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Climate Change, Human Rights, and Technology Transfer

Normative Challenges and Technical Opportunities

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I INTRODUCTION

This chapter will review the broad strategy to link human rights and climate change, focusing specifically on how well the strategy works to strengthen obligations on developed countries to transfer technology that can reduce or mitigate the effects of increased carbon emissions. Elements of this strategy include regulatory action such as exceptions to patent protection, performance and technology transfer requirements for investments, compulsory licensing, price controls, and other measures¹ to make climate technologies available and affordable for the populations that need them most. The chapter posits that the state-centered “development” approach that has dominated both economic development and climate discourse to date has failed to provide a sufficient foundation for realistically addressing the issue of technology transfer.²

This chapter argues that the human rights approach solves two key problems that the development framework does not. First, it enables differentiation to take place, not between states, but between more vulnerable and less vulnerable populations within countries. It thus enables a focus on the most vulnerable populations, and in doing so also provides a basis for limiting the scope and nature of the demand for technologies to address climate change. Second, by limiting the scope of needed

¹ This includes such tools that were historically used by countries to promote their development and move up the technology value chain: patent working requirements, patent revocations, antitrust measures, reduction of patent terms, and joint venture requirements for foreign direct investment. For a full listing and discussion of these measures, see D. Shabalala, *Climate Change, Technology Transfer and Intellectual Property: Options for Action at the UNFCCC* (Maastricht: Maastricht University, 2014), pp. 263–97.

² Transfer happens when technology is first transferred from one country to another and is then adopted by public or private firms, being built into either their means of producing products and services or into the products and services themselves. It involves transfer of goods, craft knowledge, and scientific and technical information.

technologies, a human rights approach makes it more likely that such technologies will be made available to populations in need. If they are not, and lower-resource governments must act to secure climate change mitigation technologies for their citizens, the human rights approach will limit the grounds upon which actors in developed countries can challenge these decisions.

The United Nations Framework Convention on Climate Change (UNFCCC), ratified in 1992, is the international treaty framework that governs global efforts to combat climate change. This treaty uses a state-centered development framework for its legal and political framework of duties and rights,³ with the unit of analysis being the state for both climate mitigation⁴ and adaptation. The 1997 Kyoto Protocol governs the UNFCCC States Parties' legal obligation to limit greenhouse gas GHG emissions as measured at the economy level.⁵ The UNFCCC also creates a state-to-state obligation to provide technological and financial support for climate change mitigation and adaptation.⁶

The development approach embodied in the UNFCCC aggregates needs and achievements at the national level rather than focusing on various strata of society that often do not evenly embody the risks and benefits of technological, social, and environmental change. Cost-benefit calculations can end up obfuscating the losses suffered by some portion of the population by counting the benefits to other portions of the population against them. This is particularly problematic from a human rights perspective when the portion of the population that suffers the loss is already disadvantaged while the portion that benefits is already privileged.

A human rights approach ensures that the individual rather than the nation as a whole is the primary beneficiary of actions that include technology transfer. It strengthens the fairness claim from both sides: developing countries can make a strong claim that any action they take is in the interests of specific vulnerable populations, and that they are not engaging in pure protectionist mercantilism or industrial policy favoring well-connected industrial actors. Developed countries providing financial and technological support can insist that this support be targeted primarily at vulnerable populations, making it easier to justify the spending to their citizens.

The effectiveness of this fairness claim is directly linked to the instrumental effect of a human rights approach. The human rights approach shifts away from the question of state-to-state obligations and instead asks the more direct question about

³ See United Nations Framework Convention on Climate Change ("UNFCCC"), New York, May 9, 1992, in force March 21, 1994, 1771 UNTS 107, arts. 4.1(c), 4.3, 4.5, and 4.7.

⁴ Climate mitigation refers to efforts to reduce or prevent emissions of greenhouse gases through development, deployment, and use of technologies or changes in economic behavior. United Nations Environment Programme, "Climate Change Mitigation," www.unep.org/climatechange/mitigation/.

⁵ Kyoto Protocol to the United Nations Framework Convention on Climate Change ("Kyoto Protocol"), Kyoto, Japan, December 10, 1997, in force February 16, 2005, 2303 UNTS 148.

⁶ See UNFCCC, art. 4.1(c).

who within each country should be the recipient of technology transfer aimed at fulfilling rights. This has several effects. Most importantly, it removes the danger of cost-benefit calculations that try to aggregate gains and allow particular individuals or groups to be sacrificed for the sake of the general welfare. It also removes from the set of options those that would more negatively impact vulnerable populations. A classic example of this is hydroelectric dam construction that involves the forced resettlement and land dispossession of marginalized communities. While the electricity generated may be cleaner and result in lower emissions, thus meeting the country's obligations in the UNFCCC, the displacement and dispossession inflicts irreversible harms on those affected by it.

The human rights approach solves another core problem in climate technology transfer: how to limit the scope of technologies for which action is needed and justified. At the aggregate level, the scope of technologies necessary to achieve climate mitigation and adaptation within the necessary time frames is enormous. There is no global or UNFCCC coordinating principle or mechanism for identifying and prioritizing technology needs in developing countries. This leaves decisions about which technologies to pursue at the discretion of *demandeur* developing countries, and the decision about whether to provide technology at the discretion of developed countries. This chapter argues that by focusing on impacts as felt by individuals on the ground, a human rights approach provides such a mechanism for prioritizing technologies needed to address climate impacts.⁷

The next section of this chapter describes the limits of the development framework, tracing it from its roots in postcolonial demands for a New International Economic Order (NIEO) to the bargains embodied in multilateral environmental treaties. The subsequent section describes the two key problems posed by the approach within the UNFCCC: the fairness issue and the scope of technologies. The final section discusses the ways in which a human rights approach could solve some of the problems inherent in the development approach.

II THE LIMITS OF THE DEVELOPMENT APPROACH

A Modernization and Development

The increase in GHG emissions since the advent of the industrial revolution can largely be attributed to the economic activity of what we now call developed countries,⁸ which are somewhat coextensive with political groupings such as the

⁷ There is, of course, a direct link between mitigation and adaptation. The faster and more extensively greenhouse gas mitigation action takes place, the lower the likely cost of action to address adaptation will be. As I note below, some impacts will be unavoidable no matter how much mitigation takes place.

⁸ The historical responsibility of developed countries amounts to almost 79 percent of all greenhouse gas emissions in the period from 1850 to 2011. See Centre for Global Development,

G7 and the Organization for Economic Cooperation and Development (OECD).⁹ The definition of this group of early industrializers significantly overlaps with the colonial powers that dominated Africa, Asia, and South America through the middle of the twentieth century.

This chapter makes significant claims around differential treatment of populations in developing countries. There is a long history of similarly categorizing nations, whatever the limitations of such schema may be. At the height of the Cold War, for instance, public discourse in journalism and political science divided states into the First, Second, and Third Worlds.¹⁰ The Third World referred to those countries that remained colonized, or had recently been decolonized and remained on the periphery of world economic affairs, consisting of all of Africa, all of Asia (sometimes including Japan), and all of South America.¹¹ Second World referred to the specific group of Eastern European and Soviet-orbit countries, and First World referred primarily to the industrialized countries of the Western Hemisphere, encompassing Western Europe and the United States, but also Australia and New Zealand. In economics, the use of terms such as “industrialized,” “industrializing,” and “nonindustrialized” became more prevalent in the late 1970s and early 1980s, given the need for more objective descriptors of the economic status (as opposed to the geopolitical status) of different countries.¹²

This chapter traces the trajectory of the shift toward differentiation within and between developing countries. The term “developing country” fully came to the fore in 1974 with the publication of the United Nations Declaration for a NIEO.¹³ The Declaration did not define the term “developing country” except to frame it with regard to those countries that had received their freedom from

“Developed Countries Are Responsible for 79 Percent of Historical Carbon Emissions,” August 8, 2015, www.cgdev.org/media/who-caused-climate-change-historically (citing CO₂ emissions excluding LUCF [CAIT v2.0]).

⁹ The OECD consists of thirty-five industrialized countries, primarily in Europe and North America, but also encompassing Australia, Israel, Japan, Korea, Mexico, New Zealand, and Turkey. See OECD, “Members,” www.oecd.org/about/membersandpartners/. The group is largely self-selected, not simply as an outcome of the discourse of the postcolonial international political order but also as a creation of membership requirements. The members are defined as “developed economies,” with three members defined as “emerging economies”: Chile, Mexico, and Turkey.

¹⁰ See, e.g., L. Wolf-Phillips, “Why Third World?: Origin, Definition and Usage” (1987) 9(4) *Third World Quarterly* 1311–27 at 1313.

¹¹ C. S. Clapham, *Third World Politics: An Introduction* (Madison: University of Wisconsin Press, 1985), p. 1.

¹² See, e.g., E. Ferrill, “Clearing the Swamp for Intellectual Property Harmonization: Understanding and Appreciating the Barriers to Full TRIPS Compliance for Industrializing and Non-Industrialized Countries” (2006) 15 *University of Baltimore Intellectual Property Law Journal* 137–70 at 141.

¹³ UN General Assembly Resolution 3201 (S-VI), *Declaration on the Establishment of a New International Economic Order*, U.N. Doc. A/RES/S-6/3201 (May 1, 1974) (“NIEO”). For a fuller discussion, see also M. Bedjaoui, *Towards a New International Economic Order* (New York: Holmes and Meier, 1979).

colonialism.¹⁴ The term “developing country” has now come to be used in conjunction with two other terms: “developed country” and “economy in transition.” Usually, within the category of developing economies there is also a subset of least-developed countries (LDCs). LDCs are the only set of countries for which there is a legal, international definition within the UN system, under the responsibility of the UN General Assembly Committee for Development Policy.¹⁵ LDC status does not legally require states to provide special measures to support these countries either bilaterally or multilaterally, but the clear demarcation and process makes it possible to do so where countries and international organizations wish.¹⁶

The broader category of “developing countries,” in contrast, has no legal basis as such, but nonetheless is commonly used in discourse about international political economy in the United Nations and other international organizations. The Bretton Woods institutions (the World Bank and the International Monetary Fund) recognize the existence of the category of developing countries, primarily through differentiated status for concessionary lending for what it defines as lower-income countries, blended lending for lower-middle-income countries, and nonconcessionary lending for upper-middle-income countries.¹⁷ The World Trade Organization (WTO) also recognizes the distinction between developed and developing countries, categories into which countries self-select.¹⁸

In the UN General Assembly, developing countries self-define as the Group of 77 plus China. The G77 was established at the first meeting of the UN Conference on Trade and Development in 1964 and originally consisted of seventy-seven developing countries, defined as such by a joint declaration.¹⁹ The membership is

¹⁴ “The greatest and most significant achievement during the last decades has been the independence from colonial and alien domination of a large number of peoples and nations which has enabled them to become members of the community of free peoples. Technological progress has also been made in all spheres of economic activities in the last three decades, thus providing a solid potential for improving the well-being of all peoples. However, the remaining vestiges of alien and colonial domination, foreign occupation, racial discrimination, apartheid, and neo-colonialism in all its forms continue to be among the greatest obstacles to the full emancipation and progress of the developing countries and all the peoples involved.” NIEO, art. 1.

¹⁵ See UN Development Policy and Analysis Division, “LDC Identification Criteria & Indicators,” www.un.org/development/desa/dpad/least-developed-country-category/lcd-criteria.html.

¹⁶ See Committee for Development Policy and the UN DESA, *Handbook on the Least Developed Country Category: Inclusion, Graduation and Special Support Measures*, 2nd ed. (Geneva: United Nations, 2015), pp. 11–12.

¹⁷ See World Bank, “Country and Lending Groups,” <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519>.

¹⁸ World Trade Organization, “Who are the developing countries in the WTO?” www.wto.org/english/tratop_e/devel_e/diwho_e.htm.

¹⁹ *Joint Declaration of the Seventy-Seven Developing Countries Made at the Conclusion of the United Nations Conference on Trade and Development*, U.N. Doc. E/CONF. 46/138 (1965).

now 133 self-selected countries, primarily former colonies.²⁰ Membership in the G77 provides no specific legal status in the United Nations or other organizations, but provides a mechanism for this group of countries to make demands on “developed” countries on the basis of justice, fairness, and other principles, and to use their common weight to try to influence outcomes in international negotiations and decision-making bodies.

The G77 negotiates as a group to represent common interests in several organizations, such as the UNFCCC,²¹ but does not serve as the sole organizational mechanism for developing countries. Within the broader UN system, countries are also categorized using the Human Development Index (HDI), labeled as having a low, medium, high, or very high level of human development.²² The various methods of categorizing countries have significant overlap. The nations that rank lowest on the HDI tend to be LDCs, while those that rank in the middle of the HDI tend to be the same ones that lie between the least and most economically developed. A high or very high human development score tends to be associated with a high level of economic development.²³

The existence of intermediate categories of developing countries, such as “emerging economies,” “economies in transition,” “middle-income countries,” and BRICS,²⁴ is more than just an attempt to do a better descriptive job. Rather, it poses a challenge to the very concept of a cohesive set of developing countries with common interests largely defined against the interests of developed countries. The differentiation plays out in unique ways in various international fora. In this chapter, when discussing a specific forum, I will specify the ways in which it makes the distinction, but will generally refer to the broad categories of developed and developing countries.

In the WTO regime, specific differential treatment for developing countries is generally called special and differential (S&D) treatment.²⁵ S&D policy usually provides developing countries (mostly former colonies) more time and financial assistance to comply with international economic obligations. S&D treatment is

²⁰ See *The Group of 77 at the United Nations*, www.g77.org/doc/members.html.

²¹ “Party Groupings,” *United Nations Framework Convention on Climate Change*, http://unfccc.int/parties_and_observers/parties/negotiating_groups/items/2714.php.

²² See United Nations Development Program, “Internal Human Development Indicators,” <http://hdr.undp.org/en/countries>.

²³ For example, looking at BRICS, India and South Africa have a medium HDI, whereas Brazil and China have a high HDI. Russia has a very high HDI.

²⁴ BRICS is a group of countries – Brazil, Russia, India, China, and, more recently, South Africa – identified by Jim O’Neill of Goldman Sachs as having significant economic growth rates and increasing influence in the global economy. J. O’Neill, “Building Better Global Economic BRICS,” *Goldman Sachs Economic Research Group Global Economics Paper no. 66* (London: Goldman Sachs Economic Research Group, 2001), p. 4.

²⁵ See, e.g., World Trade Organization, “Special and differential treatment provisions,” www.wto.org/english/tratop_e/devel_e/dev_special_differential_provisions_e.htm.

accorded to developing countries under several of the WTO-covered agreements.²⁶ The WTO officially recognizes LDCs as a group within it based on the UN Committee on Development Policy List,²⁷ and these countries are entitled to additional concessions.²⁸ The justification for S&D treatment is that these countries are saddled by the ongoing and pernicious aftereffects of colonialism, which continue to retard their development. This policy is based in part on fairness claims; i.e., that differently situated and less capable countries should not be subject to the same obligations in international arenas as developed countries. It is also based on justice; i.e., that developing countries are owed some form of restitution and aid because developed countries dominate the current economic landscape based on their past success exploiting the natural resources and populations of their colonial holdings.

The demand for policies giving special treatment to developing countries was most strongly expressed in the NIEO.²⁹ The NIEO drew on traditional modernization theory,³⁰ which viewed industrialization as a stepwise process by which countries moved up the value chain from primary commodity producers to value-added manufactured product producers, resulting in a “modern” industrialized society. A key to modernization was integrating technology into production processes and relinquishing traditional extractive modes of economic activity. At the same time, dependency theory also gained traction as a critique of the international economic system, arguing that developed countries had deliberately deindustrialized their former colonies in order to ensure access to raw materials and ready markets for their own finished industrial products.³¹

These twin economic theories/ideologies framed the NIEO. On the one hand, modernization theory was an argument for access to similar opportunities to develop along the same paths and using the same policies historically available to developed economies, without having to adhere to newer rules and having limitations imposed. On the other hand, dependency theory was an argument for restitution for the deliberate damage caused by developed economies during their periods of colonial and postcolonial exploitation.

These twin strains can be seen in the text of the NIEO, which, among other things, demands sovereignty over all natural resources and the right to nationalize,

²⁶ Ibid.

²⁷ See Committee for Development Policy and the UN DESA, *Handbook on the Least Developed Country Category*.

²⁸ World Trade Organization, “Least-Developed Countries,” www.wto.org/english/thewto_e/whatis_e/tif_e/org7_e.htm.

²⁹ NIEO.

³⁰ See, e.g., D. C. Tipps, “Modernization theory and the comparative study of national societies: A critical perspective” (1973) 15(2) *Comparative Studies in Society and History* 199–226 at 208–10.

³¹ See, e.g., T. Smith, “The Underdevelopment of Development Literature: The Case of Dependency Theory” (1979) 31(2) *World Politics* 247–88 at 249.

free from external coercion by other states;³² the right to restitution and compensation for colonialism;³³ fair and equitable pricing of raw minerals and resources in international markets;³⁴ special and differential, or preferential, treatment for developing countries in all international economic institutions; and, most importantly: “Giving to the developing countries access to the achievements of modern science and technology, and promoting the transfer of technology and the creation of indigenous technology for the benefit of the developing countries in forms and in accordance with procedures which are suited to their economies.”³⁵

This demand for transfer of technology as a means of achieving development was central to the vision of the NIEO, yet there is still no universally recognized or legally enforceable definition for what technology transfer is or what form it must take. In this chapter, the term “technology transfer” refers to the flow of technological goods and knowledge across borders.³⁶ Transfer happens when technology and associated know-how are first transported from one country to another and then adopted by public or private firms. The technology can either be built into the means of production (i.e., industrial or economic processes), or built into the products and services themselves. The clearest and most well-articulated provisions for technology transfer in the environmental arena can be found in Chapter 34 of Agenda 21 of the 1992 Rio Declaration on Environment and Development.³⁷ The language in Agenda 21 has been a guide for the kinds of actions expected of developed countries in multilateral environmental treaties, wherein developed countries agree to provide technology transfer in exchange for developing country participation in efforts to mitigate climate change. The NIEO vision lines up with the broader approach of Agenda 21, focusing on free or low-cost access to technology and relaxation of intellectual property restrictions.

The NIEO vision has been consistently resisted by developed countries as an imposition on the legitimate intellectual property rights of their corporations, especially in international fora such as the United Nations Conference on Trade and Development (UNCTAD)³⁸ and the World Intellectual Property Organization (WIPO). That resistance led to the failure to adopt the Draft Code of Conduct of

³² NIEO, art. 4(e).

³³ *Ibid.* art. 4(f).

³⁴ *Ibid.* art. 4(j).

³⁵ *Ibid.* art. 4(p).

³⁶ This discussion on definitions is drawn from D. Shabalala et al., “Climate Change, Technology Transfer and Human Rights,” Working Paper, CIEL/ICHRP (2010), www.ichrp.org/files/papers/181/138_technology_transfer_UNFCCC.pdf.

³⁷ United Nations Division of Sustainable Development, *Agenda 21: The Rio Declaration on Environment and Development, Adopted at United Nations Conference on Environment and Development (UNCED)*, Rio de Janeiro, June 3–14, 1992 (Geneva: United Nations 1992), <http://sustainabledevelopment.un.org/index.php?page=view&nr=23&type=400&menu=35>.

³⁸ For more on this history, see P. G. Sampath and P. Roffe, “Unpacking the International Technology Transfer Debate: Fifty Years and Beyond,” Working Paper (International Centre for Trade and Sustainable Development, 2012).

International Transfer of Technology³⁹ in 1985, despite formal negotiations that had been ongoing since 1976.⁴⁰ That resistance also resulted in the failure of WIPO to adopt true S&D treatment provisions after the minimal achievements of the 1967 revisions of the Berne Convention⁴¹ and the Paris Convention⁴² in Stockholm.

By the time the 1971 revisions to the Berne and Paris Conventions were being considered, developing countries had become the majority of members in WIPO and could block any further adoption of stronger intellectual property protections that did not take their concerns into account. This majority of developing countries⁴³ influenced internal processes in most UN-affiliated international institutions, which operated on a one-country, one-vote structure. Developing countries could block further decision-making, but they could not impose their will on developed countries, because those countries would simply not negotiate or refuse to join treaties on economic matters proposed by developing countries. This developing country veto blocked any further norm-setting in WIPO. It also meant that developed countries had few venues for further development of norms on intellectual property other than bilateral mechanisms.

Developed countries retained primary decision-making power in the Bretton Woods institutions (the World Bank and the IMF) and the General Agreement on Trade and Tariffs (GATT), however, where clout was determined by levels of financial contribution. As these institutions gained prominence in the 1980s, the desire for access to the low trade tariffs enjoyed by developed country GATT members was a key impetus for developing countries to participate in the Uruguay Round of negotiations that led to the creation of the World Trade Organization⁴⁴ and resulted in the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).⁴⁵

³⁹ UNCTAD, "Compendium of International Arrangements on Transfer of Technology: Selected Instruments – Relevant Provisions in Selected International Arrangements Pertaining to Transfer of Technology," UNCTAD/ITE/IPC/Misc.5 (Geneva: UNCTAD, 2001), www.unctad.org/en/docs/psiteipcm5.en.pdf.

⁴⁰ See Sampath and Roffe, "Unpacking the International Technology Transfer Debate" at 26.

⁴¹ Berne Convention for the Protection of Literary and Artistic Works, Berne, Switzerland, September 9, 1886; revised at Berlin, November 13, 1908; completed at Berne, March 20, 1914; revised at Rome, June 2, 1928; at Brussels, June 26, 1948; at Stockholm, July 14, 1967; at Paris, July 24, 1971; and amended September 28, 1979, 1161 UNTS 3.

⁴² Paris Convention for the Protection of Industrial Property, Paris, March 20, 1883; as revised at Brussels, December 14, 1900; at Washington, DC, June 2, 1911; at The Hague, November 6, 1925; at London, June 2, 1934; at Lisbon, October 31, 1958; and at Stockholm, July 14, 1967; and as amended September 28, 1979, 828 UNTS 107.

⁴³ As was established at the 1964 UNCTAD Conference. See *Joint Declaration of the Seventy-Seven Developing Countries*, U.N. Doc. E/CONF. 46/138 (1965).

⁴⁴ Marrakesh Agreement establishing the World Trade Organization, Marrakesh, April 15, 1994, in force January 1, 1995, 1867 UNTS 4 ("WTO Agreement").

⁴⁵ Agreement on Trade-Related Aspects of Intellectual Property ("TRIPS"), Annex 1C to the Marrakesh Agreement establishing the World Trade Organization ("WTO Agreement"), Marrakesh, April 15, 1994, in force January 1, 1995, 1867 UNTS 4.

S&D treatment was enshrined in TRIPS, which laid out minimum standards for intellectual property protections in all countries but was limited to additional transition time from old rules to new ones, primarily for the subgroup of LDCs.⁴⁶ TRIPS provided for longer transition periods, but only a five-year period was provided for most developing countries.⁴⁷ In order to extend patent protection to products in addition to processes, countries such as India had only a ten-year transition. Only the LDCs received a full transition period of ten years for the entire agreement; this period has since been extended twice.⁴⁸

TRIPS represents an almost complete transition in international economic policy from a system that provided some, albeit limited, recognition of fairness and justice claims by developing countries to one that now largely elides such differences in favor of harmonization. The dispute settlement mechanism at the WTO, which provides for financial sanctions for noncompliance, poses some of the strongest restrictions on policy discretion that developing countries have experienced since their independence. There remains some room for taking action around compulsory licensing, but the use of historically available measures to enable technology transfer – e.g., exclusions from patentability, local working requirements, exceptions to patent rights – was severely curtailed by TRIPS.⁴⁹

Nevertheless, the demand for and discourse around S&D treatment have permeated other regimes in international law and remain a potent force in the environmental arena. The next section discusses how this development framework has also led to an impasse in international environmental negotiations.

B *Environment, Development, and Climate Change*

1 Differentiation, Fairness, and Justice Claims in the UNFCCC Framework

Differential categorization of developing countries – whether they are “middle income,” “emerging,” or “in transition” – is the backdrop for current debates regarding which countries are obligated to immediately take the first steps to address climate change and which should be given a grace period to start this process and be entitled to financial assistance from developed countries to meet their obligations. In that debate, “middle income,” “emerging,” “industrializing,” or “newly industrialized” economies like India, China, Mexico, Argentina, Brazil, South Africa,

⁴⁶ Identification as a developing country is a matter of self-selection. See World Trade Organization, “Least Developed Countries,” www.wto.org/english/thewto_e/whatis_e/tif_e/org7_e.htm.

⁴⁷ TRIPS, art. 65.

⁴⁸ “Extension of the Transition Period under Article 66.1 of the TRIPS Agreement for Least Developed Country members for Certain Obligations with respect to Pharmaceutical Products: Decision of the Council for TRIPS of November 6, 2015,” WTO, IP/C/73 (November 6, 2015).

⁴⁹ See Shabalala, *Climate Change, Technology Transfer and Intellectual Property*, p. 363.

Taiwan, and Singapore are now seen by many economically dominant countries as viable competitors in the international economy rather than worthy recipients of aid and support. While this erosion of concern is almost complete in international economic law and institutions, a similar situation in environmental law, and climate change law in particular, is still in its early stages.

The UNFCCC was built on the concept of common but differentiated responsibilities (CBDR), under which developed countries have had the burden to act first and most, as the acknowledged contributors to the problem, for all but the last two decades of the twentieth century.⁵⁰ That division is specifically established in the UNFCCC classification of countries between Annex I and non-Annex I countries. Annex I countries includes the OECD countries plus twelve economies in transition.⁵¹

However, unlike the pure fairness and justice claims to differential treatment in the WTO setting that were based on colonial exploitation, CBDR also had another component – a transactional one. Threats to the international commons, such as climate change (or chlorofluorocarbon emissions damaging the ozone layer), require common action. The threats affect developed and developing economies alike, although with some greater impacts in developing countries due to lower resilience and adaptive capacity. There are, however, considerable opportunity costs associated with climate change mitigation. Differentiated treatment was needed to incentivize developing countries to do their part.

If a country avoids the use of a specific technology or product or reduces its GHG emissions, that imposes a cost on the country's development by forcing it to develop or adopt different products, technologies, and economic behaviors. Developed countries that wished to address climate change had to convince developing countries to participate in a process under which they would commit to reduce their emissions even when it cost them in economic terms or slowed their rate of development. This required a carrot: financial assistance to deal with adjustment costs and technology, at low or zero cost, to enable them to reduce their own emissions and adapt to climate impacts. This bargain is reflected in Article 4, which establishes a series of commitments that distinguish between Annex I and non-Annex I countries as well as between developed and developing countries more generally.⁵²

⁵⁰ There is a basic philosophical and political objection to this concept that is an issue of attributability and knowledge-intent that I believe elides the broader international law presumption that successor states take on the obligations of previous states in terms of financial obligation. This was the basis on which developing countries took on international intellectual property obligations that have prevented them from accessing technology and knowledge held in developed economies. A concise and clear discourse on this can be found in D. Bell, "Global Climate Justice, Historic Emissions, and Excusable Ignorance" (2011) 94(3) *The Monist* 391–411.

⁵¹ UNFCCC, Annex I.

⁵² *Ibid.*

On technology transfer in particular, Articles 4.1(c), 4.3, 4.5, and 4.7 establish S&D treatment for developing countries. Article 4.2 establishes commitments that only apply to “developed countries and others in Annex I.” The UNFCCC also establishes a group of Annex II countries that have financial and technological support obligations on top of mitigation commitments under Article 4 generally. These countries are the traditional OECD group of early industrializers.⁵³

The CBDR framework, however, has proven to be unworkable within the current international political climate, with the emergence of a category of “intermediate” developing countries not identified in the original UNFCCC. In particular, while historically emissions have been largely due to developed countries, developing countries like China, India, Brazil, and Mexico have begun to catch up, and China has become the largest source of emissions at present.⁵⁴ These are also countries that have become significant trading competitors for developed countries.⁵⁵ Despite large domestic populations that remain in poverty, the aggregate economic strength of these countries is such that they are no longer viewed by developed countries as having any right to financial and technological support.⁵⁶ Their emissions also erode the argument that they should delay taking mitigation action, as they continue to increase their share of emissions. This was already the case at the time the Kyoto Protocol was signed in 1997. It is worth noting that the US Senate refused to ratify it precisely because countries like China were excluded from quantified emissions-reduction obligations as a developing country in the UNFCCC.⁵⁷

The transaction frame has not been successful, however, for a different reason: because developing countries believe that developed countries have not provided sufficient levels of finance and technology transfer.⁵⁸ This has created a chicken-or-egg problem for mitigation action by those intermediate developing countries that may be in a position to take on more obligations. These countries are driven by several concerns. The first is the perception that, until relatively recently, developed

⁵³ UNFCCC, Annex II. The countries are: Australia, Austria, Belgium, Canada, Denmark, European Economic Community, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom of Great Britain and Northern Ireland, and United States of America.

⁵⁴ M. Ge, J. Friedrich, and T. Damassa, “6 Graphs Explain the World’s Top 10 Emitters,” World Resources Institute, November 25, 2014, <https://wri.org/blog/2014/11/6-graphs-explain-world%E2%80%99s-top-10-emitters>.

⁵⁵ See, e.g., European Commission, *The EU’s New Generalised System of Preferences (GSP)* (Brussels: European Commission, 2012), http://trade.ec.europa.eu/doclib/docs/2012/december/tradoc_150164.pdf.

⁵⁶ *Ibid.*, p. 3. The EU GSP excludes upper-middle-income countries from its coverage.

⁵⁷ See C. R. Sunstein, “Of Montreal and Kyoto: A Tale of Two Protocols” (2007) 31 *Harvard Environmental Law Review* 1–65 at 2–3. The Kyoto Protocol only applied to implementation of Annex I country obligations to quantified economy-wide emissions reductions.

⁵⁸ Expert Group on Technology Transfer, *Report on the review and assessment of the effectiveness of the implementation of Article 4, paragraphs 1(c) and 5, of the Convention*, FCCC/SBI/2010/INF.4, May 10, 2010.

countries had failed to meet their obligations under the Kyoto Protocol to reduce their emissions.⁵⁹ The second is the perception that developed countries have failed to meet their obligations to provide financial and technological support to prepare them to take on obligations.⁶⁰ These perceived failures make intermediate developing countries less willing to take on obligations, while hardening other developing countries against any measures to weaken the differentiation between developed and developing countries in the UNFCCC framework. This conflict came to a head during the Bali Conference of the Parties in December 2007. It led developing countries to refuse to agree to negotiations for any new commitment period in the Kyoto Protocol or any new agreement that included developing country emissions-reduction commitments.⁶¹

The issue of differentiation and the push to have developing countries take on measurable, reportable, and verifiable emissions-reduction obligations has been at the center of climate negotiations since the post-Kyoto discussions. The end result of that process was the 2015 Paris Agreement,⁶² which significantly erodes the distinction between developed and developing countries compared to the UNFCCC and the Kyoto Protocol. Article 1 notes that all parties are required to provide voluntary nationally determined contributions (NDCs),⁶³ a major departure from past agreements. Each country determines for itself the extent of action it will take, instead of the obligation being tied to country classifications. This solution was viewed as necessary to bring countries such as the United States into the agreement by addressing the major complaints about the Kyoto Protocol: the exclusion of major developing country economies from emissions-reduction obligations and the

⁵⁹ M. Le Page, "Was Kyoto climate deal a success? Figures reveal mixed results," *New Scientist: Daily News*, June 14, 2016, www.newscientist.com/article/2093579-was-kyoto-climate-deal-a-success-figures-reveal-mixed-results/. While the study examined notes that all Kyoto parties (excluding signatories US and Canada) had met their commitments, the article points out that much of that was attributable to already existing reduction in the economies in transition, the financial crisis, and purchase of carbon credits on trading markets in developing countries. Nevertheless, it does seem clear that while the overall aim of the Kyoto Protocol was met, there had long been arguments that the countries had failed.

⁶⁰ See M. Khor, *Climate Change, Technology and Intellectual Property: Context and Recent Negotiations* (Geneva: South Centre, 2012), p. 1.

⁶¹ Summary of the Thirteenth Conference of Parties to the UN Framework Convention on Climate Change and Third Meeting of Parties to the Kyoto Protocol, December 3–15, 2007, *Earth Negotiations Bulletin* 12(354), December 18, 2007, p. 15, www.iisd.ca/climate/cop13/.

⁶² The Paris Agreement was signed in December 2015 as an agreement to succeed the Kyoto Protocol and the Copenhagen Accord, under which countries agreed to reduce their greenhouse gas emissions. The Paris Agreement was adopted as a decision of the UNFCCC parties rather than a protocol or a treaty, so as to avoid the domestic ratification obligations of some countries regarding formal international agreements. See *Report of the Conference of the Parties on Its Twenty-First session, Held in Paris from November 30 to December 13, 2015: Decision 1/CP.21*, U.N. Docs. FCCC (FCCC/CP/2015/10/Add.1) (January 29, 2016), <http://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf>.

⁶³ Nationally determined contributions are the voluntary pledges made by countries on the extent to which they will reduce their emissions.

imposition of stronger measurable, reportable, and verifiable emissions reductions on UNFCCC Annex I countries.

The agreement does recognize in several instances that developing countries may make slower progress toward emissions reductions⁶⁴ and that some support will be needed to ensure their implementation of commitments,⁶⁵ but the broader obligation to commit to emissions reductions applies to *all* parties. Nevertheless, Article 4 (4) notes that developed countries are to express their NDCs as quantified economy-wide emissions reductions, whereas developing countries are only required to provide enhanced action. Additionally, Article 4(5) reiterates that developing countries should be supported. In terms of financial and technological support, Articles 9 and 10 state that developed countries remain obligated to provide support to developing countries.⁶⁶

Nothing in the Paris Agreement necessarily redefines what constitutes a developing or developed country, but it does abandon the framework of Annex I, Annex II, and non-Annex I countries that previously framed obligations. It is difficult to escape the conclusion that this erosion of differentiation may force more capable developing countries to take on more concrete obligations even while they contain significant vulnerable populations. The majority of people in developing countries, even intermediate countries such as China and India, live in climate-vulnerable environments and ecosystems.⁶⁷ Coastal and island states risk sea-level rises leading to flooding, salinization of arable land, and increased vulnerability to extreme weather events.⁶⁸ For North African and West African states, the risks are associated with encroachment of the Sahara Desert and increased frequency and severity of drought events.⁶⁹ For central and eastern Africa, shifts in disease bands, as well as increased floods and droughts, may lead to more hunger and illness. For countries on the Asian subcontinent, such as India and Bangladesh, the melting of glaciers and the unpredictability of monsoons are likely to lead to increased coastal flooding and shortages of drinking water.⁷⁰

Climate vulnerabilities are complicated by a lack of resources needed to prepare for and adapt to changes in climate. For developing countries, the costs of paying for

⁶⁴ Paris Agreement, art. 4.

⁶⁵ *Ibid.*, art. 3.

⁶⁶ *Ibid.*, art. 9(1). (“Developed country Parties shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation in continuation of their existing obligations under the Convention.”)

⁶⁷ See UNEP, *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication* (Nairobi: UNEP, 2011), p. 19.

⁶⁸ G. McGranahan et al., “The Rising Tide: Assessing the Risks of Climate Change and Human Settlements in Low Elevation Coastal Zones” (2007) 19(1) *Environment and Urbanization* 17–37 at 18.

⁶⁹ Intergovernmental Panel on Climate Change, *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (Geneva: IPCC, 2014), p. 50.

⁷⁰ *Ibid.*

activities needed to address climate change are astronomical and likely to be crippling to their development.⁷¹ The current development framework represented in the UNFCCC approach provides little or no means by which differentiation can be made between newly industrialized countries and other developing countries. This erosion of differentiation means that newly industrialized countries will be increasingly asked to make greater sacrifices despite their lack of financial capacity and large populations living at the bottom of the HDI. Absent a fundamental realignment of interests, the CBDR framework has left countries mired in this no-man's land, where both the fairness and justice claims of developing countries to financial and technological support and the claims on them to take action equal to that of developed countries remain weak.

In the last section of this chapter, I discuss how a human rights approach may enable a way out by refocusing the justice and fairness claims within the countries rather than state-to-state. In the next section, however, I discuss the second major problem posed by the CBDR/development approach: that it is overly broad in the scope of technologies that are identified for technology transfer.

2 The CBDR/Development Approach and the Scope of Technologies

The Earth continues to experience record-breaking temperatures caused by increased atmospheric concentrations of carbon dioxide and other GHGs.⁷² To keep warming well below 2 degrees, and to retain the possibility of stabilizing at the safe level of 1.5 degrees above preindustrial levels, it may be necessary for global emissions to peak by 2020.⁷³ Projections suggest that past emissions mean the Earth is already locked into a baseline increase in temperature that makes some impacts unavoidable by 2100.⁷⁴ None of the associated costs of climate change between now and 2050 are likely to be avoided because of this lock-in.⁷⁵

The timing of impacts is crucial to determine who, both between and within countries, is likely to be impacted first, as well as which technologies are going to be most effective at addressing the mitigation and adaptation needs of those populations. That calculus of which technologies to transfer and who they should benefit differs depending on whether harm is viewed at the aggregate level or is based on the needs of the most vulnerable.

⁷¹ For example, looking just at mitigation scenarios, the IEA projected that from 2010–2020, more than \$2.3 trillion (US trillion) annually would need to be invested, the majority of that private flows. The share of developing countries was \$1.3 trillion annually, of which China represented \$500 billion. In contrast to the scale of projected need, total investment flows in 2010 and 2011 were \$247 billion and \$260 billion, respectively. See IEA, Table 4.3, *Energy Technology Perspectives 2012* (Paris: OECD/IEA, 2012), p. 139.

⁷² IPCC, *Climate Change*, p. 40.

⁷³ *Ibid.*, p. 82.

⁷⁴ *Ibid.*, pp. 78–79.

⁷⁵ *Ibid.*

A CBDR/development framework begins with the question of what the state, at the aggregate level, must do to meet its adaptation and mitigation needs. For mitigation, this is determined by when the country will need to begin to lower emissions (generally at some point between 2015 and 2020), implying a need for almost *all* currently available technologies aimed at reducing emissions most efficiently and quickly. A cursory glance at the details of the implied technologies shows a large, unwieldy list of specific technologies.⁷⁶

In energy, for example, the speed and scale of action required would seem to select for energy projects that are energy-efficient and easily and quickly deployable, and that target those countries currently consuming high rates of GHG-intensive energy sources. While these will not always be the largest-scale projects, this approach will tend to select for the kinds of projects that generate large amounts of energy per site, that can feed into the current grid, and that supply heavy industrial and urban users. This tendency can be seen in the discussion and projections of the International Energy Agency, which focuses on large-scale carbon capture and storage and nuclear generation.⁷⁷

In adaptation, the challenge is quite clear, from sea-level rise to changes in the hydrological cycle.⁷⁸ When focusing on the state level, as the UNFCCC does, adaptation requires actions like “strengthening institutional capacities and enabling environments for adaptation, including for climate-resilient development and vulnerability reduction”⁷⁹ or “[b]uilding resilience of socio-economic and ecological systems, including through economic diversification and sustainable management of natural resources.”⁸⁰

There are few, if any, references to differentiation of populations within individual countries, and little focus on those most vulnerable to climate change and thus most in need of adaptation. The UNFCCC provides funding at the level of the aggregate need of each country and does not require states to prioritize the needs of the most vulnerable in the disbursement of this money. Thus, in the Green Climate Fund, the primary financing entity within the UNFCCC, for example, funding is generally focused on high-impact, systemic-oriented programs and projects.⁸¹

⁷⁶ For a full list, see the tables in Shabalala, *Climate Change, Technology Transfer and Intellectual Property*, p. 59.

⁷⁷ IEA, *Energy Technology Perspectives 2012*, p. 11.

⁷⁸ Intergovernmental Panel on Climate Change, *Climate Change*, p. 51.

⁷⁹ *The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention*, Decision 1/CP.16, FCCC/CP/2010/7/Add.1 (2010), ¶ 14(c), <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=4>

⁸⁰ *Ibid.*, ¶ 14(d).

⁸¹ See Green Climate Fund, *Investment Framework*, GCF/B.07/06 (May 9, 2014), p. 9. www.greenclimate.fund/documents/20182/24943/GCF_B.07_06_-_Investment_Framework.pdf/dcf2ffe0-abd2-43e0-ac34-74f3b69764c0.

Vulnerability is primarily discussed at the level of the state.⁸² In the illustrative indicators for the impact of its adaptation programs, there are only two criteria that look to the extent of impact on the most vulnerable populations, one defining reduced beneficiaries and the other defining it in terms of “enhancing adaptive capacity and resilience . . . focusing particularly on the most vulnerable populations or groups.”⁸³

While nothing requires countries to focus on the most vulnerable, the formulation of national adaptation plans may involve such prioritization or focus on the most vulnerable, as noted in the UNFCCC’s *Technical Guidelines for the National Adaptation Plan Process*.⁸⁴

The Adaptation Fund, an independent financing entity of the UNFCCC established under the Kyoto Protocol, is a “direct access” fund, which means that few or no conditions are placed on countries’ priorities and none are required as long as these are carried out by an accredited national implementing entity.⁸⁵ Nothing in the Adaptation Fund policies requires a focus on the most vulnerable populations within countries in order to receive funding.⁸⁶ As such, no distinction is made between the hypothetical need to ensure that beach erosion does not destroy the second holiday homes of the wealthy (including a significant percentage of foreigners) in Cape Town, South Africa, versus the need to set up flood defenses for riverside villages in Kwazulu-Natal. The Paris Agreement refers only to “vulnerable parties.”⁸⁷

Adaptation presents a complex challenge that involves a network of existing capacity and vulnerability, with impacts and adaptations to impacts taking place within a network of cofactors such as poverty, population shifts, migration patterns, and changing land use.⁸⁸ The Stern Review, commissioned by the UK government in 2006 to examine the economics of climate change in order to inform the government’s policy positions within the EU and international negotiations,⁸⁹

⁸² Ibid., p. 9.

⁸³ Green Climate Fund, *Decisions of the Board – Ninth Meeting of the Board, 24–26 March 2015, Annex III: Initial Investment Framework: Activity-Specific Sub-Criteria and Indicative Assessment Factors*, GCF/B.09/23 (April 16, 2015), www.greenclimate.fund/documents/20182/239759/Investment_Criteria.pdf/771ca88e-6cf2-469d-98e8-78be2b980940.

⁸⁴ See Least Developed Countries Expert Group, *National Adaptation Plans: Technical Guidelines for the National Adaptation Plan Process* (Bonn: UNFCCC, 2012) pp. 43, 94, www.unfccc.int/files/adaptation/cancun_adaptation_framework/application/pdf/naptechguide_lines_eng_high_res.pdf

⁸⁵ Adaptation Fund, *Climate Adaptation Finance: Direct Access* (November 2016), www.adaptation-fund.org/wp-content/uploads/2016/11/Direct-Access-English-Nov2016-WEB.pdf.

⁸⁶ See Adaptation Fund, *Guidance on Accreditation Standards*, www.adaptation-fund.org/wp-content/uploads/2016/10/Guidance-on-Accreditation-Standards.pdf.

⁸⁷ Paris Agreement, arts. 7.6, 7.9(c), 11.1.

⁸⁸ Shardul Agrawala (ed.), *Bridge Over Troubled Waters: Linking Climate Change and Development* (Paris: OECD Environment Directorate, 2005), pp. 16–17.

⁸⁹ The Stern Review (sometimes called the Stern Report) was led by Sir Nicholas Stern, former chief economist at the World Bank. It proved highly influential in generating consensus

suggested that the key mechanisms for addressing adaptation were the same as those for generating economic wealth more generally. The report argued for prioritizing infrastructure, technology, information, knowledge, and skills,⁹⁰ especially in domains like agriculture, which makes up the majority of economic activity in most developing countries (up to 64 percent participation in South Asia and sub-Saharan Africa) and is very sensitive to climate variability.⁹¹ A stable and sustainably growing framework for agricultural production and distribution is necessary to reduce vulnerability and enable adaptive capacity in developing countries.⁹² Health interventions to deal with chronic diseases (both communicable and noncommunicable) in developing countries are also necessary to reduce vulnerability and adaptive capacity.⁹³ This implicates general health infrastructure and health management systems, but also the opportunity costs associated with the prices of medical products, devices, and services.

The breadth of the development approach points to a crucial weakness: under a development framework, technology transfer for adaptation covers an extremely broad range of technologies, aimed at generating economic growth and increasing the fungible wealth that enables resilience and increases adaptive capacity. Viewed in this way, the adaptation need is indistinguishable from the development need framed under the NIEO; i.e., developing countries need technology in order to engage in modernization and industrialization. From this view, the adaptation challenge is essentially a development challenge⁹⁴ and covers *all* sectors of technology relevant to ensuring rapid, non-fossil-fuel-dependent economic development. This makes the demand for access to all these technologies equally broad and limitless, and, within the context of the CBDR framework, imposes such a cost burden on developed countries that it fails in the current international framework.

As a result, industrialized countries are increasingly reluctant to fund adaptation, because they fear they are simply adding to their overseas development assistance (ODA) obligation without really addressing climate change-related issues. Further, the lack of a clear dividing line between adaptation and development makes it difficult to hold industrialized countries accountable for their climate change obligations, since they can simply point to existing ODA as fulfilling their UNFCCC obligation to adapt.

around the idea that taking action on climate would not have a negative impact on economic growth. N. Stern et al., *The Economics of Climate Change: The Stern Review* (Cambridge: Cambridge University Press, 2007).

⁹⁰ *Ibid.*, p. 94.

⁹¹ UNEP, *Towards a Green Economy*, p. 38; see also Stern, *The Stern Review*, p. 95.

⁹² Stern, *The Stern Review*, pp. 38–40.

⁹³ *Ibid.*, pp. 208–09.

⁹⁴ *Ibid.*, p. 430.

III HOW DOES A HUMAN RIGHTS APPROACH SOLVE THE PROBLEMS POSED BY THE CBDR/DEVELOPMENT APPROACH?

Having discussed the weakness of the common but differentiated responsibilities approach for fairness and justice claims and for delimiting the scope of technologies, this section discusses how taking a human rights approach can be used to address these weaknesses. As an initial step, I focus on a key element of the human rights approach: the requirement that states prioritize action on behalf of citizens whose rights are least fulfilled or most under threat.⁹⁵

Locating the right to development within the individual rather than the state has been central to a human rights-based approach to development.⁹⁶ The CBDR/development approach clearly does not focus on the fulfillment of individual human development, and primarily only acknowledges state interests in climate mitigation and adaptation.

This deficiency points us to the first step necessary for a human rights-based approach to climate change: the unit of climate impact analysis must be the individual and the community rather than the state. A rights-based approach is also helpful in the context of climate change, because it identifies both the developing country itself and other states in the international community as potential duty bearers with the obligation to provide for technology transfer.⁹⁷ In this chapter, I focus on those impacts that trigger a human rights claim against both the government of the developing country where the harmed individual resides and the developed country that fails to provide technological or financial support to prevent or address climate impacts.

A human rights approach also provides a basis for prioritizing policy choices that benefit vulnerable individuals even over other choices that might be more beneficial in the aggregate.⁹⁸ Aggregate data does not reveal how the benefits of development are distributed; a human rights approach, in contrast, attends to these distributional questions.⁹⁹ Finally, a human rights approach aims not just to identify rights that are threatened by climate change or to specify duty holders, but to further argue that the need to protect rights requires access to technologies to address the harm.

⁹⁵ United Nations Development Program, *Human Development Report 2000* (New York: Oxford University Press, 2000), p. 2, http://hdr.undp.org/sites/default/files/reports/261/hdr_2000_en.pdf; see also B. Hamm, "A Human Rights Approach to Development" (2001) 23(4) *Human Rights Quarterly* 1005–31 at 1011; A. Cornwall and C. Nyamu-Musembi, "Putting the 'Rights-Based Approach' to Development into Perspective" (2004) 25(8) *Third World Quarterly* 1415–37 at 1417.

⁹⁶ See, e.g., *Human Development Report 2000*, p. 2; Hamm, "A Human Rights Approach to Development" at 1016.

⁹⁷ *Ibid.*, pp. 22–23.

⁹⁸ *Ibid.*, p. 23.

⁹⁹ *Ibid.*, pp. 178, 186.

A human rights framework for responding to climate change begins with an analysis of the rights that are negatively impacted by climate change. Thus, the first limiting principle of a human rights approach is that it is defined by the very specific suite of internationally recognized, legally cognizable rights. These rights are enshrined in international human rights treaties, including the International Covenant on Civil and Political Rights (ICCPR) and the International Covenant on Economic, Social, and Cultural Rights (ICESCR), as they have been elaborated by human rights institutions, and, where appropriate, judicial and quasi-judicial mechanisms. In this, I take a conservative approach that does not rely on newer or derivative “rights,” such as the right to development or the right to energy. My concern here is to evaluate and elaborate on how a relatively uncontroversial reading of traditional¹⁰⁰ human rights obligations can serve to: 1) strengthen fairness and justice claims to technology transfer; and 2) enable limitations on the scope and prioritization of technologies for technology transfer.

The human rights framework provides a very circumscribed justification for claims of access to mitigation technologies.¹⁰¹ By focusing on impacts, we inevitably focus on adaptation. This, however, is a feature, not a “bug” of the approach. Without a focus on impacts, the causal link to states’ obligations is missing, or at least attenuated.

A Which Rights Are Impacted by Climate Change?

The extensive academic literature has linked climate impacts to the following key rights established in the Universal Declaration on Human Rights, the ICESCR, and the ICCPR¹⁰²: the right to life, the right to health (and to a healthy environment), the right to water, and the right to food.

¹⁰⁰ I recognize that even this categorization of traditional and newer rights is not uncontested, but it is the fact of contestation that I am focused on; i.e., those rights about which there exists a minimal amount of contestation as to their existence and for which the scope has been elaborated by treaty bodies and other relevant institutions. As such, I do not address the right to development or the right to energy, for example, both of which would provide much stronger purchase for justifying unilateral action to access mitigation technologies.

¹⁰¹ Some arguments for mitigation arise from a claim that there is a broad “right to energy” that requires direct access to the means of generating it. In that sense, energy-generating technologies that do not create GHG emissions then become a necessity for fulfilling the right, a direct claim on renewable technologies. As noted above, this is a less developed right within traditional human rights discourse and remains contested, which is why I exclude it from the analysis in this chapter. See International Council on Human Rights Policy (“ICHRP”), *Beyond Technology Transfer: Protecting Human Rights in a Climate-Constrained World* (Geneva: International Council on Human Rights Policy, 2011), p. 25, www.ichrp.org/files/reports/65/138_ichrp_climate_tech_transfer_report.pdf.

¹⁰² See M. Limon, “Human Rights and Climate Change: Constructing a Case for Political Action” (2009) 33 *Harvard Environmental Law Review* 439–76 at 444; see also ICHR, *Beyond Technology Transfer*; E. Caesans et al., *Climate Change and the Right to Food: A Comprehensive Study* (Berlin: Heinrich Boll Stiftung, 2009); M. Darrow et al., *Human*

Rights to health and food are economic rights that are governed by the framework of “progressive realization.” Although a state has an obligation to fulfill these rights, progressive realization recognizes the reality of limited resources. States are not required to fulfill these rights immediately, but rather must make progress toward realizing them.¹⁰³ The framework of progressive realization has two components: the establishment of baselines or thresholds below which rights may not fall, and a general movement toward fulfillment of rights. The first requires an immediate focus on the most vulnerable populations to ensure that no absolute harm occurs, and a focus on other groups as resources permit.

The right to life, on the other hand, requires states to actively refrain from action that would cause death and to prevent relatively foreseeable deaths from actions by others or by nature. This implies a measure of prevention to mitigate the effects of disasters (human or natural) and an obligation to take action when such disasters strike, in order to reduce or prevent deaths. In the context of climate change, the majority of disaster events are water-based and relate to coastal risks, although major rain events occur inland as well. Additionally, drought events are related to famine conditions that would trigger obligations related to the right to life.

Article 12 of the ICESCR affords the right to the “highest attainable standard of physical and mental health.” In its General Comment 14,¹⁰⁴ the Committee on Economic, Social, and Cultural Rights (CESCR), the body charged with receiving reports from states on their compliance with the treaty, defines health broadly. The key link to climate change impacts, as well as climate change vulnerability and adaptive capacity, is the idea that health includes the right to a healthy environment. Thus there are two levels at which links can be made: at the level of direct health effects, such as disease burdens, but also at the level of the underlying determinants of health.

At the level of direct health impacts, climate change will result in changes in precipitation patterns, the length of rainy seasons, and the length of warm seasons.¹⁰⁵ The Intergovernmental Panel on Climate Change (IPCC), for example, points to significant uncertainty regarding the increased frequency and intensity of diseases,

Rights and Climate Change: A Review of the International Legal Dimensions (Washington, DC: World Bank, 2011); J. H. Knox, “Climate Change and Human Rights Law” (2009) 50(1) *Virginia Journal of International Law* 163–218; J. H. Knox, “Linking Human Rights and Climate Change at the United Nations” (2009) 33 *Harvard Environmental Law Review* 477–98; S. Humphreys (ed.), *Human Rights and Climate Change* (Cambridge: Cambridge University Press, 2009).

¹⁰³ Frequently Asked Questions on Economic, Social and Cultural Rights, *OHCHR Fact Sheet* 33 (Geneva: Office of the United National High Commissioner for Human Rights, 2008), www.ohchr.org/Documents/Publications/FactSheet33en.pdf.

¹⁰⁴ Economic and Social Council, United Nations Committee on Economic, Social, and Cultural Rights (22nd Session, Geneva, April 25, 2000), *The Right to the Highest Attainable Standard of Health*, U.N. Doc. E/C, December 4, 2000 (“General Comment 14”).

¹⁰⁵ IPCC, *Climate Change*, p. 69.

due in large part to a lack of long-term epidemiological data.¹⁰⁶ The IPCC notes that disease incidence may be due to social changes resulting from climate change, such as migration and subsequent changes in population density. Nevertheless, the IPCC points to four major categories of health impacts¹⁰⁷: direct effects of heat or cold, vector-borne diseases, food- and water-borne diseases, and pollen- and dust-related diseases.

The right to water is not explicitly mentioned in the ICESCR. However, the CESCR has concluded that the right to water is implied in Article 11 as an aspect of the right to an adequate standard of living.¹⁰⁸ Climate is linked to the right to water in two ways. The first is that extreme weather events associated with climate change are likely to result in temporary but severe disruptions of water supply that deprive portions of the population of access to water. During an extreme weather or sea event, water supply can be cut off due to the malfunction of desalination plants, damage to rainwater collectors, or contamination of wells. The second linkage is a reduction in available freshwater and increased incidence of drought, as temperatures increase and surface moisture evaporates more quickly. The reduction in access to water due to climate change can be traced to increased glacial melt and a general reduction in the amount of water held in ice each winter season.¹⁰⁹ Such ice systems provide freshwater for much of the Indian subcontinent, for example. We can also expect increased intensity of droughts as well as expansion of dry areas.¹¹⁰ These are impacts that are already being felt and are likely to increase in intensity through to 2050.¹¹¹

The right to food is addressed in a number of international human rights documents.¹¹² Food production, both plant and animal, is the primary source of GHG emissions in many nonindustrialized developing countries. Thus agricultural practices that involve fertilizers, soil-tilling methods, and bovine farming contribute to GHG emissions through nitrous oxide and methane release.¹¹³ Deforestation to

¹⁰⁶ Ibid.

¹⁰⁷ Ibid.

¹⁰⁸ Economic and Social Council, Committee on Economic, Social, and Cultural Rights (29th session, Geneva, November 11–29, 2002), *Substantive Issues Arising in the Implementation of the International Covenant on Economic, Social and Cultural Rights; General Comment No. 15 (2002), The Right to Water (arts. 11 and 12 of the International Covenant on Economic, Social and Cultural Rights)*, U.N. Doc. E/C.12/2002/11.

¹⁰⁹ IPCC, *Climate Change*, p. 51.

¹¹⁰ Ibid.

¹¹¹ Ibid.

¹¹² Universal Declaration of Human Rights, December 10, 1948, U.N. G.A. Res. 217 A (III), art. 25 (right to adequate standard of living, including food); International Covenant on Economic, Social, and Cultural Rights, December 16, 1966, 993 UNTS 3 (1976), arts. 11.1 and 11.2; Convention on the Elimination of All Forms of Discrimination against Women, December 18, 1979, 1249 UNTS 13 (1981), art. 12 (adequate nutrition during pregnancy and lactation).

¹¹³ K. A. Baumert et al., *Navigating the Numbers: Greenhouse Gas Data and International Climate Policy* (Washington, DC: World Resources Institute, 2005) p. 85, www.wri.org/publication/navigating-numbers.

create more agricultural land also removes carbon sinks. On the other hand, food production is also one of the areas affected by increased dry areas and drought, as well as flooding. The loss of productive land may result in lower food production. For coastal lands, increased sea-related extreme weather events such as storm surges can also lead to the loss of cultivable land due to salination of the soil. In addition, changing weather patterns are affecting the lengths of growing seasons as well as humidity levels, soil acidity, and other factors. This can render existing plant varieties less productive.¹¹⁴ Finally, the IPCC report also points to increased vulnerability to extreme drought events in the near term.¹¹⁵

B Instrumental Approaches: Limiting the Scope of Technologies

Simply by describing human rights impacts on the most vulnerable populations within a country, we see a manageable set of technologies that might be needed to mitigate the effects of climate change. While the development approach to addressing adaptation is focused primarily on economic growth as a means of ensuring adaptive capacity, a human rights approach focuses the set of choices, narrowed down by: 1) identifying a specific set of beneficiaries within each country; and 2) selecting for specific types and categories of technology.

1 The Beneficiaries of Action

With respect to the beneficiaries of action, a human rights approach requires a focus primarily on the needs of the most vulnerable rather than those already well-off or capable of adapting.¹¹⁶ This means that while middle-class residents in each country are clearly targets of mitigation and adaptation action, from a human rights perspective they are not the top priority.

In addressing, for example, the right to food, who, then, are the “most vulnerable” that the CESCR is concerned about and how does focusing on them limit the scope of technologies? A development approach has no specific mechanism for distributional concerns. At the aggregate level, a general focus on increasing food production encompasses technologies within the entire agricultural production and distribution chain. A human rights approach focuses on vulnerable populations in both rural and urban areas and can focus on specific technologies within the agricultural value chain. Looking first at rural populations of small-holder and subsistence farmers most vulnerable to hunger, the action would focus primarily on ensuring that subsistence farming remains viable and productive where drought

¹¹⁴ IPCC, *Climate Change*, p. 51.

¹¹⁵ *Ibid.*

¹¹⁶ See Hamm, “A Human Rights Approach to Development” at 1011; Cornwall and Nyamu-Musembi, “Putting the ‘Rights-Based Approach’ to Development into Perspective” at 1417.

or flood events increase. This means prioritizing small-holder farming methods and practices over large-scale industrial agriculture, which is already supported by the powerful multinational agribusiness industry.

However, given the increased urbanization that is likely to occur due to the displacement of rural populations by increased land stress (i.e., reductions in quality and availability) as a result of climate change, it will also be necessary for small-holder farmers to generate sufficient surpluses to feed those urbanized populations. This means focusing on transportation, distribution, and food storage systems. To the extent that those urban populations would need food, some form of more intensive agriculture may be needed, but a human rights approach would allow that only to the extent that it did not involve dispossession and displacement of small-holder and subsistence farmers.

2 The Selection of Human Rights-Appropriate Technologies

A human rights approach also directs the selection of technologies. Although human rights would not necessarily require any particular kind of technology, it would create a bias toward those technologies that were inexpensive, easily deployable by the government or market providers, and easily maintained by the target beneficiaries. This is a result of the need to address near-term impacts on vulnerable populations without significant purchasing power or adaptive capacity of their own.

However, relevant technologies would not be limited to basic or low-cost ones, but could involve sophisticated micro-grid applications or big data programs for weather monitoring linked to mobile telephony and Internet access. The key is accessibility and sustainability of the technologies for the most vulnerable, as compared to something like energy management software for household appliances, which is low-hanging fruit as far as mitigation measures are concerned.¹¹⁷ The type of technology could shift depending on the nature of the right and the needs of the population. It may make sense for the state to prioritize sensor and data technology to keep track of rainfall in water-stressed areas in order to deliver on its obligation to fulfill the right to water. It also makes sense for the state to enable access by individuals and communities to specific water-purification technologies, such as water-purification tablets, that are easily deployable and usable in a sustained manner. Adopting this approach does not necessarily mean that states should neglect national-level infrastructure, but it does mean at least a partial prioritization of technologies that address harms to the most vulnerable populations, or at least ensuring that these needs are addressed concurrently with broader investments in infrastructure.

¹¹⁷ Appliances make up a significant portion of global electricity end use. Increased efficiency and use of best available technologies have large GHG emissions-reduction potential and are considered low-hanging fruit. See UNEP, *Towards a Green Economy*, p. 343.

IV CONCLUSION

By refocusing the discourse away from the obligations of states to one another and toward the obligations of all states to vulnerable populations, a human rights approach can bypass the continuing impasse at the UNFCCC on how developed and developing countries should be categorized and assigned obligations. This chapter describes the means by which developing countries can frame their adaptation action (and, secondarily, their mitigation action) to make a stronger claim on developed countries to assist them in meeting their human rights obligations to their vulnerable populations. This kind of framing has the potential to transform the discourse from a “donor” framework, in which developed countries provide technology at their discretion, if at all, to a “*demandeur*” framework, in which vulnerable citizens of developing countries can make direct claims to technologies in ways that developed countries may find more difficult to challenge on legal, political, or economic grounds.