita principle would require developed countries to transfer hundreds of billions of dollars, possibly much more, to developing countries, compared to the status quo, because developed countries generally emit, on a per-capita basis, much more than developing countries do.¹⁴ Unfortunately, wealthy countries such the United States and Western European countries have looming budget deficits and an uncertain economic future; hence, requesting such amounts would doom the negotiations to failure.

The equal per-capita principle has broad, strong, intuitive appeal and developing countries may feel that the developed countries are negotiating unfairly if they insist on keeping this principle off the table.¹⁵ Our goal in this Article is to increase the chances of cooperation by showing that in spite of

12 See Eric Neumayer, *In Defense of Historical Accountability for Greenhouse Gas Emissions*, 33 *ECOLOGICAL ECON.* 185, 187 (2000) (“That emission rights should be allocated on an equal per capita basis and that historical differences in emissions should also be accounted for is . . . the shared view of almost every scholar and policy maker from the developing world”). The claim that historical differences in emissions should be accounted for is beyond the scope of this Article. The claim that emission rights should be allocated on a per-capita basis may be interpreted as being more fundamental (or logically prior). Countries may be accused of emitting more than their fair share only in comparison to a benchmark. The equal per-capita argument allegedly provides such a benchmark, see Yoram Margalioth, *Assessing Moral Claims in International Climate Change Negotiations*, 3 *WASH. & LEE J. ENERGY, CLIMATE & ENV’T* 43 (2012).

13 See Simon Caney, *Climate Change, Energy Rights, and Equality*, in *THE ETHICS OF GLOBAL CLIMATE CHANGE* 77, 87 (Denis G. Arnold ed., 2011).

14 See Eric Posner & Cass Sunstein, *Climate Change Justice*, 96 *GEO. L.J.* 1565, 1608 (“The key point is that such an approach would represent a significant transfer of resources from the United States to other nations — indeed, the transfer would be worth hundreds of billions of dollars and perhaps more”).

15 See Luc Bovens, *A Lockean Defense of Grandfathering Emission Rights*, in *THE ETHICS OF GLOBAL CLIMATE CHANGE*, *supra* note 13, at 124, 127 (“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

its intuitive appeal the equal per-capita argument has no moral weight. It is meaningless, arbitrary. The argument is based on two preliminary, unsupported, assumptions: that earth's ability to absorb GHG is owned by people, and that it should be owned equally.

We could assume that the atmosphere belongs to no one, rendering the equal per-capita argument baseless, thereby justifying the current unequal use, where people (that can also be viewed in the aggregate as countries) differ greatly in their GHG emissions per capita, without having to pay anyone for their use of the atmosphere. Even if we assumed the existence of ownership, the equal per-capita argument by itself does not provide justification for the ownership rights to be equally allocated. The emptiness of an argument about equality that is not grounded in a general moral principle was stated by Thomas Nagel who noted that “[u]nless there is independent justification for equality, an equal distribution is just as arbitrary from a moral point of view as any other.”¹⁶ The “independent justification for equality” is most likely to be a theory of distributive justice which in the climate change context is a global one.

In Part I, we discuss and analyze the arbitrariness of the equal per-capita argument. We also show that accepting the argument would require revision of current international laws regarding the ownership of terrestrial sinks — an issue ignored in the public debate over the equal per-capita argument. In Part II, we discuss global distributive justice, the main candidate for a general moral theory that may explain our intuitive positive view of an equal per-capita allocation and point to its limits. In Part III, we address various other considerations that may be relevant in determining the just allocation of emission rights. Finally we conclude by suggesting that focusing international negotiations on a global harmonized carbon tax would enhance the chances of achieving global cooperation.

I. THE ARBITRARY NATURE OF THE EQUAL PER-CAPITA PRINCIPLE

No country can be in violation of an ethical norm regarding its current use of the atmosphere before we have decided what an ethical allocation of emission rights is.¹⁷ The popular argument that all human beings have equal rights in the

back emissions and any action by developing countries should be voluntary, since it is over and above the call of duty”); Neumayer, *supra* note 12.

16 Thomas Nagel, *Libertarianism Without Foundations*, 85 *YALE L.J.* 136, 148 (1975) (reviewing ROBERT NOZICK, *ANARCHY, STATE, AND UTOPIA* (1974)).

17 Once that is decided, it will be possible to further decide whether moral rights existed in the past (and how far in the past), or whether only to imply them in

atmosphere is implicitly based on two fundamental assumptions: first, that the atmosphere is owned by people, and second, that it should be owned equally. We could, however, launch our discussion from a different assumption: that the atmosphere belongs to no-one. In that case, the most likely derivation would be that people are free to emit on a first-come-first-served basis. Saying this would provide moral justification for the current unequal use.

Even if we assume that earth's ability to absorb GHG is owned by people, an argument that such ownership should be equally distributed requires an independent justification. All individuals (and the states that represent them in the aggregate) are the same in some respects, but different in others. The principle of equal per-capita emissions cannot determine which differences justify differential treatment and is therefore meaningless both in theory and in practice. It cannot provide an answer to any policy question, including the question regarding what would be a fair allocation of emission rights.¹⁸ Only a general moral theory of distributive justice can provide the answer.

Such a theory must be applied not only to the atmosphere but to earth's ability to absorb GHG emissions in its entirety. Some of the earth's GHG absorptive capacity is in natural sinks such as forests, lakes, and territorial seas, which are legally owned by sovereign states, whereas the oceans (outside the territorial sea baselines) are international territories. Trees, for example, perform photosynthesis, absorbing carbon dioxide from the atmosphere and releasing oxygen. Nevertheless, proponents of an equal per-capita allocation of emission rights do not argue that we should consider the absorptive capacity of natural terrestrial sinks as belonging to the international community rather than particular states.

Such a position cannot be defended. The GHG concentration in the atmosphere is determined by the entire climate system which includes the terrestrial sinks. When we say that people have equal rights in the atmosphere, we think of them as benefiting from their ability to emit GHG, subject to atmospheric GHG concentration limitations. The terrestrial sinks are part of the earth's climate system and directly affect GHG concentrations. The large forests and lakes are mostly gifts from nature, morally equivalent to the atmosphere. By not requiring GHG absorption by terrestrial sinks to be

the future.

- 18 See Thomas Griffith, *Should "Tax Norms" Be Abandoned? Rethinking Tax Policy Analysis and the Taxation of Personal Injury Recoveries*, 1993 WIS. L. REV. 1115 (1993) (demonstrating the point by analyzing the tax treatment of personal injury recoveries); Louis Kaplow, *Horizontal Equity: Measures in Search of a Principle*, 42 NAT'L TAX J. 139 (1989) (arguing against reliance on the principle of horizontal equity for tax policy purposes).

considered part of the global asset that must be divided equally, developing countries implicitly acknowledge that the earth's absorptive capacity does not have to be divided equally across people and the countries that represent them.¹⁹ In other words, they, too, do not follow the arbitrary rule of equal per-capita allocation and rely on other considerations instead.

We turn next to discuss and analyze those other considerations, starting with the general theory of global distributive justice.

II. THE DIFFICULTIES IN JUSTIFYING AN EQUAL PER-CAPITA ALLOCATION ON GLOBAL DISTRIBUTIVE JUSTICE GROUNDS

An equal per-capita allocation of permits to emit would transfer from countries with high per-capita emissions to countries with low per-capita emissions, compared to the status quo, namely, the current unrestricted emissions or limited under the Kyoto Protocol that uses 1990 emission levels as the baseline. Most GHG emissions are due to the use of energy and there is a positive correlation between energy consumption and wealth. Hence, assuming global distributive justice to be our guiding norm, an equal per-capita allocation would seem to be morally warranted.

There are at least two problems with justifying an equal per-capita allocation of emission rights on global distributive justice grounds, as follows.

A. There Is No Reason to Rely on a Proxy for Poverty Instead of Addressing Poverty Directly

The positive correlation between high per-capita emissions and wealth is irrelevant for global distributive justice purposes because we have better, more direct, indications of countries' wealth. When measuring the income or wealth of countries, we usually rely on Gross Domestic Product (GDP), or GDP per capita.²⁰ The correlation between emissions and wealth is far from perfect. Climate change is only one of many factors that affect a nation's

19 Accounting for GHG absorption by natural sinks that are located in the territory of a specific country could be done without infringing on its ownership rights regarding all other matters. It is only the absorptive capacity of the territory that would be considered to belong to the entire global population. All other rights in the property could remain unchanged.

20 See generally JEFFREY D. SACHS, *COMMON WEALTH: ECONOMICS FOR A CROWDED PLANET* (2008) (using GDP per capita throughout the book to compare the wealth of nations).

wealth.²¹ Global distributive justice calls for transfers from rich to poor. Such transfers should be based on the relative overall wellbeing of the poor and not on one specific factor. Some poor countries that incur significant adaptation costs will nevertheless be wealthier than other poor countries with lower climate-change-related costs.²² The latter should be helped first.

In fact, as observed by David Weisbach, there are many developing countries on the list of top emitters, especially if we take changes in land use into account, as we should.²³ In essence, it does not matter whether one contributes to the increased concentration of GHG in the atmosphere by emitting GHGs or by cutting down trees. Only the outcome matters. Using the data he found on emissions that included land use change, and the World Bank definition of high income as more than \$11,906 GDP per capita, Weisbach found that high-income countries among the top twenty emitters are responsible for thirty-six percent of cumulative emissions. Other countries contribute forty-one percent of cumulative emissions, and the results hold if we look at the entire list of countries.

Therefore, justifying equal per-capita allocation on global distributive justice grounds is problematic, because there are better, more direct, measures of wealth than GHG emissions per capita. One could argue that significant money transfers from rich to poor countries are politically infeasible whereas equal per capita emissions global scheme is, but this argument is highly debatable, and in any case it is a practical argument, not a moral one.

B. Global Distributive Justice is Controversial

The second, and more fundamental, problem with relying on distributive justice as a general normative theory to justify an equal per-capita allocation is that distributive justice does not necessarily apply to the global context. According to the moral theory developed by John Rawls, one of the most prominent and influential philosophers of modern times, distributive justice does not extend to foreigners.²⁴ Rawls's theory of justice applies only to

21 See *id.* at 230-31 (describing how escape from extreme poverty requires investment in things other than climate change).

22 See ERIC POSNER & DAVID WEISBACH, *CLIMATE CHANGE JUSTICE* 97 (2010) (“The point is that the distribution should be to the poorest states such as Bhutan, not the states that are hit hardest by the climate treaty, many of which will be middle-income or moderately poor”).

23 See David Weisbach, *Negligence, Strict Liability, and Responsibility for Climate Change*, 97 IOWA L. REV. 521 (2012).

24 See JOHN RAWLS, *THE LAW OF PEOPLES* (1999) (rejecting the idea of an indefinite international redistribution duty and the global application of his difference

fellow members of a society under one sovereign government. Globalization does not change this, as it merely creates economic interdependence across countries, which according to Rawls is not enough to make people in different countries become part of a unified society. International commerce creates a commitment to behave honestly, fulfill promises and act in good faith. But it is not enough to override the political duty of loyalty to needy compatriots.²⁵ Richard Miller articulates this, saying that it “would be like neglecting serious needs of a family member to express one’s departmental loyalty to a colleague with more serious needs.”²⁶

According to Rawls, what matters is shared political coercion. People who are subject to the same government and are forced to obey its laws are loyal to a shared political order and support the same institutions. Their loyalty is based on trust that the concern for all compatriots’ wellbeing is the rationale for all political choices taken. People living in different countries are not subject to a joint coercive authority and therefore are not morally entitled to its provisions. The meaning of having no moral obligation to redistribute across national borders is that, even if we acknowledge that people who live in rich countries do not deserve to be better off than people living in poor countries, as their wealth is the outcome of brute luck, they are nevertheless morally entitled to use their undeserved wealth to promote their personal goals.

It bears mention that significant transfers from rich to poor countries are indeed morally required. However, they are required not according to a global distributive justice theory, but on humanitarian grounds, such as cases of

principle, mainly due to the current lack of a world government and a global legal system). *But see* CHARLES BEITZ, *POLITICAL THEORY AND INTERNATIONAL RELATIONS* 144 (1979) (making a case for cosmopolitan justice, criticizing Rawls’s global justice theory and arguing that a global justice community has evolved with complex economic, political and cultural relationships); LOUIS KAPLOW, *THE THEORY OF TAXATION AND PUBLIC ECONOMICS* 379 (2008) (presenting the welfarist view that focuses on individual welfare, generally, viewing borders as meaningless for distributive justice purposes, subject to various considerations of incentives). We view the cosmopolitan and welfarist views on global distributive justice that require a global tax and transfer system as if the world were a single community to be too far from reality. We think that a moral theory should be one that people could live by. It should not make almost everyone immoral.

- 25 *Cf.* THOMAS POGGE, *WORLD POVERTY AND HUMAN RIGHTS* 122-23 (2008) (arguing that the global rich have violated a negative duty not to contribute to the imposition of a global institutional order that foreseeably and avoidably renders the basic socioeconomic rights of other human beings unfulfilled).
- 26 RICHARD MILLER, *GLOBALIZING JUSTICE* 46 (2010).

starvation or severe malnutrition.²⁷ Climate change could have such effects, and wealthy countries should help poor countries to finance the huge costs of adaptation, as preventive action is often more cost-effective than emergency action, and poor countries lack the necessary resources.²⁸ But if viewed in this way, the reason for redistribution would be humanitarian rather than the principle of equal per-capita emission rights.

III. OTHER CHALLENGES TO THE EQUAL PER-CAPITA ARGUMENT

Even assuming global distributive justice to be our guiding norm, an equal per-capita allocation of emission rights can be challenged, or at least would require significant adjustments to account for the following claims.

A. Differential Energy Needs

The equal per-capita allocation of emission rights ignores the fact that people in certain countries may need to consume more energy for reasons other than free choice. For example, Canada is much colder than many other countries, and people living there need to consume more energy for heating purposes. One could say that this is a matter of choice, as people could choose to emigrate.²⁹ The argument does not hold in reality, especially not in relation to energy consumption. The decision to emigrate is difficult and there are many morally sound reasons for people to continue to live in their country even if it is very cold or hot. We cannot seriously argue that all Canadians should leave Canada on a moral basis, because living there requires relatively high use of energy for heating purposes with the concomitantly high GHG emissions per capita, and that if they choose to live there, they should pay a tax in the

27 See Thomas Nagel, *The Problem of Global Justice*, 33 PHIL. & PUB. AFF. 113, 125-26 (2005) (drawing a distinction between humanitarian duties, which we owe to fellow human beings threatened with starvation or severe malnutrition, and obligations of justice, which are limited to the nation-state).

28 The poorest countries will be hit earliest and hardest by climate change, and they are particularly lacking the resources required to manage a changing climate, see POSNER & WEISBACH, *supra* note 22, at 21.

29 See Charles Tiebout, *A Pure Theory of Local Expenditures*, 64 J. POL. ECON. 416 (1956) (offering a model for local governance tax and expenditure policy, under which people choose where to live according to their preferences regarding the quality of services and the taxes that finance them).

form of having to buy emission permits from people in other countries to maintain the same subsistence level; that is, to stay warm.³⁰

On the assumption that emigration is not morally required, the high emissions are the outcome of an exogenous force, not of choice. This is a form of brute (bad) luck that justifies redistribution, assuming global distributive justice to be our guiding norm. In this case, the redistribution would take the form of being entitled to higher GHG emissions per capita.

Weather is only one possible exogenous difference between countries. There are likely to be others. Countries differ, for example, in the availability of renewable energy sources. Hydropower is by far the largest source of renewable energy, providing as much as six percent of electricity in the United States, but most countries have no access to sources of this type of energy.

B. Positive Externalities

Another argument against the morality of equal per-capita emission rights is that there is a positive correlation between high emissions per capita and innovation. According to this argument, Americans, for example, emit relatively much per person, but their high energy consumption level allows them to be more innovative and the rest of the world benefits from this innovation, thanks to positive spillovers.³¹

A consequence of this argument is that the world is better off when it allocates a greater share of the earth's absorptive capacity to countries that use this capacity to generate innovations that confer benefits, through positive spillovers, on the entire world. This can be morally justified because the entire world benefits. The extent to which the world benefits from such positive externalities must be measured to verify that the high emitters indeed have a comparative advantage over other nations in generating innovations. Moreover, other countries should be allocated enough emission rights to guarantee their equal opportunity to become an innovative country and change the status quo.

It should be noted, however, that although the connection between innovation and high energy consumption is intuitive, it needs to be supported for the argument to carry weight. For instance, the U.S. economy is mostly service-

30 See Henry Shue, *Subsistence Emissions and Luxury Emissions*, 15 *LAW & POL'Y* 39, 53-54 (1993) (distinguishing between subsistence and luxury emissions). According to Shue's terminology, Canadians have relatively more subsistence emissions as they need more energy to keep warm.

31 See Yoram Margalioth, *Taxing Multinationals: Policy Analysis with a Focus on Technology*, *BRIT. TAX REV.* 99 (2011) (emphasizing the importance of accounting for positive spillovers in international policy design).

oriented. Production has moved elsewhere. High U.S. emissions levels may have been justified in the past, but not today.

C. Reliance

The atmosphere is not the only case of a common pool resource. Many (simpler) problems of commons have been solved, such as overgrazing or overfishing. The solutions to these problems respected parties' past investments, which were made under the assumption that the resource would remain free. There may be a lesson we can learn here to guide our moral intuition in dealing with the allocation of GHG emission rights.³²

When a lake suffers from overfishing, the government usually imposes quotas on fishermen. As Luc Bovens noted,

[t]hese quotas are set relative to past usage, which in turn is determined by the size of their investments. . . . In each case, we need to cut back — but how should we cut back? Do we say that everyone in the vicinity — . . . fishers or not — should now have equal access to the . . . 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.³³

What would count as past investments in the context of climate change is unclear. The United States, for example, could possibly argue that in designing its sprawling cities, which rely heavily on the use of cars, the United States made an investment at a time when it was unaware of the climate change problem and should therefore be allowed to protect its investment by being allowed to maintain relatively high emissions per capita, at least during a

32 See Bovens, *supra* note 15, at 130-36. *But see* POSNER & WEISBACH, *supra* note 22, at 135 (providing strong arguments against making an analogy to property).

33 Bovens, *supra* note 15, at 131; *cf.* POSNER & WEISBACH, *supra* note 22, at 135 (arguing that if the people who use the commons have a legal right to use them, even based on customary use, the government would need to compensate them for giving up their rights. They further argue that under the law, the government does not have an obligation to distribute private property to everyone on an equitable basis.).

certain transition period.³⁴ Although this argument could justify a transition rule, it cannot justify continued investments in infrastructure alternatives that do not take climate change into account.

The reliance argument challenges the equal per-capita principle, or at least requires significant adjustments to it, because under the reliance argument emissions rights should be allocated according to past investments, not per-capita. Thus, for example, a country which based its economy on high usage of fossil fuels, before 1992, should be allowed a transition period of high per-capita emissions relative to countries that happened to rely on cleaner sources of energy due to reasons unrelated to climate change.

D. Differential Benefits

The benefits of mitigating emissions vary across countries. The 2°C target is a global average. For some countries, such as the Maldives, it will be too high, because they may be flooded before we reach that point, but for others, possibly the United States, it may be too low, depending on the costs of mitigation. The United States may argue that under equal allocation of per-capita emission rights, it is a net loser,³⁵ since in terms of present values the expected mitigation costs are higher than the expected benefits.

As it happens, developing countries are expected to gain more from climate change mitigation than developed countries. Poor countries will be the first to suffer because many of them are located in areas that are more vulnerable to climate change (for example, sea level rise), are relatively more dependent on agriculture, and have relatively fewer resources for adapting to climate change. Thus, even if the United States may not be a net loser, it and many other developed countries would be better off if the target were set higher, or stand to gain less than other countries from the 2°C target.

This raises an interesting moral question. A developed country — like the United States, for example — may argue that equity demands that individuals contribute to the financing of a public good in relation to the benefit they are expected to derive from it. The same is true for countries with respect to the global public good of GHG mitigation. Those who benefit more than others are required to contribute more, and vice versa.³⁶ In other words, rich countries can morally argue that they deserve a greater allocation of emission rights

34 See POSNER & WEISBACH, *supra* note 22, at 136.

35 See *id.* at 121; POSNER & SUNSTEIN, *supra* note 14, at 1568.

36 See STEVE VANDERHEIDEN, *ATMOSPHERIC JUSTICE* 107 (2008) (“Fair shares, therefore, are not necessarily equal shares . . .”).

than poor countries because they will not benefit as much as poor countries from climate change mitigation.

This, however, is not the entire picture. The argument would be morally sound had the United States not contributed to the creation of the problem by emitting GHG. But it did and still does. This makes it an argument about power in negotiations, not a moral argument. By making this argument, which is especially powerful if the United States can prove that it is a net loser under the equal per-capita allocation, the United States is exploiting its relative power, or in other words, the greater climate change vulnerability of the other parties to the negotiations.

We can try to clarify the two facets of the argument through the following example. Imagine two prisoners sitting in their cell, eating and talking. Next to them is a wastebasket containing some food leftovers that smell terrible. Prisoner A cannot stand the smell. He suffers enormously. Prisoner B, on the other hand, has lost most of his ability to smell and therefore does not suffer as much. The basket is heavy and getting it out of the cell would require a huge effort if undertaken by one person, considerable but nevertheless less effort if undertaken by two. Prisoner A asks prisoner B to help him carry the basket, but prisoner B refuses, saying he can hardly smell anything. At this point, prisoner B's argument can be considered moral (barring distributive justice). He has little to gain and a lot to lose because the basket is heavy. However, if we assume that prisoner B is responsible for much of the garbage, then his refusal to help carry the basket becomes immoral, and if he asks prisoner A to pay him for helping him carry the basket, B would be taking advantage of his comparative power in a negotiation.

To the extent that we take account of differential benefits, we must deviate from the equal per-capita principle, which is implicitly based on the assumption that all human beings benefit from climate change mitigation to the same extent.

E. Countries Differ in Their Opportunity Costs

Developing countries have greater opportunity costs. The money spent on GHG mitigation could be spent on alleviating extreme poverty and its consequences.

This argument works in the opposite direction to the previous argument that countries differ in the benefits they derive from climate change mitigation. The 2°C target, a global average, is higher than optimal for the developing countries as a group due to their relatively greater vulnerability to climate change. But it is lower than optimal for them (as a group) due to their higher opportunity costs with respect to the money spent on mitigation.

To the extent we take account of differential costs, we must deviate from the equal per-capita principle, which is implicitly based on the assumption that

all human beings bear the same costs of climate change mitigation, focusing only on the benefit side.

CONCLUSION

We started the discussion by taking an analytic look at the equal per-capita principle, exposing its theoretical emptiness. We realized that we have to look deeper for normative guidance. The answer probably lies in a theory of global distributive justice. In the last Part of the Article we assumed there is such a theory, and showed that even then the equal per-capita principle may be challenged, or at least requires various significant adjustments.

The main problem, however, is that it is unclear whether we have a global distributive justice theory. There are philosophers, cosmopolitans and welfarists who believe that, from a moral point of view, borders are meaningless and that we can apply the same distributive justice theory we have for national purposes to the global context. Others think that because there is no world government, there is no global society; hence, no national justice theory can be applied at the global level.

Countries certainly do not behave as if they applied the same distributive justice theory to the national and international contexts. Most countries, especially in the developed world, spend at least a third of their budgets on redistribution, but very little, both absolutely and as a percentage of GDP, goes to foreign aid. Some may think that things are different in the context of climate change, because nearly all countries of the world signed the United Nations Framework Convention on Climate Change of 1992 (UNFCCC).³⁷ The convention's first principle states: "The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their *common but differentiated responsibilities and respective capabilities*."³⁸

Reality, however, tells a different story, at least so far. The rich countries may have had a "warm moment" in 1992; it certainly helped that the UNFCCC included no specific details or commitments and was not even presented as legally binding in any meaningful way. The only sums that have been seriously committed so far are \$30,000,000,000 for adaptation purposes. This is in

37 UNFCCC, *supra* note 1.

38 *Id.* art. 3.1. (emphasis added); see Lavanya Rajamani, *The Principle of Common but Differentiated Responsibility and the Balance of Commitments Under the Climate Regime*, 9 REV. EUR. COMMUNITY & INT'L ENVTL. L. 120 (2000) (providing a classic interpretation of this provision as being intended to promote global distributive and corrective justice goals).

accord with the moral theory of the statist who support only minimal global distributive justice requiring transfers for humanitarian reasons.

Our suggestion, therefore, is to refrain, as far as possible, from going into the ethical issues in international climate change negotiations. This means, above all, avoiding discussions of global cap-and-trade policy, as this would lead the negotiators directly to the question regarding allocation of emission rights, which, as we see, leads to a deadlock.

We suggest that focusing instead on a harmonized carbon tax may enable more fruitful negotiations. Developing countries are more likely to agree to a global harmonized carbon tax, with each country retaining its tax revenue, than to any form of a global cap-and-trade regime short of one that involves an equal per-capita allocation, which is unacceptable to the United States. The reason is simple. Under a cap-and-trade regime, when a developing country such as China or India experiences economic growth that is relatively greater than that experienced by developed countries, it emits more GHG. Under a cap-and-trade regime, it is then required to purchase permits from developed countries. Under a harmonized carbon tax regime, it would pay more carbon taxes, but the tax revenue would be retained by its own treasury. This makes a huge difference and is likely to be the key to achieving global cooperation.³⁹

39 See Yoram Margalioth, *Tax Policy Analysis of Climate Change*, 64 *TAX L. REV.* 63, 70 (2011).