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Rafael Leal-Arcas

Abstract

This article argues that the Kyoto Protocol to the 1992 Framework Convention on Climate Change was doomed to face difficulties *ab initio*. Moving the climate change agenda forward multilaterally among the 195 parties to the United Nations Framework Convention on Climate Change (UNFCCC) is proving to be a serious challenge. The lack of progress in UNFCCC negotiations in recent years, especially the failure to obtain an international agreement on emissions limitations targets and timetables by all major developed and developing country emitters, has led many to question whether the UNFCCC is, in fact, the best and most effective forum for mobilizing a global response to climate change. The current approach to negotiating a comprehensive, universal, and legally binding global agreement on climate change is unlikely to succeed. The article concludes that no breakthroughs will take place regarding a global climate change agreement until there is more political maturity on the side of the U.S., and until rapidly emerging economies such as China and India indicate that they are ready to play their part in tackling the climate change challenge, since they are part of the solution. Large emitters of GHG need to be involved for negotiations to come to a conclusion. Much progress is still needed until we reach an international agreement that covers all the world's countries and that is strong enough to tackle climate change effectively and is equitable enough to gain the sympathy of all countries.

KEYWORDS: bottom-up approach for climate change, climate-based RTAs, variable geometry; flexible approach

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1. Introduction

This article argues that the Kyoto Protocol to the 1992 Framework Convention on Climate Change (UNFCCC) was doomed to face serious difficulties *ab initio* because it places the responsibility of reducing greenhouse gas (GHG) emissions only with developed countries (Annex I countries)[1] as if they were the only offenders of climate change. A more plausible solution to reduce GHG emissions (which is the whole purpose of this exercise) is to involve major GHG emitters, irrespective of their Gross Domestic Product (GDP). This article also proposes using the experience of trade agreements as a model for reaching a global climate treaty, as sometimes the very same people are at the negotiating table for trade and environmental issues.[2]

The Kyoto Protocol is a highly centralized, top-down agreement[3] on climate change which has proven to be very rigid in its approach to reducing GHG emissions.[4] For the purposes of GHG emissions reduction, the UNFCCC divides the world into Annex I countries (or developed countries)[5] and developing countries, legally binding only Annex I countries to reducing their GHG emissions by a certain deadline.[6] Why so? Because seen retrospectively, rich countries have been the major polluters; they are responsible for most of the GHG

[1] Article 3 of the Kyoto Protocol.

[2] For example, the Climate Change Minister of New Zealand is the former Trade Ambassador to the World Trade Organization (WTO).

[3] A top-down approach refers to the way in which an agreement is managed, which is essentially based upon a multilateral/universal membership. A 'top-down' approach to a problem is a situation that begins at the highest conceptual level and works down to the details, i.e., it refers to the way in which an agenda for negotiations is prepared so as to define the overall shape of the agenda first and then proceed to consider how to deal with individual components. Within formal international organizations, top-down architecture and centralization are to be found, for instance, in the International Monetary Fund and the World Bank Group. The decision-making process of these two institutions differs from that of the UNFCCC, where consensus is required. Based upon international agreements, operations are managed by bodies representing Member States within the charter of the organizations concerned. Top-down architectures have been seen to have difficulties in adjusting to new challenges. See Lowenfeld, A. *International Economic Law*, 2nd ed. (Oxford University Press, 2008), at pp. 610–622, 644 et seqq.

[4] Kopp, R. "The Climate has Changed – So Must Policy", *Resources for the Future*, Issue Brief 11-03, March 2011 (suggesting what the path for climate change might likely be, given the global economic and political forces shaping the foreign policies of the major nations). See also Simon, N. "International Environmental Governance for the 21st Century: Challenges, Reform and Options for Action on the Way to Rio 2012", SWP Research Paper, German Institute for International and Security Affairs, February 2011; Fauchald, O.K. "International Environmental Governance: A Legal Analysis of Selected Options", Fridtjof Nansen Institute, Report 16/2010, 2010.

[5] Including countries undergoing the process of transition to a market economy.

[6] Article 3 of the Kyoto Protocol.

emissions, and have the financial capability and technological means to tackle climate change.

However, instead of asking only Annex I countries to reduce GHG emissions, this article argues that a better (and arguably fairer)[7] way to tackle climate change today is by bringing together the major GHG emitters, irrespective of their GDP.[8] Why? Because the Kyoto Protocol's stipulation that only Annex I countries reduce their GHG emissions does not reflect today's or tomorrow's climate change reality. It is not enough to ask only Annex I countries to reduce their GHG emissions[9] if the aim is to solve the climate issue. Major developing countries which are also major GHG emitters should be asked to reduce their GHG emissions. Why? Seen prospectively, climate change is a developing countries problem, as predictions indicate that, in the near future, developing countries will be the major polluters (see Figure 1) as well as the major victims of the consequences of climate change, especially countries near the equator.[10] Moreover, developing countries have already surpassed the industrialized world in total GHG emissions[11] and will account for more than 75% of emissions growth in the next 25 years.[12]

[7] On burden sharing and global justice, see generally Rawls, J. *A Theory of Justice*, Cambridge: Harvard University Press, 1971; Rawls, J. *Justice as Fairness: A Restatement*, Cambridge: Harvard University Press, 2001; Müller, B. *et al.* "Differentiating (Historic) Responsibilities for Climate Change", *Climate Policy*, 2009, 9 (6), 593–611; Posner, E. & Sunstein, C. "Climate Change Justice", *Georgetown Law Journal*, 2008, 96 (5), 1565–1612; Boltanski, L. & Thévenot, L. *De la justification: Les économies de la grandeur*, Paris: Gallimard, 1991.

[8] That said, the UNFCCC reflects the early 1990s situation, where developed countries decided to "take the lead in combating climate change". See Article 3.1 of the UNFCCC. Twenty years later, the situation has changed.

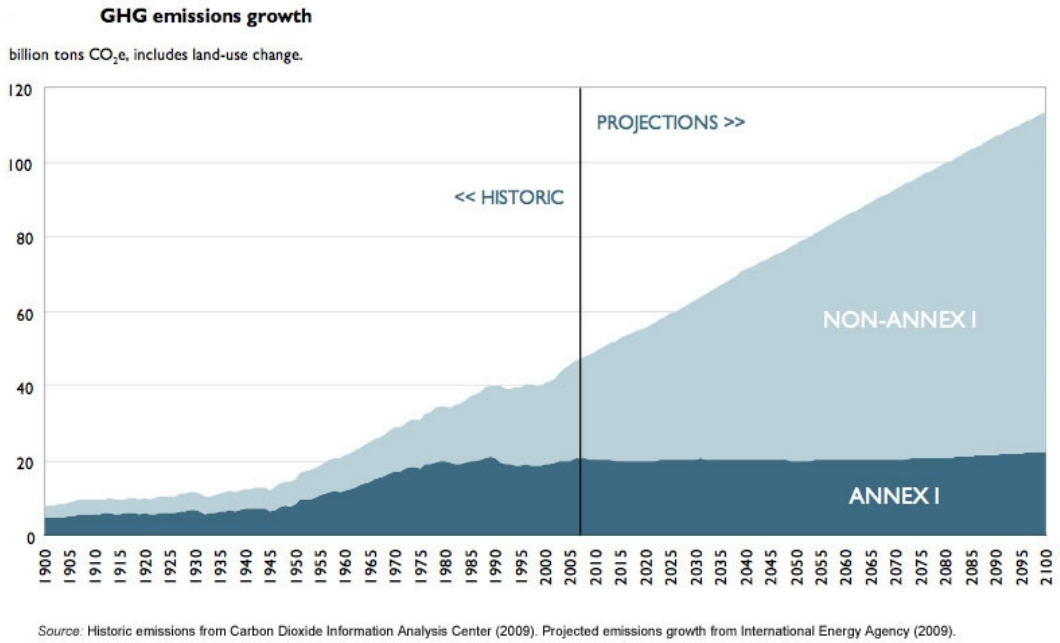
[9] See Article 3 of the Kyoto Protocol, where Annex I countries were asked to lead the way on GHG emission reduction, for others to follow, but the US refused.

[10] Farber, D. "The Case for Climate Compensation: Justice to Climate Change Victims in a Complex World", *Utah Law Review*, 2008, 2, 377–412.

[11] Blanford, G. *et al*. "Revised Emissions Projections for China: Why Post-Kyoto Climate Policy Must Look East", in Aldy, J. & Stavins, R. (eds.) *Post-Kyoto International Climate Policy: Implementing Architectures for Agreement*, New York: Cambridge University Press, 2009, pp. 822–856.

[12] See Energy Information Administration, "International Energy Outlook 2007", Chapter 7, May 2007.

Figure 1: *Source*: Historic emissions from Carbon Dioxide Information Analysis Center (2009). Projected emissions growth from International Energy Agency (2009).



The United States (US) and other Annex I countries maintain that the terms of the Kyoto Protocol are unfair because they provide developing countries with inappropriate trade advantages and because the GHG emissions of leading developing countries are growing rapidly, and yet non-Annex I countries are not legally bound to reduce their GHG emissions.[13] The world has changed dramatically since the UNFCCC divided the world into two categories in 1992. For instance, approximately 50 non-Annex I countries now have higher per capita incomes than the poorest of the Annex I countries with commitments under the Kyoto Protocol.[14] In the same way, 40 non-Annex I countries ranked higher on the Human Development Index in 2007 than the lowest ranked Annex I country.[15] Thus, major GHG emitters/economies (whether developed or developing

[13] However, the Kyoto Protocol was adopted unanimously, including the support of the US.
[14] UNDP, International Human Development Indicators, available at http://hdr.undp.org/en/data/build/.
[15] Ibid.

countries), which are responsible for historic, current, and future emissions, should therefore take action.[16]

As of 2000, the top 25 GHG emitters accounted for approximately 83% of global emissions.[17] Moreover, the top five GHG emitters today [China, US, the European Union (EU) – treated as a single entity – India, and Russia] were responsible in 2000 for over 60% of global emissions.[18] By contrast, most of the remaining countries contributed very little in absolute terms to GHGs in the atmosphere (i.e., the 140 least-pollutant countries were responsible for only 10% of global GHG emissions).[19] These countries include the least-developed countries and many small island States.[20]

This article explores the architecture and operation of international instruments relating to climate change mitigation and adaptation, and their interaction with the international trading system. It addresses the challenges for further developing the UNFCCC and its Kyoto Protocol, taking into account the results of the most recent Conferences of the Parties (COPs) since Copenhagen in 2009. This article relates to findings of the doctrine of multilayered governance. It

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[16] See, for instance, the Organization for Economic Cooperation and Development (OECD) recommendation of 1972 regarding the polluter-pays principle, i.e., a highly reasonable approach stating that the country responsible for polluting should take care of the consequences:
"The principle to be used for allocating costs of pollution prevention and control measures to encourage rational use of scarce environmental resources and to avoid distortions in international trade and investment is the so-called "Polluter-Pays Principle". This principle means that the polluter should bear the expenses of carrying out the above mentioned measures decided by public authorities to ensure that the environment is in an acceptable state."

See also the United Nations (UN) Rio Declaration on Environment and Development, A/CONF.151/26 (Vol. I), Principle 16, arguing the polluter-pays principle:
"National authorities should endeavor to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment."

[17] These numbers exclude emissions from international bunker fuels, land use, land-use change, and forestry. See the report by Baumert, K., Herzog, T. & Pershing, J. "Navigating the Numbers: Greenhouse Gas Data and International Climate Policy", World Resources Institute, 2005, figure 2.1, p. 12. There are, however, various ways to measure emissions. Emissions per capita shall also be taken into account.

[18] Ibid.

[19] Ibid., figures 2.2 and 2.3.

[20] On small island States and climate change, see McAdam, J. "'Disappearing States', Statelessness and the Boundaries of International Law", *University of New South Wales Law Research Paper* No. 2010-2, 2010; Burns, W. "Potential Implications of Climate Change for the Coastal Resources of Pacific Island Developing Countries and Potential Legal and Policy Responses", *Harvard Asia-Pacific Review*, 2006, 8 (1), 4–7; Cournil, C. "Populations Islanders Face to Climate Change: The Migration to Anticipate", *Vertigo*, 2010, 10 (3); Burns, W. "The United Nations Framework Convention on Climate Change and the Future of Small Island States", *Journal of Environmental Law & Policy*, Vol. 14, 1997.

essentially seeks to identify elements which need to be harmonized internationally, and those which should be dealt with in a decentralized manner. Moreover, this article also explores potential lessons which can be drawn from bottom-up diplomacy in international trade, using critical mass and sectoral agreements, and how incentives to join the multilateral framework agreement on climate change can be framed, including trade policy instruments.

Dealing with the challenge of climate change requires a concerted international action supported by the effective international climate regime with a global institutional framework for coordination of national climate policies. Current impasse in international climate negotiations on a post-Kyoto climate agreement calls for reconsideration of basic canons of global climate protection and facilitation of international climate policy with new instruments. Although the UNFCCC has its merits of serving as an international forum for negotiation of solutions to climate change, the UN-led climate negotiations reveal serious drawbacks of a top-down approach to the formation of the international climate regime and ineffectiveness of a consensus-based system. The international climate change process is heavily hindered by the large number of negotiating countries having diverse interests and different expectations from the outcome depending on their level of economic development and dependency of their economies on fossil fuels.

The main challenge of the international climate regime is how to accommodate diverse interests of countries, especially those whose participation is crucial for the success of climate protection, i.e., the largest GHG emitters in the world. These concerns require a complex architecture of the global climate regime with flexible economic mechanisms and tools which would provide incentives for the largest GHG emitters to participate in emissions abatement and comply with undertaken commitments. Based on the theories of the international regime and global governance, this article seeks to propose a design and institutional framework of global climate protection capable of effectively addressing climate change and its negative consequences. This article also explores the possibility of a combination of top-down and bottom-up approaches to building a global climate landscape and the link of national and regional climate arrangements with the UNFCCC framework. This article also seeks to draw lessons from the international trading system and explore the possibilities of applying the General Agreement on Tariffs and Trade (GATT)/World Trade Organization (WTO) model to a post-Kyoto international climate deal.

2. Background to the Current Centralized Legal Framework: Waiting for Godot?

International efforts to negotiate a comprehensive, universal, and legally binding treaty on climate change have "been producing diminishing returns for some time"[21] and an alternative approach to this top-down manner of law-making is needed "which develops different elements of climate governance in an incremental fashion and embeds them in an international political framework".[22] At the same time, there are 193 parties to the Kyoto Protocol, many of which are in favor of the continuation of the Kyoto Protocol for logical reasons.[23] This continuation of the Kyoto Protocol could be conceived not in isolation but along with complementary climate agreements.[24] For instance, countries in favor of the continuation of the Kyoto Protocol argue that it is currently the only legal instrument with legally binding constraints on GHG emissions of any sort. Bilateral and regional agreements could therefore complement the UNFCCC/Kyoto Protocol.[25] Other smaller *fora* with major GHG emitters could provide stimulus for an agreement in the UNFCCC regime.

Climate change is an example of multilayered governance. Currently we have the richness of the global approach – which, however, seems remote these days because of the difficulties multilateralism is experiencing – and the effectiveness of the regional, national, and sub-national systems.[26] Moving the climate change agenda forward multilaterally among the 195 parties to the UNFCCC is proving to be a serious challenge.[27] The lack of progress in UNFCCC negotiations in recent years, especially the failure to obtain an international agreement on emissions limitations targets and timetables by all major developed and developing country emitters, has led many to question whether the UNFCCC is, in fact, the best and most effective forum[28] for mobilizing a global response to

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[21] Falkner, R., Stephan, H. & Vogler, J. "International Climate Policy after Copenhagen: Towards a 'Building Blocks' Approach", *Global Policy*, October 2010, 1 (3), 253.
[22] Ibid.
[23] Leal-Arcas, R. "Kyoto and the COPs: Lessons Learned and Looking Ahead", *Hague Yearbook of International Law*, Vol. 24, 2011.
[24] This approached was first proposed at the COP-10 in 2004.
[25] The EU is a regional economic integration organization for purposes of implementation of the UNFCCC/Kyoto Protocol, and Article 4 of the UNFCCC creates the possibility for other regional economic integration organizations to do the same.
[26] See generally Hoffmann, M. *Climate Governance at the Crossroads: Experimenting with a Global Response after Kyoto*, New York: Oxford University Press, 2011.
[27] Currently, there are 195 Parties (194 States and 1 regional economic integration organization) to the UNFCCC. See http://unfccc.int/essential_background/convention/status_of_ratification/items/2631.php.
[28] However, for the time being the UNFCCC is the only negotiating forum we have.

climate change.[29] This current approach to negotiating a comprehensive, universal, and legally binding global agreement on climate change is unlikely to succeed.[30] Moreover, the current targets and the Nationally Appropriate Mitigation Actions (NAMAs) under the system of "pledge and review" are most probably insufficient towards the goal of limiting the increase in global temperatures to 2°C above pre-industrial levels agreed upon at the COP-15 in Copenhagen.[31] Furthermore, many of the world's larger emitters today are developing countries (such as China, India, Brazil, and South Africa), who thus far have refused to agree to binding emissions limitation obligations under the international UNFCCC/Kyoto Protocol regime, in part because of the lack of any US limitations commitments.

The Copenhagen climate summit in December 2009 failed to bring about a comprehensive post-2012 climate architecture. The near-disaster COP-15 in Copenhagen empirically demonstrated that the UN machinery is incapable of moving forward fast enough to produce a global climate deal. Moreover, international climate policy, as it has been understood and practiced by many governments of the world under the Kyoto Protocol approach, has failed to produce any discernable real world reductions in emissions of GHGs since the mid-1990s.[32] The underlying reason for this is that the UNFCCC/Kyoto model was structurally flawed and doomed to face serious difficulties because it systematically misunderstood the nature of climate change as a policy issue between 1985 and 2009. In this regard, a group of authors from Asia, Europe, and North America produced the Harwell paper, which urged a radical change of approach.[33]

One year later, in Cancún, Parties adopted a set of pivotal decisions that integrate the substance of the Copenhagen Accord into the UNFCCC framework. They reflect all of its major elements: the quantified economy-wide emission

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[29] See Victor, D. *Global Warming Gridlock: Creating More Effective Strategies for Protecting the Planet*, Cambridge University Press, 2011 (arguing that a global warming gridlock has arisen because international talks have drifted away from the reality of what countries are willing and able to implement at home. Most of the lessons that policy-makers have drawn from the history of other international environmental problems will not actually work on the problem of global warming. Victor argues that a radical rethinking of global warming policy is required and shows how to make international law on global warming more effective).

[30] Hoffmann, M. *Climate Governance at the Crossroads: Experimenting with a Global Response after Kyoto*, New York: Oxford University Press, 2011.

[31] For an analysis of the 2°C requirement, see Meinshausen, M. *et al*. "Greenhouse-gas emission targets for limiting global warming to 2 degrees C", *Nature*, April 2009, 458, 1158–1163.

[32] See Rayner, S. & Prins, G. "The Wrong Trousers: Radically Rethinking Climate Policy", Discussion Paper of the James Martin Institute for Science and Civilization, 2007.

[33] Prins, G. *et al*. "The Hartwell Paper: A New Direction for Climate Policy after the Crash of 2009", May 2010.

reduction targets pledged by industrialized countries,[34] nationally appropriate mitigation "actions" put forward by developing countries,[35] the establishment of a Green Climate Fund,[36] enhanced measurement, reporting and verification (MRV) of mitigation efforts and support provided,[37] and the commitment by industrialized countries to mobilize US $100 billion per year by 2020.[38] Although the Cancún Agreements are not small achievements in themselves, there are nevertheless shortcomings in their substance, which should not be disregarded.[39] The risk that the result of the current climate negotiations will remain a far cry from what is needed is daunting.[40] There is thus a clear need to reform the UNFCCC system and to explore new avenues of action.

Arguably, agreement at the COP-16 in Cancún, however unsatisfying, could only be reached because the more difficult and contentious issues (such as internationally agreed emissions targets) were put to one side during the negotiations, despite the vocal objections of Bolivia. This raises the question of decision-making based on consensus. The fact that the Cancún Agreements were adopted despite Bolivia's objections is a clear sign that the international community does not accept any more the fact that one State can block a reform sought by all other Parties in an international negotiation. It indeed raises a fundamental problem of effectiveness and even democracy, in that it allows a tiny minority to nullify the will of a large majority. It is therefore vital to examine whether the international community can make the current negotiating process more flexible.

In the UN machinery, consensus among the parties is required, which, according to COP-16 Chair, Mexican Foreign Minister Patricia Espinosa, does not mean unanimity. Therefore, one country – i.e., Bolivia in the COP-16 – does not have the right to veto a decision that the other 194 members agree on.[41] Moreover,

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[34] UNFCCC, *Outcome of the Work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention*, Draft Decision -/CP.16 (2010), para. 36.
[35] Ibid, para. 48.
[36] Ibid, paras. 102–111.
[37] Ibid., para. 112.
[38] Ibid., para. 98.
[39] Oberthür S. "Global Climate Governance after Cancun: Options for EU Leadership", *The International Spectator*, 1, 2011; Young, O., King, L. & Schroeder, H. (eds.) *Institutions and Environmental Change: Principal Findings, Applications, and Research Frontier*, Cambridge, MA: MIT Press, 2008; Zedillo E. (ed.) *Global Warming: Looking Beyond Kyoto*, Brookings Institution Press and Yale Center for the Study of Globalization, 2008.
[40] Helm D. "Climate-change Policy: Why Has so Little Been Achieved?" *Oxford Review of Economic Policy*, 2008, 24 (2), 211–238.
[41] Bolivia subsequently threatened to launch a legal challenge to the Cancún decisions before the International Court of Justice based on the alleged violation of procedural rules, i.e., the lack of complete consensus. This raises the following interesting questions: What does consensus mean in international law? Are the Cancún decisions legally binding agreements? Usually, if the agreement

whether future challenges, such as the interface of trade and climate change, can be managed on the basis of consensus diplomacy at the WTO[42] or elsewhere remains to be seen. Consensus is based on an oligopolistic and duopolistic world order, but fails to deliver under conditions of an emerging multipolar world, accompanied with great shifts in economic power. The turn today towards a multipolar world indicates that approaches based on consensus are unlikely to produce results. No country, or group of countries, today is in a position to forge a global deal. This is true for trade. It is even more so for the achievement of environmental goals, as free riding is readily available in the pursuit of global and regional public goods.[43]

There will always be one country which, for domestic or other reasons, will be able, and can afford, to block decision-making under consensus diplomacy.[44] Under doctrines of multilevel governance, we need to arrive at systems of decision-making which no longer allow a single country to block a decision. The WTO's dispute settlement system demonstrates that this can be achieved and actually works. The losing party to a WTO dispute, at the end of the day, is not able to block the implementation of a WTO's panel or Appellate Body judicial decision. In the case of negotiations, efforts towards a system of weighted voting in international organizations, especially excluding blockages by single countries, are an imperative precondition for producing global public goods. In the absence of any further progress on GHG emission limitations agreements, there is growing concern that some key countries will tire of the unmanageable climate change negotiating process, and perhaps disengage from the issue of climate change entirely.

For the creation of a future global climate change agreement, the following fundamental points need to be kept in mind. First, assessing the emissions reduction pledges: are they enough?; second, fast-track finance: what are the sources of finance and what are the targets; third, technology diffusion; fourth, the impact of investments in the energy sector; fifth, what will the political

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is adopted as a treaty – as opposed to a political agreement – it is legally binding. A politically binding agreement, however, is a *bona fides* pledge that a country will comply with an international agreement through its domestic laws. If a country does not comply with a politically binding agreement, it suffers embarrassment but not sanctions, which are typical of a legally binding agreement. For more analysis on the various dimensions of bindingness, see Goldstein, J. *et al*. (eds.) *Legalization and World Politics*, Cambridge, MA: MIT Press, 2001; Bodansky, D. *The Art and Craft of International Environmental Law*, Cambridge, MA: Harvard University Press, 2009, Chapter 5.

[42] Consensus at the WTO is only among those Members present in the room, and not among the entire WTO membership.

[43] See generally OECD, *Convention on Climate Change: Economic Aspects of Negotiations*, Washington, D.C.: OECD Publications and Information Center, 1992.

[44] In the example of environmental agreements, see Susskind, L. *Environmental Diplomacy: Negotiating More Effective Global Agreements*, New York: Oxford University Press, 1994.

groupings be in the multilateral agreement on climate action and what will parties ask for?; sixth, what can be done to facilitate the UN process in the climate change context? Should the climate talks be 'multitrack'?; seventh, what are the complementary and supporting routes to an agreement on climate action?: The EU presidency?[45] The G-20?[46] Bilateral agreements between major players?; eighth, can and will sub-national, national, and regional agreements reduce GHG emissions?;[47] ninth, are there any 'quick-win' multipliers for climate action?

[45] Oberthür, S. "Global Climate Governance after Cancun: Options for EU Leadership," *The International Spectator*, 2011, 46 (1), 5–13.

[46] On the link between climate change and the G-20, see Houser, T. "A Role for the G-20 in Addressing Climate Change?" Working Paper Series, WP 10-15, Peterson Institute for International Economics, October 2010; Giddens, A. *The Politics of Climate Change*, Cambridge: Polity, 2009.

[47] On sub-national, national, and regional approaches to climate change, see Abate, Randall, *Kyoto or Not, Here We Come: The Promise and Perils of the Piecemeal Approach to Climate Change Regulation in the United States*, 15 CORNELL J.L. & PUB. POL'Y 369 (2006); Camacho, Alejandro, *Climate Change and Regulatory Fragmentation in the Great Lakes Basin*, 17 MICH. ST. J. INT'L L. 139 (2008); Carlarne, Cinnamon, *Notes From a Climate Change Pressure-Cooker: Subfederal Attempts at Transformation Meet National Resistance in the USA*, 40 CONN. L. REV. 1351 (2008); Carothers, Claire, *United We Stand: the Interstate Compact as a Tool for Effecting Climate Change*, 41 GA. L. REV. 229 (2006); Engel, Kirsten, *Mitigation Global Climate Change in the United States: a Regional Approach*, 14 N.Y.U. ENVTL. L.J. 54 (2005); Fershee, Joshua, *Levels of Green: State and Regional Efforts, in Wyoming and Beyond, to Reduce Greenhouse Gas Emissions*, 7 WYOMING L. REV. 269 (2007); Funk, William, *Constitutional Implications of Regional CO2 Cap-and-Trade Programs: The Northeast Regional Greenhouse Gas Initiative as a Case in Point*, 27 UCLA J. ENVTL. L. & POL'Y 353 (2009); Gracer, Jeffrey & Macdonald, Margaret, *State and Regional Carbon Reduction Markets in the United States: Key Developments and Links with Global Carbon Reduction Markets*, 19(4) ENVTL. CLAIMS J. 286 (2007); Holtkamp, James, *Dealing with Climate Change in the United States: The Non-Federal Response*, 27 J. LAND, RESOURCES & ENVTL. L. 79 (2007); Kaswan, Alice, *The Domestic Response to Global Climate Change: What Role for Federal, State, and Litigation Initiatives?*, 42 U.S.F.L. REV. 39 (2007); Lawrence, Jeremy, *Where Federalism and Globalization Intersect: the Western Climate Initiative as a Model for Cross-Border Collaboration Among States and Provinces*, 38 ENVTL. L. REP. NEWS & ANALYSIS 10796 (2008); Olmsted, James, *The Global Warming Crisis: An Analytical Framework to Regional Responses*, 23 J. ENVTL. L. & LITIG. 125 (2008); Scott, Douglas, *The Role of Illinois and the Midwest in Responding to the Challenges of Climate Change*, 27 UCLA J. ENVTL. L. & POL'Y 261 (2009); Smith, Michael, *Murky Precedent Meets Hazy Air: The Compact Clause and the Regional Greenhouse Gas Initiative*, 34 BOSTON COLL. ENVTL. AFF. L. REV. 387 (2007); Snyder, Jared & Binder, Jonathan, *The Changing Climate of Cooperative Federalism: The Dynamic Role of the States in a National Strategy to Combat Climate Change*, 27 UCLA J. ENVTL. L. & POL'Y 231 (2009); Stein, Eleanor, *Regional Initiatives to Reduce Greenhouse Gas Emissions* in GLOBAL CLIMATE CHANGE AND U.S. LAW Chapter 9 (Michael B. Gerrard, ed. 2007); Hodas, D. "State Initiatives," in GLOBAL CLIMATE CHANGE AND U.S. LAW (Michael B. Gerrard, ed. 2007); Holmes, O. "The Compact Clause and the Regional Greenhouse Gas Initiative", 120 HARV. L. REV. 1958 (2007); Wall, Michael, *The Regional Greenhouse Gas Initiative and California Assembly Bill 1493: Filling the American Greenhouse Gas Regulation Void*, 41 U. RICH. L. REV. 567 (2007).

There is indeed no shortage of ideas on how to advance the aim of climate protection.[48] Below are some suggestions on how to move forward the climate change agenda.

3. The Montreal Protocol as a Model for International Environmental Regulatory Cooperation

The purpose of this section is not to compare the Montreal Protocol process – whose objective was to phase out consumption of replaceable industrial chemical products with profits for the chemical industry – with the objective of the UNFCCC, which is to stabilize GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Rather, the purpose of this section is to see what the UNFCCC and its Kyoto Protocol can learn from the success of the Montreal Protocol.

That said, admittedly the substantive conditions of the UNFCCC and the Montreal Protocol are not comparable. The Montreal Protocol refers to industrial chemical products that can be phased out and was possible only after the hydrochlorofluorocarbon was developed, whereas the Kyoto Protocol refers to natural gases. Moreover, the UNFCC was adopted in 1992, with an international situation totally different from the present one. The Kyoto Protocol was adopted in 1997, allowing for time to replace capital assets and develop new technologies. This is not happening mainly because the Bush administration opposed the process.[49]

The UNFCCC negotiation process has much to learn from the success of the Montreal Protocol on Substances that Deplete the Ozone Layer.[50] According to the US Environmental Protection Agency, "the Montreal Protocol has been

[48] See, for example, Kuik, O. *et al*. "Post-2012 Climate Policy Dilemmas: A Review of Proposals", *Climate Policy*, 2008, 8 (3), 317–336; Aldy, J.E. & Stavins, R.N. (eds.) *Post-Kyoto International Climate Policy: Implementing Architectures for Agreement*, Cambridge: Cambridge University Press, 2010; Biermann, F., Pattberg, P.H., van Asselt, H. & Zelli, F. "The Fragmentation of Global Governance Architectures: A Framework for Analysis", *Global Environmental Politics*, 2009, 9 (4), 14–40; Aldy, J.E., Barrett, S. & Stavins, R.N. "Thirteen Plus One: A Comparison of Global Climate Policy Architectures," *Climate Policy*, 2003, 3, 373–397; Baumert, K.A. *et al*. (eds.) *Building on the Kyoto Protocol: Options for Protecting the Climate*, Washington D.C.: World Resources Institute, 2002; Bodansky, D. *International Climate Efforts beyond 2012: A Survey of Approaches*, Pew Center on Global Climate Change, 2004; Hoffmann, M. *Climate Governance at the Crossroads: Experimenting with a Global Response after Kyoto*, Oxford University Press, 2011.

[49] This information has been taken from a discussion with Raúl Estrada Oyuela, Chairman of the 1997 Kyoto COP, which created the Kyoto Protocol.

[50] United Nations Ozone Secretariat, *Handbook for the Montreal Protocol on Substances that Deplete the Ozone Layer*, 8th ed., Nairobi: UNEP, 2009.

successful because of scientific accuracy, effective public policy, and market-based, flexible, innovative approaches to ensuring ozone layer protection and developing alternatives".[51] Arguably, the Montreal Protocol was also very successful because developing countries were given a ten-year grace period to be legally bound,[52] something which did not happen with the Kyoto Protocol. The legal point of departure of the process which led to the Montreal Protocol is the Vienna Convention for the Protection of the Ozone Layer.[53] Although the UNFCCC and its Kyoto Protocol are the principal instruments to fight climate change, the Montreal Protocol has emerged as a major mechanism for regulating certain GHGs with a high global warming potential.[54]

The Montreal Protocol was adopted in 1987 to eliminate aerosols and other chemicals that were blowing a hole in the Earth's protective ozone layer.[55] In 1985, an agreement was reached on a Framework Convention, i.e., an international agreement with vague objectives and no specific obligations for signatory countries. Nevertheless, the Convention anticipated specific numerical limits by calling for future negotiations of additional protocols. The combination of fear regarding the ozone hole, the threat of worse things to come, and the availability of an alternative path led countries to agree to a strong protocol to the Convention in Montreal in 1987.[56] There is debate over how strong a role fear of the ozone hole (and possibly worse outcomes in the future) among policy-makers and the public played in the negotiations towards signing the Montreal Protocol.[57]

The Montreal Protocol and successor agreements are regarded as highly successful examples of international environmental regulatory cooperation that has been capable of rapid modification to take account of developing scientific information, spur credible regulatory commitments, and reflect technological

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[51] US Environmental Protection Agency, "Montreal Protocol 20th Anniversary: Frequently Asked Questions and Answers", p. 3, available at http://www.epa.gov/ozone/downloads/MP20_QandA.pdf.

[52] Article 5.1 of the Montreal Protocol.

[53] 26 ILM 1529, 1985.

[54] For a detailed analysis of the Montreal Protocol, see Barrett, S. *Environment and Statecraft: The Strategy of Environmental Treaty-making*, New York: Oxford University Press, 2003, Chapters 1, 3, 6, and 8.

[55] See Kaniaru, D. *The Montreal Protocol: Celebrating 20 Years of Environmental Progress, Ozone Layer and Climate Protection*, London: Cameron May, 2007; United Nations Ozone Secretariat, "The Montreal Protocol on Substances That Deplete the Ozone Layer: A Success in the Making", UNEP, 2007.

[56] For an alternative vision of more rapid ozone regulation and an *ex post facto* analysis of the cost of delay in regulation, see Ha-Duong, M., Mégie, G. & Hauglustaine, D. "A Pro-active Stratospheric Ozone Protection Scenario", *Global Environmental Change*, 2003, 13, 43–49.

[57] Richard Benedick has argued that a strong Protocol regarding the ozone hole would have been created in any event. See Benedick, R. *Ozone Diplomacy: New Directions in Safeguarding the Planet*, 2nd ed., Cambridge: Harvard University Press, 1998.

advances.[58] This system has often been held up as a model for dealing with global warming (including recent proposals to use the Montreal treaty regime to control some specific GHGs).[59] The analogy between ozone depletion and climate change works well in some respects: both the climate change and the ozone problems are long-lived because, once emitted, the problematic gases remain in the atmosphere for periods exceeding a century. As a result, emissions from any one country may affect many others, and current decisions to continue emitting or to minimally reduce emissions bear irreversible consequences. Moreover, both problems are characterized by scientific uncertainty and potentially devastating outcomes.

Furthermore, the Montreal Protocol is one example of an international environmental agreement in which trade-related environmental measures form a key component. Most prominently, the Protocol's restriction on Parties trading in ozone-depleting substances with non-Parties has served the dual purpose of encouraging wide participation in the Protocol[60] and removing any competitive advantage that a non-party might enjoy (i.e., preventing leakage to non-participating jurisdictions). Additionally, provision within the Protocol for funding and transfer of alternative, ozone-friendly technologies was intended to promote trade between industrialized and developing countries.

There are legislative lessons to be learned from the ozone layer experience for the case of climate change. In the case of the ozone layer via the Montreal Protocol, the international community established a two-pronged international approach involving scientific research and assessment along with a parallel international negotiating process. In the case of climate change, an international regime was developed that is similar in some respects, involving a general Framework Convention envisioning sequential protocols with specific obligations (e.g., the Kyoto Protocol) and a parallel scientific assessment process (i.e., the Intergovernmental Panel on Climate Change). A fund which enables industrialized countries to finance emission-free projects (including private-sector initiative and investment) in developing countries was also established (in the form of the Clean Development Mechanism).

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[58] For an informative comparison of EU and US domestic implementation of the Montreal Protocol and post-Montreal obligations, as well as a useful summary of pre-Montreal developments, see Hammitt, J.K., "CFCs: A Look Across Two Continents", in Harrington, W., Morgenstern, R.D., & Sterner, T. (eds.) *Choosing Environmental Policy: Comparing Instruments and Outcomes in the United States and Europe*, Washington, D.C.: Resources for the Future, 2004.

[59] Broder, J. "A Novel Tactic in Climate Fight Gains Some Traction", *The New York Times*, 8 November 2010, available at http://nyti.ms/efUIhf.

[60] As of 2011, the Montreal Protocol has more than 190 parties, whereas as of August 1990 it had only 63 parties, and only 46 initially signed it between 1987 and 1988, prior to its entry into force on 1 January, 1989. See http://ozone.unep.org/Ratification_status/.

Some of the questions and mistakes that arose from the Montreal Protocol can also be instructive for the climate negotiations process. For example, should more aggressive action have been taken in 1987 while negotiating the Montreal Protocol so that some ozone depletion and skin cancer cases could have been avoided? This is precisely the dilemma decision-makers now face with global warming: given the uncertainties, how strong should the first steps be towards the creation of a meaningful global climate change agreement? The climate change problem affords an opportunity for humans to act in advance of a surprising, undesirable, and very noticeable outcome, analogous to the ozone hole.

However, the Montreal Protocol included both mandatory production limits for developing countries and enforcement provisions for non-compliance that were strong, at least on paper. Neither is envisioned in the Kyoto Protocol, and events at the 2009 COP-15 in Copenhagen highlighted the difficulty of reaching an agreement on binding GHG emission limits for developing countries. In addition, the threat of skin cancer posed by the ozone hole engaged public attention to a greater extent than climate change did, except during relatively brief periods when hurricanes, heat waves, or melting ice caps are in the news.

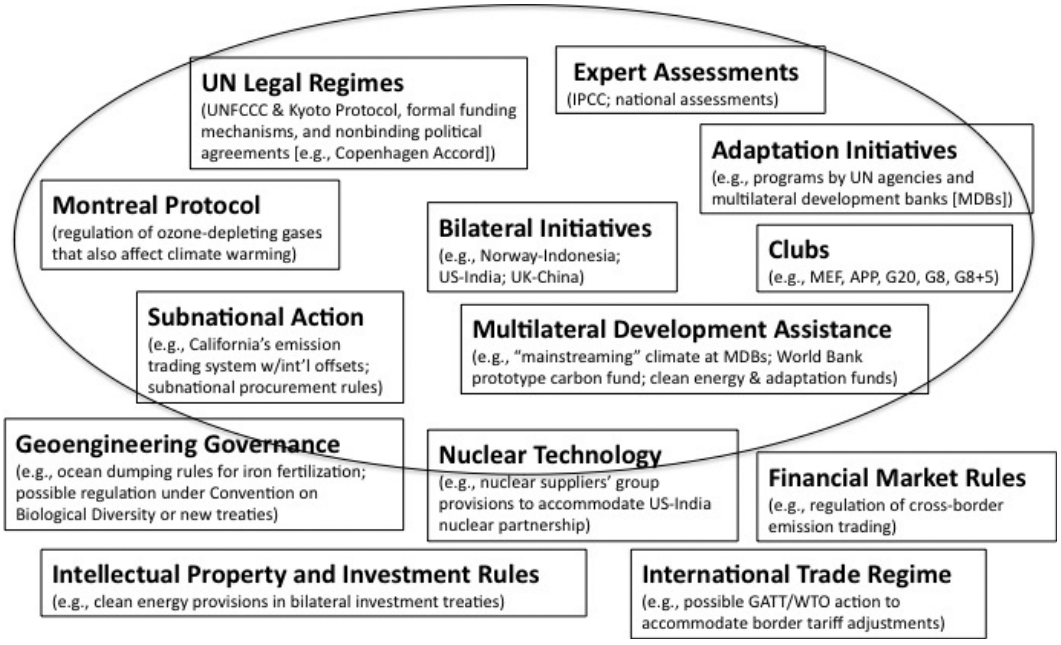
In spite of these differences, there is much to be learned from the ozone story, and at the very least it demonstrates that international environmental agreements can work, although a little too slowly. Countries can manage to come together, evaluate science, and act sensibly to avert natural disaster. Moreover, the Montreal Protocol process shows that it is not necessary for science to be certain and for impacts to be evident to develop strong policy initiatives that receive public and industry support, and it contains important lessons on risk, uncertainty, precaution, and on cooperative approaches to solving large environmental challenges. Furthermore, the Montreal Protocol experience provides specific guidance on how to engage developing countries as well as how to implement and enforce such an international agreement quickly to achieve unexpectedly rapid results. Finally, the politics of domestic implementation was straightforward and the cost of doing so, minimal. All these experiences are directly transferable to the climate change challenge.

Following the example of the Montreal Protocol, it is important to have a flexible approach to create a climate change agreement. The Kyoto Protocol is clearly not working, partly due to its lack of flexibility. Therefore, bilateral and regional climate agreements – which are more flexible and manageable than a universal climate change agreement – could complement the Kyoto Protocol in the reduction of GHG emissions.

4. The Importance of a Flexible and Pragmatic Approach

Given the fragmented and cyclical nature of international law generally,[61] bringing together a group of countries – as opposed to the entire global community – seems to make sense as a stepping stone towards the eventual creation of a future global climate change agreement. In the case of climate change, two leading scholars of international governance, Robert Keohane and David Victor, argue that the diverse range of institutions involved in climate change governance constitutes a regime complex, which has advantages and disadvantages compared to a unitary international regime.[62] Figure 2 shows a graphical map of the climate change regime complex.[63]

Figure 2: *Source*: Keohane, R. & Victor, D. "The Regime Complex for Climate Change", *Perspectives on Politics*, Vol. 9, Issue 1, pp. 7–23, 2011, at p. 10.



[61] Leal-Arcas, R. *International Trade and Investment Law: Multilateral, Regional and Bilateral Governance* (Edward Elgar, 2010), p. 1.
[62] Keohane, R. & Victor, D. "The Regime Complex for Climate Change", *Perspectives on Politics*, 2011, 9 (1), 7–23.
[63] The regimes and institutions within the oval are those in which substantial rule-making or other activities have already taken place, focused on one or more of the tasks needed to manage the diversity of cooperation problems that arise with climate change. Those completely or partially outside the oval are those regimes in which additional rule-making is needed.

The case of international trade law is a good illustration of the fact that nature of international law, generally speaking, is fragmented.[64] At first, international trade agreements were bilateral. Then came the 1947 General Agreement on Tariffs and Trade (GATT),[65] which multilateralized bilateral trade agreements. Years later, international trade law saw the collapse of multilateralism in 1979, which broke down during the Tokyo Round of multilateral trade negotiations.[66] A series of new plurilateral (or selectively multilateral) agreements were adopted during the Tokyo Round, which caused a fragmentation of the multilateral trading system.[67] In 1994, international trade law was again multilateralized with the World Trade Organization Agreement.[68]

The same thesis could be used for climate change law. Given the success at multilateralizing international trade law – although not always easy – why not emulate the experience of multilateralization of international trade law for the case of climate change law?[69] Although not always easy, this trend of using bilateral or plurilateral agreements to build towards eventual multilateralization is worth emulating for the case of climate change law.[70] In the framework of the UNFCCC, there are currently 195 parties to the Convention. One option to move the climate change agenda forward is to bring together major GHG emitters via

[64] See generally Cottier, T. & Delimatsis, P. (eds.) *The Prospects of International Trade Regulation: From Fragmentation to Coherence*, New York: Cambridge University Press, 2011.

[65] For an understanding of how the GATT came into being, see Irwin, D., Mavroidis, P., & Sykes, A. *The Genesis of the GATT*, Cambridge: Cambridge University Press, 2008.

[66] World Trade Organization, "The GATT Years: From Havana to Marrakesh", available at http://www.wto.org/english/thewto_e/whatis_e/tif_e/fact4_e.htm.

[67] See Statement of the GATT Director-General on the Tokyo Round, April 12, 1979, 18 I.L.M. 553. See also Leal-Arcas, R. "The Fragmentation of International Trade Law: Is Now the Time for Variable Geometry?" *The Journal of World Investment and Trade*, 2011, 12 (2), 145–195.

[68] For further elaboration of the argument, see Leal-Arcas, R. *International Trade and Investment Law: Multilateral, Regional and Bilateral Governance* (Edward Elgar, 2010).

[69] One may wonder whether this is a wise suggestion these days, given the current multilateral trade crisis regarding the completion of the Doha Round of multilateral trade negotiations. However, one should not forget how significant multilateral trade contributions have been to both international cooperation and to economic growth since 1947 with the birth of the GATT.

[70] See the work by Thomas Cottier "Confidence-building for Global Challenges: The Experience of International Economic Law and Relations", NCCR Trade Working Paper No. 2011/40, March 2011, available at http://www.wti.org/fileadmin/user_upload/nccrtrade.ch/wp5/5.5a/International%20Economic%20Law%20Cottier%20final%200311%20%282%29.pdf (exploring to what extent the experience in international trade regulation could be employed to design an appropriate architecture in climate change mitigation).

bilateral and plurilateral agreements (for example, in the framework of the G-20[71] or the Major Economies Forum on Energy and Climate, MEF). Having a flexible system beyond the traditional top-down approach would be an efficient way to move forward multilaterally in climate change.[72] In environmental regimes, there is a particular need for flexibility[73] and evolution,[74] because our understanding of environmental problems is likely to change as science and technology develop.[75] Flexibility is therefore key for a successful climate change agreement.[76] This flexible approach was the success of the multilateral trading system.

[71] The members of the G-20 are the finance ministers and central bank governors of 19 countries: Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, the United Kingdom, and the United States. The EU is also a member, represented by the rotating Council presidency (since the entry into force of the Lisbon Treaty, it is the European Council president) and the European Central Bank. To ensure that global economic *fora* and institutions work together, the Managing Director of the International Monetary Fund (IMF) and the President of the World Bank, plus the chairs of the International Monetary and Financial Committee and Development Committee of the IMF and World Bank, also participate in G-20 meetings on an ex-officio basis. See http://www.g20.org/about_what_is_g20.aspx.

[72] In the case of the EU integration process trying to find the right balance between the maintenance of any redefined division of competences between the EU and its Member States and ensuring that the European dynamic does not come to a halt, the failed EU Constitutional Treaty had envisaged a flexibility clause (Article I-18 of the Constitutional Treaty), which is the procedure which gives the EU new competences in areas unspecified by the Constitutional Treaty. According to the flexibility clause, if the European Commission deems it necessary to conduct a new action to reach the Union's objectives, it makes a proposal to that effect to the EU Council, which acts unanimously after obtaining the approval of the European Parliament. With respect to the control procedure of the subsidiarity principle, the EU Council may assign the necessary competences to the Union. The new competences cannot, however, entail harmonization of Member States' laws or regulations in cases where the EU Constitutional Treaty excludes such harmonization.

[73] See the views of Atkinson, R. *et al*., "Climate Pragmatism: Innovation, Resilience and No Regrets", Breakthrough Institute and Information Technology and Innovation Foundation, 2011 (arguing that the best way to tackle climate change is via pragmatism, following the philosophical tradition and the deeply held facet of American cultural identity). Available at http://thebreakthrough.org/blog/Climate_Pragmatism_web.pdf.

[74] See generally Ostrom, E. *Governing the Commons: The Evolution of Institutions for Collective Action*, Cambridge University Press, 1990.

[75] Bodansky, D. & Diringer, E. "The Evolution of Multilateral Regimes: Implications for Climate Change", Pew Center on Global Climate Change, December 2010.

[76] See Keohane, R. & Victor, D. "The Regime Complex for Climate Change", *Perspectives on Politics*, 2011, 9 (1), 7–23 (arguing that there is no integrated regime governing efforts to limit the extent of climate change. Instead, there is a regime complex: a loosely coupled set of specific regimes).

5. The Incremental Development of Multilateral Regimes: An Opportunity for Climate Change

Several proposals for a new post-2012 climate regime are already on the table.[77] They range from so-called bottom-up approaches, which envision the international regime as an aggregation of nationally or regionally defined programs put forward by countries on a voluntary basis, to top-down approaches, in which governments negotiate more or less binding international commitments that in turn shape and drive national policies.[78] Ideally, both avenues should be pursued and eventually linked. Here, it is relevant to address the question to what extent some form of multilateral cooperation could foster bottom-up approaches.[79] In particular, to what extent the experience in international trade negotiations and the WTO framework can serve as an example[80] and to what extent the political economy of trade and investment is suitable to address problems of global public goods.[81] Essentially, the answer to these questions will be a matter of assessing appropriate incentive structures.

While exploring ways to improve the effectiveness of the current UNFCCC climate change negotiations, attention should be given to the institutional support of the negotiations. In this framework, this article explores

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[77] Purvis, N. "Rethinking Climate Diplomacy: New Ideas for Transatlantic Cooperation Post-Copenhagen", German Marshall Fund of the United States, Brussels Forum, Paper Series, 2010, available at http://www.gmfus.org/brusselsforum/2010/docs/BF2010-Paper-Purvis-Stevenson.pdf; Gosh, A. "Making Climate Look Like Trade? Questions on Incentives, Flexibility and Credibility", *CPR Policy Brief*, March 2010, Centre for Policy Research; Agarwala, R. "Towards a Global Compact for Managing Climate Change", Discussion Paper 2008-22, Cambridge, MA: Harvard Project on International Climate Agreements, 2008; Olmstead, S.M. & Stavins, R.N. "An International Policy Architecture for the Post-Kyoto Era", AEA Papers and Proceedings, 2006, 96 (2), 35–38; Olmstead, S.M. & Stavins, R.N. "An Expanded Three-Part Architecture for Post-2012 International Climate Policy", Paper prepared for The Harvard Project on International Climate Agreements, 2008.

[78] Keohane, R.O. & Victor, D. "The Regime Complex for Climate Change", Discussion Paper 2010-33, Cambridge, MA: Harvard Project on International Climate Agreements, 2010; Keohane, R.O, Macedo, S. & Moravcsik, A. "Democracy-Enhancing Multilateralism", *International Organization*, 2009, 63, 1–31.

[79] Kenneth Abbott and Duncan Snidal have studied gradual cooperation of States in "Pathways to International Cooperation", in Benvenisti, E. and Hirsch, M. (eds.) *The Impact of International Law on International Cooperation*, Cambridge University Press, 2004, pp. 50–84 (where they argue that States often cannot move directly to a cooperative solution because of informational, bargaining, and distribution problems that hamper collective action).

[80] Cottier, T. "From Progressive Liberalization to Progressive Regulation in WTO Law", *JIEL*, 2006, 9 (4), 779–821.

[81] That said, there are commentators who question whether free trade is a public good. See, for instance, Kindleberger, C. "International Public Goods without International Government", *American Economic Review*, 1986, 1 (76), 2–13.

the possibilities to provide the UNFCCC/Kyoto Protocol with a more adequate governance structure[82] and examines, in particular, whether approaches used in other UN negotiations, the WTO, or the EU may be of assistance in the current climate change negotiations.[83]

5.1. The Examples of the WTO and the EU

Some general lessons for transnational mitigation regimes may be drawn from the experience of the EU and the WTO.[84] Experience from successful precedents tells us that multilateralism is often an evolutionary process, which, by definition, takes time and does not always have to grow in a linear manner. In this regard, the COP-15's failure in Copenhagen has led many people to rethink the best way to create an effective international response to climate change. Some think that the path to a new legally binding agreement on climate change may need to take a longer and more incremental approach than what has been attempted at the various COPs.[85] This path to a new legally binding agreement on climate change will involve a gradual process of evolution,[86] as has been the case of the GATT/WTO,[87] the EU,[88] and the G-8[89]/G-20.

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[82] Caney, S. "The Responsibilities and Legitimacy of Economic International Institutions", in Meyer, L. (ed.) *Justice, Legitimacy and Public International Law*. Cambridge: Cambridge University Press, 2009, pp. 92–122.

[83] Gosh, A. "Making Climate Look Like Trade? Questions on Incentives, Flexibility and Credibility", *Centre for Policy Research Policy Brief*, March 2010.

[84] Dröge, S., van Asselt, H., Brewer, T., Grubb, M., Ismer, R., Kameyama, Y., Mehling, M., Monjon, S., & Neuhoff, K. "Tackling Leakage in a World of Unequal Carbon Prices", Climate Strategies Project Report, 2009; World Trade Organization, *Trade and Climate Change: A Report by the United Nations Environment Program and the World Trade Organization*, Geneva: WTO, 2009.

[85] See the views of UNFCCC Executive Secretary Christiana Figueres at http://www.clintonglobalinitiative.org/ourmeetings/2010/meeting_annual_multimedia_player.asp?id=26&Section=OurMeetings&PageTitle=Multimedia.

[86] On the complexity of setting agreements and institutions in any given area, see Raustiala, K. & Victor, D. "The Regime Complex for Plant Genetic Resources", *International Organization*, 2004, 59, 277–309.

[87] See, for instance, Leal-Arcas, R. "Proliferation of Regional Trade Agreements: Complementing or Supplanting Multilateralism?" *Chicago Journal of International Law*, 2011, 11 (2), 597–629 (arguing that, with the creation of the WTO in 1995, the pyramidal design of the international trading system placed multilateralism at the top of the pyramid, regionalism/bilateralism in the middle, and the domestic trade and economic policies of WTO Member States at the bottom of the pyramid. The author questions whether this vertical structure is still the case today, given the tremendous proliferation of regional trade agreements in recent years and the fact that the WTO is losing its centrality in the international trading system).

[88] Despite its evolutionary structure, the EU also went through crises. One example resulted from a provision in the Treaty of Rome which stipulated that, with effect from 1 January 1966, unanimous voting would gradually be replaced by qualified-majority voting. France, under

How and why do regimes evolve? Oftentimes regimes start out as non-legal, voluntary arrangements that eventually become legally binding.[90] The multilateral trade regime is a good illustration of a successful regime evolution. The 1947 GATT, which set out a plan for economic recovery after World War II by encouraging reduction in tariffs and other international trade barriers, started with just 23 members and did not establish any formal organization, as it was just an international trade agreement.[91] Over the years, the GATT evolved through several rounds of negotiations to acquire enough credibility by the parties to transform a general agreement into an international organization.[92]

The multilateral trade regime continued the work it had begun through earlier trade rounds (additional liberalization in industrial products, tackling of non-tariff barriers and subsidies), it expanded in scope (including partial liberalization of trade in services[93] and the protection of intellectual property rights), moved towards an intergovernmental organization (with the creation of a new organization, i.e., the WTO) and directly addressed woes with past compliance (through establishing one of the most legalized dispute settlement systems in world politics).[94] The 1986–1994 Uruguay Round of multilateral trade negotiations reformulated and institutionalized the GATT and replaced it with the WTO, which was eventually founded in 1995. The WTO, a global trade agency

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General de Gaulle, opposed the changeover by rejecting a series of European Commission proposals, blocking their adoption in the EU Council, and refusing to move from unanimous to qualified-majority voting. The French Government decided to express its disapproval by applying the 'empty chair' policy, where France refused to participate in EU Council meetings. The veto of a single country was brought into question. On January 28, 1966, through the Luxembourg Compromise, France agreed to resume its Council seat. It was decided that the majority vote procedure would be replaced by unanimous vote if an EU Member State considers that "very important interests" are at stake.

[89] The members of the finance G-8 are the US, Canada, UK, Germany, France, Italy, Russia, and Japan.

[90] See generally Abbot, K. & Snidal, D. "Hard and Soft Law in International Governance", in Goldstein, J. *et al*. (eds.) *Legalization and World Politics*, Cambridge, MA: MIT Press, 2001; Raustiala, K. "Form and Substance in International Agreements", *American Journal of International Law*, 99, 581–614, 2005.

[91] For an analysis of how the international trade regime evolved over the years in a multilayered manner, see Leal-Arcas, R. *International Trade and Investment Law: Multilateral, Regional and Bilateral Governance*, Cheltenham: Edward Elgar, 2010.

[92] For a balance sheet of the multilateral economic institutions, see Gardner, R.N. "The Bretton Woods-GATT System After Sixty-Five Years: A Balance Sheet of Success and Failure," *Columbia Journal of Transnational Law*, Vol. 47, No. 1, pp. 31-71, 2008.

[93] See, for instance, Leal-Arcas, R. "The GATS and Temporary Migration Policy", in Lewis, M. & Frankel, S. (eds.) *International Economic Law and National Autonomy*, Cambridge University Press, 2010, pp. 193–215.

[94] Bernauer, T., Elsig, M., & Pauwelyn, J. "The Dispute Settlement Mechanism: Analysis and Problems", in Daunton, M., Narlikar, A., & Stern, R.M. (eds.) *Oxford Handbook on the World Trade Organization*, Oxford: Oxford University Press, 2012.

with binding enforcements of comprehensive rules expanding beyond trade, has grown to more than 150 members as of early 2011. The membership is expected to expand in the near future. The WTO is certainly a remarkable example of institutional evolution.

The same is true for the EU.[95] From a small group of six rather homogeneous West-European countries in the 1950s, it later became a group of nine countries in the 1970s, 12 in the 1980s, 15 in the 1990s, up to 27 countries in the 2000s that are legally bound by common EU treaties. As the EU was progressing, European countries saw the benefit of being EU members and eventually joined. The European integration project is ongoing, and it is expected that more countries will join the EU in the future. However, if the EU were to have started with its current 27 Member States, chances are that it would not have succeeded. The EU, therefore, makes a good case for the incremental approach.[96]

In the case of climate change, the temporal factor should not be a real concern if the 20 major GHG emitters, responsible for around 80% of GHGs in 2008,[97] are on board from the beginning. An incremental expansion to the rest of the UNFCCC membership will not really be detrimental to the global warming effect, as the rest of the UNFCCC membership is only responsible for around 20% of global emissions.[98]

The ultimate goals should still be a comprehensive and binding global climate change agreement but, in the meantime, small steps, both within and outside the UNFCCC, offer an effective way forward. Furthermore, when designing a future climate change agreement, one should take advantage of prior agreements to reduce transaction costs and increase legitimacy. To create a binding agreement, States need to have confidence and trust in the regime. A good example is the WTO's dispute settlement system, which has demonstrated over time to be an impartial judicial body.[99]

The trade and climate change communities faced a double negative at the beginning of 2010, i.e., no global deal at the 2009 Copenhagen Conference of the Parties to reduce emissions of heat-trapping gases and no concluding deal at the Doha Round of multilateral trade negotiations in the WTO.[100] Both multilateral

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[95] Leal-Arcas, R. "Reflections on EU International Trade Law: An EU Introspective View", *Frontiers of Law in China*, 7 (1), 2012; Leal-Arcas, R. "The European Union's Trade and Investment Policy after the Treaty of Lisbon", *The Journal of World Investment and Trade*, 2010, 11 (4), 463–514.

[96] For an in-depth analysis of the EU in the world trading system, see Leal-Arcas, R. *Theory and Practice of EC External Trade Law and Policy*, London: Cameron May, 2008.

[97] See US Energy Information Administration, *International Energy Statistics 2009*, 2009.

[98] Ibid.

[99] http://www.wto.org/english/tratop_e/dispu_e/dispu_e.htm.

[100] On the WTO, see, for instance, Cottier, T. & Elsig, M. (eds.) *Governing the World Trade Organization: Past, Present and Beyond Doha*, New York: Cambridge University Press, 2011;

negotiations are highly complex, but also of great importance to all parties involved, whether industrialized or developing countries. Attempts to keep the two multilateral agreements and their respective negotiations apart, hoping to reduce complexities, have not been successful. The two multilateral processes could be more directly linked to each other and bridges could be built to reach more ambitious goals in both multilateral *fora*.[101]

Given the possibly catastrophic consequences of climate change, of course a more rapid process would be ideal. However, this research argues that, given the current obstacles to multilateral climate change negotiations, the evolutionary approach is the most credible way forward.

5.2. An Incremental Bottom-Up Approach for Climate Change[102]

In the case of the climate change regime, although the international response has developed along an evolutionary pathway,[103] in some key respects, it has proceeded in fits and starts, and has, at this stage, stalled or even moved backward.[104] There have been many incremental steps so far – in fact, the regime has become fragmented, with the Major Economies Forum (MEF) and other initiatives emerging, which are only loosely connected with the UNFCCC. Another important way in which the climate change regime has evolved is in its financial mechanism. Examples are the Kyoto Protocol's Adaptation Fund[105] and the Clean Development Mechanism (CDM). However, no such steps have been taken in one critical area – the legalization of countries' core commitments. In some ways, it seems the regime is moving in the direction of political rather than legal commitments.[106] Overall, the UNFCCC remained very rigid until the COP-13 in Bali, because of the division between Annex I and non-Annex I countries,

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Schwab, S. "After Doha: Why the Negotiations are Doomed and What We Should Do about It," *Foreign Affairs*, May/June 2011.

[101] See the study by Raymond Saner in Saner, R. "International Governance Options to Strengthen WTO and UNFCCC," CSEND, June 2011.

[102] See Carraro, C. & Egenhofer, C. (eds.) *Climate and Trade Policy: Bottom-up Approaches Towards Global Agreement*, Edward Elgar, 2007; Prins, G. *et al*. "The Hartwell Paper: A New Direction for Climate Policy after the Crash of 2009," May 2010; Hulme, M. "Moving Beyond Climate Change," *Environment*, 2010, Vol. 52 (3), 15-19; Rayner, S. "How to Eat an Elephant: A Bottom-Up Approach to Climate Policy," *Climate Policy*, 2010, 10 (6), 615-621; Pennell, N. *et al*. "Bottom Up & Country Led: A New Framework for Climate Action," Booz & Company, 2010.

[103] See generally Yamin, F. and Depledge, J. *The International Climate Change Regime: A Guide to Rules, Institutions and Procedures*, Cambridge University Press, 2004.

[104] See the analysis by Bodansky, D. & Diringer, E. "The Evolution of Multilateral Regimes: Implications for Climate Change", Pew Center on Global Climate Change, December 2010, p. 13.

[105] http://www.adaptation-fund.org/.

[106] See, for instance, the Copenhagen Accord as an example of a political commitment.

which has proven very resistant to evolution. Since the COP-13 in Bali, the UNFCCC has found more flexible avenues to move forward owing to NAMA, REDD (Reducing Emissions from Deforestation and Forest Degradation) and MRVs.

One reason the climate change regime appears to have stalled in recent years is that it has tried to forge ahead too quickly along the legal dimension. According to Bodansky and Diringer, "arguably, the leap was too ambitious for a relatively young regime, which had not had time for trust to develop".[107] Continuing to push for binding commitments in the near term could produce a string of failures and potentially undermine the credibility and relevance of the UNFCCC process in the eyes of both parties and observers.[108] The urgency to reduce GHG emissions made parties feel impatient to create a legal framework as soon as possible. The multilateral record, however, shows that "oftentimes strong, stable and legally binding architectures are not simply hatched; they are built step by step over time".[109] This means that, if GHG emissions are not reduced soon considerably, the main focus will have to be adaptation.[110]

So how should the climate change regime evolve?[111] One way is by giving priority to institutional development and then gradually turn to legalization. For example, even if parties do not formally agree on mitigation pledges, they can move forward in other areas, including stronger support for developing countries and better systems for the measurement, reporting, and verification of mitigation efforts. These measures will build the UNFCCC's role as an international forum for *action*, as opposed to *negotiation*. Once parties are prepared to legalize their commitments, one possibility is to initially adopt parallel agreements, and only later merge the various tracks into a single agreement.

Some have proposed a top-down,[112] burden-sharing architecture for international climate policy going forward, designed to produce a fair distribution

[107] Bodansky, D. & Diringer, E. "The Evolution of Multilateral Regimes: Implications for Climate Change", Pew Center on Global Climate Change, December 2010, p. 16.
[108] Ibid.
[109] Ibid., p. 23.
[110] See United Nations Environment Program, Annual Report 2010, Nairobi: UNEP, 2011.
[111] For various options, see Winkler, H. & Beaumount, J. "Fair and Effective Multilateralism in the Post-Copenhagen Climate Negotiations", *Climate Policy*, 2010, 10, 638–654.
[112] See, for instance, Hare, W. *et al*., "The Architecture of the Global Climate Regime: A Top-Down Perspective," *Climate Policy*, 2010, 10 (6), 600-614 (arguing that a legally binding, multilateral agreement is a necessary condition for achieving the highest levels of GHG emissions reductions consistent with limiting warming to below either 2°C or below 1.5°C. Clear legally binding commitments within a multilaterally agreed process with strong legal and institutional characteristics are needed to give countries the confidence that their economic interests are being fairly and equally treated).

of burdens across countries,[113] while also giving priority to (green) economic development, addressing concerns about wealth inequality, and achieving emissions reductions consistent with limiting the expected increase in global average temperature to 2°C.[114] This caveat is only fair, as developing countries do not have the same means to make progress in the same way as developed countries. Moreover, developed countries causing climate change should compensate their victims (i.e., the so-called corrective justice argument). In this respect and regarding the creation of a global, ambitious, and comprehensive climate agreement, at the G-8 meeting in L'Aquila in 2009 leaders of the G-8 called upon "other industrialised countries and emerging economies to actively engage, consistently with the principle of common but differentiated responsibilities and respective capabilities".[115] Furthermore, the G-8 leaders proposed a formula whereby developed countries would have to cut their emissions by at least 80% by 2050 compared to the 1990 levels,[116] but the GHG reduction for the whole world would be of 50% by 2050,[117] thereby giving developing countries extra time before they would have to start reducing their own GHG emissions.

The more equitable the burden-sharing, the more likely it will be for large non-Annex I countries such as China to take on GHG emissions reduction binding targets. Moreover, the more costly it is to reduce GHG emissions, the smaller incentives will large non-Annex I countries have to accept binding targets for GHG emissions cuts.[118]

This proposal to change the current rules of the game accepts the UNFCCC's principle of "common but differentiated responsibilities"[119] – conceptually very similar to the well-known principle in WTO law of "special and

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[113] Shue, H. "Global Environment and International Inequality", *International Affairs*, 1999, 75 (3), 531–545.

[114] Jacoby, H. *et al*. "Sharing the Burden of GHG Reductions", in Aldy, J. & Stavins, R. (eds.) *Post-Kyoto International Climate Policy: Implementing Architectures for Agreement*, New York: Cambridge University Press, 2010, pp. 753–785; Cao, J. "Beyond Copenhagen: Reconciling International Fairness, Economic Development, and Climate Protection", *Harvard Project on International Climate Agreements Discussion Paper Series*, 2010-44, October 2010.

[115] G8 Summit "Responsible Leadership for a Sustainable Future", para. 5, 2009, available at http://www.g8italia2009.it/static/G8_Allegato/G8_Declaration_08_07_09_final%2c0.pdf.

[116] Ibid., para. 65.

[117] Idem.

[118] On equity in climate change regarding the distributions of responsibility, capability, and vulnerability to climate change across countries, see Füssel, H.-M., "How Inequitable is the Global Distribution of Responsibility, Capability, and Vulnerability to Climate Change: A Comprehensive Indicator-based Assessment", *Global Environmental Change*, 2010, 20, 597–611.

[119] Article 3.1 of the UNFCCC.

differential treatment"[120] – but eliminates the distinction between Annex I and non-Annex I countries, because it does not serve much purpose today. Since 2008, there has been increased pressure on non-Annex I countries to accept commitment to reduce their GHG emissions, especially Brazil, India, and China. The more vulnerable to climate change, the greater incentives will major non-Annex I countries have to accept binding GHGs emissions cuts. The variables that could be used to differentiate the responsibilities of the UNFCCC parties are total GDP, per capita GDP, total emissions, per capita emissions,[121] and population *inter alia*.[122] One could well imagine that if the international community chooses the per capita emissions criterion, this may well create an incentive for countries to increase their population, which is another global problem altogether.

If we pursue the evolutionary approach to climate change, and defer for now the question of ultimate legal form, what happens to the Kyoto Protocol? Parties could choose to keep elements of Kyoto operational (e.g., the CDM) even after its first commitment period expires after 2012. Eventually, the CDM and other elements of Kyoto could be incorporated into whatever institutional structure is established by a new legal agreement.[123]

5.2.1. Definition, Advantages, and Disadvantages of a Bottom-up Approach

Although there is no legal definition of a bottom-up approach,[124] the idea behind it – which envisions the international climate change effort as an aggregation of

[120] This principle is one of the four categories of the so-called Enabling Clause (i.e., the 1979 GATT decision on differential and more favorable treatment, reciprocity, and fuller participation of developing countries). Almost all WTO agreements provide for special and differential treatment provisions for developing country Members to facilitate their integration into the world trading system.

[121] On per capita allocation proposals, see Agarwal, A. "Making the Kyoto Protocol Work: Ecological and Economic Effectiveness, and Equity in the Climate Regime", Centre for Science and Environment, available at http://old.cseindia.org/programme/geg/pdf/cse_stat.pdf.

[122] For differentiating commitments, see the methodology by Gupta, J. "Engaging Developing Countries in Climate Change: (KISS and Make-Up!) in Michel, D. (ed.) *Climate Policy for the 21st Century: Meeting the Long-Term Challenge of Global Warming*, Washington, DC: Center for Transatlantic Relations, 2003.

[123] On climate governance after 2012, see Biermann, F., Pattberg, P. & Zelli, F. (eds.) *Global Climate Governance Beyond 2012: Architecture, Agency and Adaptation*, New York: Cambridge University Press, 2010.

[124] A bottom-up approach to a problem is a situation that begins with details and works up to the highest conceptual level, such as 'a bottom-up model of the reading process'. Bottom-up architecture and decentralization are to be found, for instance, in the field of investment protection, which continues to rely upon bilateral agreements and has not formally embraced multilateralism. There are more than 2700 bilateral investment protection agreements of diverging content. For an overview of the latest figures characterizing the decentralized landscape of

nationally defined programs put forward by countries on a strictly voluntary basis – is to aim at economic change towards a low-carbon future through promoting energy efficiency and inducing technological breakthroughs throughout the economy.[125] The purpose of this approach is to make bottom-up climate arrangements a useful supplement, and not a replacement, to top-down climate policies. Each country would determine what is socially, economically, politically, and technically feasible based on national circumstances.[126]

There are clear benefits to a bottom-up approach: it is feasible (i.e., it is easier to reach consensus and implement the outcomes than it is in a top-down approach. In this regard, the WTO experience, compared with the UNFCCC's, is a good illustration); [127] it is effective (i.e., it can attract the world's largest GHG emitters for purposes of reducing the emissions of GHGs); and it is practical (i.e., it may become an implementation platform for multilateral climate policies). However, there are potential risks to the bottom-up approach: the bottom-up approach may result in the slowing-down of the multilateral process; it may also result in non-homogeneous climate governance; and there may be a lack of incentives for countries to participate. It is therefore essential to engage countries to participate in a bottom-up regime, whether it is by creating incentives such as cap-and-trade or any other form of incentive, which will be discussed later.[128]

A good example of a bottom-up, public-private initiative is the 2005 Asia-Pacific Partnership on Clean Development and Climate,[129] adopted in January 2006, where a group of major Asia-Pacific countries (Australia, Canada, China, India, Japan, Korea, and the US), in the context of the Asia-Pacific Economic Cooperation (APEC),[130] engages in discussions about energy security, air

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international investment rules, see UNCTAD, *UNCTAD World Investment Report 2010: Investing in a Low-Carbon Economy* (New York and Geneva: UNCTAD, 2010), 81ff, http://www.unctad.org/en/docs/wir2010_en.pdf.

[125] See Nordhaus, T. & Shellenberger, M. "The End of Magical Climate Thinking", *Foreignpolicy.com*, 13 January 2010, available at http://www.foreignpolicy.com/articles/2010/01/13/the_end_of_magical_climate_thinking.

[126] Reinstein, R. "A Possible Way Forward on Climate Change", *Mitigation and Adaptation Strategies*, 2004, 9, 295–309.

[127] When the UNFCCC makes a treaty it can be argued that it has more of a legal basis and there is less scope for deliberation as the Committee is focused on ensuring that the aims of the Convention are brought into effect. By contrast, when the WTO or EU create treaties it can be said that they are mainly derived from rules and standards which are customary, rather than legal, among the Parties and Member States, respectively, that are part of the organization. See Naiki, Y. 'The Mandatory/Discretionary Doctrine in WTO Law: The US-Section 301 Case and its Aftermath' *JIEL*, 2004, 7 (1), 23–72.

[128] See, for instance, the debate of why economists prefer a cap-and-trade system to tackle climate change, as opposed to a tax system, available at http://www.abc.net.au/unleashed/2795102.html.

[129] http://www.asiapacificpartnership.org/english/default.aspx.

[130] http://www.apec.org/.

pollution reduction, and climate change.[131] Collectively, these countries account for more than 55% of the world's GHG emissions, population, economy, and energy use.[132] The Charter of Asia-Pacific Partnership on Clean Development and Climate clearly stipulates in its preamble that "the purposes of the Partnership are consistent with the principles of the United Nations Framework Convention on Climate Change and other relevant international instruments, and are intended to complement but not replace the Kyoto Protocol".[133] The Charter further stipulates that one of the purposes of the Charter is to "create a voluntary, non-legally binding framework for international cooperation to facilitate the development […] and transfer of […] cleaner, more efficient technologies and practices among the Partners".[134] At the same time, the Charter also stipulates that, although the Partners have come together voluntarily to advance clean development and climate objectives, they recognize that "development and poverty eradication are urgent and overriding goals internationally".[135]

At an individual country level, the US has some policy tools available that may allow for international cooperation with respect to GHG mitigation. For example, there are options for the US Environmental Protection Agency to implement regulations under the Clean Air Act[136] to limit GHG emissions.[137] The US could also use some form of cap-and-trade scheme to limit its GHG emissions.[138] There may, within the cap-and trade scheme, be scope to trade offsets arising from emissions reductions in developing countries; thus, US firms investing in emissions reductions in such countries could use the reductions as credits against their Clean Air Act emissions limitations requirements.[139]

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[131] Bodansky and Diringer have studied the possibility of a step-by-step integration process of the climate agenda. See Bodansky, D. & Diringer, E. "Towards an Integrated Multi-Track Climate Framework", Pew Center on Global Climate Change, December 2007, available at http://www.pewclimate.org/docUploads/Multi-Track-Report.pdf.

[132] See the fact sheet of the Asia-Pacific Partnership on Clean Development and Climate, available at http://www.asiapacificpartnership.org/pdf/translated_versions/Fact_Sheet_English.pdf.

[133] Charter of the Asia-Pacific Partnership on Clean Development and Climate, preamble.

[134] Ibid, at para. 2.1.1.

[135] Ibid., at para. 1.1.

[136] US Code, Title 42, Chapter 85.

[137] On federal enforcement, see US Code, Title 42, Chapter 85, Subchapter I, Part A, § 7413.

[138] That said, there are American organizations that oppose the cap-and-trade system. See, for instance, FreedomWorks at http://www.freedomworks.org/publications/top-10-reasons-to-oppose-cap-and-trade.

[139] John Copeland Nagle, "Climate Exceptionalism," 40 *Envtl. L.* 53, 2010; Bianco, N. & Litz, F. "Reducing Greenhouse Gas Emissions in the United States Using Existing Federal Authorities and State Action", World Resources Institute, 2010.

There is also a number of sub-national carbon trading schemes already in operation or in development,[140] notably the Regional Greenhouse Gas Initiative (RGGI),[141] a system for utility emissions limitations in Northeast states in the US, and the Western Climate Initiative, spearheaded by California's GHG emissions limitations program.[142] In addition, there are some early examples of international cooperation among sub-national jurisdictions looking towards some form of transnational emissions trading.[143] In this respect, the RGGI has been in discussion with the UK about such a scheme. California has signed a Memorandum of Understanding with the Brazilian state of Acre and the Mexican state of Chiapas, forming a working group that seeks to promote efforts on REDD.[144]

For the future, a possible scenario entails cooperative GHG regulatory arrangements among large GHG emitters (whether developed or developing countries), including progress towards some form of GHG limitations/emissions trading system. From the US perspective, this scenario would allow US firms to satisfy any obligations to reduce emissions by purchasing allowances or credits from developing countries at a substantially lower cost than they would incur if they achieved the reductions domestically. This cooperative scenario, along with an agreement by major developing country emitters to limit emissions, would enhance the prospects for securing climate legislation in the US Congress,

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[140] LaMotte, K.R. *et al*., "Emissions Trading in the US: Legal Issues," in Freestone, D. and Streck, C. (eds.) *Legal Aspects of Carbon Trading: Kyoto, Copenhagen, and Beyond*, New York: Oxford University Press, 2009, pp. 391–422; Danish, K. "Offsets in the Emerging US Cap-and-Trade Programmes," in *Ibid*., pp. 423–453; Taylor, G. and Barrett, M. "Canada's Experience in Emissions Trading and Related Legal Issues," in *Ibid*., pp. 469–487.

[141] Regional Greenhouse Gas Initiative, Memorandum of Understanding, December 2005, available at http://rggi.org/docs/mou_final_12_20_05.pdf. Arguably, RGGI does not seem to be an effective system towards GHG reduction because the GHG cap is very high and the price very low.

[142] Diamant, A. "Key Institutional Design Considerations and Resources Required to Develop a Federal Greenhouse Gas Offsets Program in the United States", Electric Power Research Institute, May 2011 (which evaluates the governmental institutional requirements and resources needed to develop a large-scale national domestic GHG emissions offset program in the United States, and the potential institutional barriers that might limit the ability of the evolving carbon market to generate significant offset supplies in the US).

[143] On international cooperation, see Victor, D. "Toward Effective International Cooperation on Climate Change: Numbers, Interests and Institutions", *Global Environmental Politics*, 2006, 6 (3), 90–103; Barrett, S. *Why Cooperate?: The Incentive to Supply Global Public Goods*, Oxford University Press, 2007.

[144] On regional and state actions to combat climate change, see Stein, E. "Regional Initiatives to Reduce Greenhouse Gas Emissions", in Gerrard, M. (ed.), *Global Climate Change and U.S. Law* (2007); Hodas, D. "State Initiatives", in Gerrard, M. (ed.), *Global Climate Change and U.S. Law* (2007); Assembly Bill No. 32, California Global Warming Solutions Act of 2006; Regional Greenhouse Gas Initiative, Memorandum of Understanding (December 2005).

especially given the fact that the absence of any developing country emissions limitations obligations according to the Kyoto Protocol was a key factor in the broad opposition in the US Senate to the Kyoto Protocol with the Byrd-Hagel resolution in 1997. Major emitters such as China and Brazil would be interested in some form of cooperation if it brought, through emissions trading or otherwise, further investment and technology to their countries (as has been the case with China through the Kyoto Protocol's Clean Development Mechanism). Major emitters would also be interested in some form of cooperation if it provided an expanded market for their goods (e.g., biofuels in the case of Brazil, and wind and solar equipment in the case of China). However, these two countries are currently reluctant to accepting regulatory obligations that might threaten their ability to continue high rates of economic growth, now or in the future.

Bottom-up climate policy initiatives could also come from the private sector and civil society. For example, investment in clean technology,[145] decarbonization of supply chains,[146] and private labeling schemes.[147] The sub-sections that follow provide examples of bottom-up approaches for climate change.

5.2.2. Climate-based Regional Trade Agreements (RTAs) and the Building-Blocks Approach

This section advocates the importance of involving major GHG emitters through bilateral free-trade agreements (FTAs) and economic partnership agreements as avenues to mitigate GHG emissions. Regional arrangements could be designed to provide for an attractive package to settle trade-offs and conflicts of interest as well as facilitate the ultimate goal of creating a global climate regime.[148] The potential of trade measures to stimulate participation and compliance of countries

[145] See various examples of clean technology in the subsection 'Multilateralizing Bilateralism: Beyond China and the U.S.'

[146] World Economic Forum, "Supply Chain Decarbonization: The Role of Logistics and Transport in Reducing Supply Chain Carbon Emissions", January 2009, available at https://members.weforum.org/pdf/ip/SupplyChainDecarbonization.pdf.

[147] Appleton, A. "Private climate change standards and labeling schemes under the WTO Agreement on Technical Barriers to Trade", in Cottier, T., Nartova, O. & Bigdeli, S. (eds.) *International Trade Regulation and the Mitigation of Climate Change*, Cambridge: Cambridge University Press, 2009, pp. 131–151; Vandenbergh, M., Dietz, T. & Stern, P. "Time to try carbon labeling", *Nature Climate Change* 2011, 1, 4–6.

[148] Fujiwara, N. & Egenhofer, C. (2007), "Do Regional Integration Approaches Hold Lessons for Climate Change Regime Formation? The Case of Differentiated Integration in Europe", in Carraro, C. & Egenhofer, C. (eds.), *Climate and Trade Policy: Bottom-Up Approaches Towards Global Agreement*, Edward Elgar Publishing, 2007.

with their undertaken commitments has been examined by Scott Barrett.[149] This section therefore tries to stimulate non-Annex I countries to GHG emissions reduction. FTAs have become a necessity because of the stagnation of the multilateral trading system. The question therefore is how to persuade countries to be parties to climate-based FTAs. Economic incentives for parties are a possibility.

5.2.2.1. Comparing the Trade and Climate Change Regimes

Both the trade and climate change regimes have their own goals and tools. The main goals of the international trading system are trade liberalization, citizens' welfare, economic growth, and the optimal use of the world's natural resources. There is a set of closed and defined trade policy tools (i.e., trade regulation): tariffs, quantitative restrictions, trade remedies, subsidies, norms and standards, process and production methods, intellectual property rights, government procurement, services regulation, etc., to name but a few. The main goals of climate change, by contrast, are about environmental protection, sustainable development, and the preservation of eco-systems. To achieve these goals, climate change law uses the following policy tools across international law: trade policy tools, funding programs, taxes, permissions, prohibitions, international standards, and financial instruments.

Drawing lessons from multilateral trade negotiations for climate change depends upon the creation of incentives comparable to the drivers of trade negotiations. Among the achievements of the multilateral trading system are the multilateralization of tariff and non-tariff policies and law, the progressive trade liberalization both in goods and services, principles of non-discrimination such as the most-favored nation (MFN) treatment[150] and national treatment,[151] equal conditions of competition, transparency, the rule of law system (i.e., the WTO's dispute settlement system), and economic growth. Regarding the modes of negotiations in multilateral trade, WTO negotiations are bottom-up negotiations, with a tradition of bilateral tariff and services negotiations, subject to MFN, and there is a focus on mutually interested WTO members. In addition, there are also critical mass negotiations, such as sectoral initiatives and plurilateral agreements.

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[149] Barrett S. "Climate Change and International Trade: Lessons on their Linkage from International Environmental Agreements", Background paper written for the TAIT second conference "Climate Change, Trade and Competitiveness: Issues for the WTO", Geneva, 16–18 June 2010, available at http://graduateinstitute.ch/ctei/home/events/TAIT_Climate_Conference/TAIT_Papers.html.

[150] GATT Article I.

[151] GATT Article III.

Moreover, there are package-deal negotiations, which is the tradition of multilateral trade Rounds. Finally, there are consensus-based negotiations.

There are, however, limits and challenges to the multilateral trading system. For instance, the stalemate of the Doha Round and the proliferation of preferential trade agreements, China's accession to the WTO in 2001, the multipolar world and the limits of consensus diplomacy, the failure of special and differential treatment and the lack of effective graduation for developing countries, the need for a two-tier approach in negotiations reflecting market access and regulatory tasks, and the need for a legislative response to an efficient dispute settlement system based upon weighted voting.

As for the main differences between the trade and climate change regimes, the trade regime offers a mercantilist approach (i.e., market access and country-based benefits), it is responsive to foreign pressures, it provides reciprocity in terms of political economy, and it is a multilateral system with legal security. The climate change regime, by contrast, has a public goods approach, with global and regional commons, and is responsive mainly to domestic pressures; it has a strong dependence on funding and technical assistance, and has a fragmented treaty system. Moreover, trade regulation is essentially excludable in terms of benefits, there are incentives to obtain market access and non-discriminatory treatment, and there is usually political reciprocity. In the climate change regime, however, its regulation is essentially non-excludable, there are limited incentives to participate because of the free-riding issue. The question therefore is: to what extent can trade measures be used as incentives to foster global environmental governance generally and climate change negotiations specifically?

In a nutshell, the traditional patterns of trade policy-making are unlikely to succeed without structural reform in a multipolar world. Moreover, new approaches to decision-making and graduation are essential to make the bottom-up approach as well as the critical mass work within a multilateral system. Furthermore, trade and climate change linkages are able to create appropriate incentives and level playing fields. In addition, the nature of climate change law, which applies a multitude of tools and affects most fields of international law, precludes the idea of a single and exclusive international organization. Cross-cutting linkages could be pooled within an umbrella International Economic Organization, encompassing a multitude of international instruments and organizations, and a shared system of dispute settlement.

5.2.2.2. Climate Chapters in RTAs

Trade mechanisms can be an effective tool for securing environmental objectives. As reaching a global climate change agreement is no easy task, this study

proposes the use of RTAs[152] with strong climate change chapters for the creation of a future global climate change agreement. This regional approach seems more realistic than aiming for a global climate agreement. Both approaches (regional and global) share the objective of creating a strong international framework for climate action. However, they differ on how to achieve the goal.

The multilateral trading system – just like climate negotiations – has been besieged with institutional difficulties, resulting in an enormous proliferation of RTAs as a way to progress. WTO Members that traditionally favored MFN liberalization based on the WTO rule of non-discrimination[153] are increasingly being drawn into RTAs. Given this tremendous proliferation of RTAs in recent years, the WTO is losing its centrality in the international trading system. RTA proliferation implies the erosion of the WTO law principle of non-discrimination, which endangers the multilateral trading system.[154] RTAs can help countries integrate into the multilateral trading system, but are also a fundamental departure from the principle of non-discrimination.

So why do countries conclude RTAs? There are both economic and political reasons. One of the economic reasons is that countries are in constant search for larger markets as they feel the pressure of competitive regional liberalization. "Moreover, deeper integration is always much easier at the regional level than it is at the multilateral level. Furthermore, as we know from previous experience, multilateral negotiations can take a very long time and are very complex, whereas RTAs move much faster.[155] Despite repeated statements of support and engagement, WTO Members seem incapable of marshalling the policies and political will needed to move the multilateral trade agenda forward."[156] Trade powers want to gain greater access to one another's markets but, at the same time, have struggled to lower their own trade barriers.[157]

There are also several political reasons for countries to engage in RTAs: they ensure or reward political support; regulatory cooperation is easier regionally

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[152] Regarding international trade terminology, it is interesting to note that Jagdish Bhagwati prefers to use the terminology of preferential trade agreement (PTA) instead of RTA "because the PTAs are not always regional in any meaningful sense. For example, the U.S.-Israel FTA is not regional". I share his views. Bhagwati, J. *Termites in the Trading System: How Preferential Agreements Undermine Free Trade*, New York: Oxford University Press, 2008, p. xi.

[153] GATT Article I.

[154] That said, the WTO's dispute settlement system is not applicable to disputes within an RTA.

[155] (*footnote original*) On the issue that decision-making in the WTO has become ever more difficult as the number of WTO Members rises and the range of issues tackled broadens, see Patrick Low, *WTO Decision-making for the Future* (World Trade Organization 2009), online at http://www.wto.org/english/res_e/statis_e/tait_sept09_e/tait_sept09_e.htm.

[156] Leal-Arcas, R. "Proliferation of Regional Trade Agreements: Complementing or Supplanting Multilateralism?" *Chicago Journal of International Law*, 2011, 11 (2), 597–629, at 621–622.

[157] Ljunggren, D. "G20 Leaders Drop Doha Target, See Smaller Deals" (Reuters 2010), available at http://www.reuters.com/article/idUSTRE65P27P20100627.

than it is multilaterally; there is less scope for free riding on the MFN principle; and there are always geopolitical as well as security interests for the conclusion of RTAs. Thus, while most countries continue to formally declare their commitment to the successful conclusion of the Doha Round[158] – which would contribute towards enhancing market access and strengthening the rules-based multilateral trading system – for many countries, bilateral deals have taken precedence and their engagement at the multilateral level is becoming little more than just a theoretical proposition.

The current proliferation of RTAs may be an effective avenue towards a future global climate change agreement. We should capitalize on these RTAs in the climate arena. How so? Why not incorporate strong climate change chapters to RTAs so that they become building blocks towards reaching a multilateral agreement in the climate regime? For example, countries should include climate protection chapters in their bilateral/regional trade agreements (making sure that they are WTO compliant) and support GHG-reducing activities in third countries. This could mean commitments in solar energy or the reduction of tariffs in the energy sector.

As Trevor Houser argues, "the climate doesn't have time for a Doha-like approach"[159], referring to the extremely low progress of multilateral trade negotiations. An extra burden to multilateral trade negotiations with the inclusion of the climate agenda does not seem feasible or realistic. Thus, this is how trade and climate change get to cooperate: based on the premise that RTAs can be used as building blocks for multilateralism, one could envisage a global climate change agreement based on climate-related RTAs, especially large RTAs[160] such as the

[158] For thorough analyses of the Doha Round, see Leal-Arcas, R. *Theory and Practice of EC External Trade Law and Policy*, London: Cameron May, 2008, chapters 8 and 9; Leal-Arcas, R. "The Fragmentation of International Trade Law: Is Now the Time for Variable Geometry?" *The Journal of World Investment and Trade*, 2011, 12 (2) 145–195; Leal-Arcas, R. "Services as Key for the Conclusion of the Doha Round", *Legal Issues of Economic Integration*, 2008, 35 (4), 301–321; Leal-Arcas, R. "The Resumption of the Doha Round and the Future of Services Trade" *Loyola of Los Angeles International and Comparative Law Review*, 2007, 29 (3), 339–461; Leal-Arcas, R. "Bridging the Gap in the Doha Talks: A Look at Services Trade", *Journal of International Commercial Law and Technology*, 2007, 2 (4), 241–249; Leal-Arcas, R. "The GATS in the Doha Round: A European Perspective," in Alexander, K. & Andenas, M. (eds.) *The World Trade Organization and Trade in Services*, Brill/Nijhoff, 2008, pp. 9–104; Leal-Arcas, R. "A Look at Services Trade: Implications of the Doha Talks Suspension and Resumption," in Chaisse, J. & Balmelli, T. (eds.) *Essays on the Future of the World Trade Organization*, Volume I, Editions Interuniversitaires Suisses, 2008, pp. 99–134.

[159] Houser, T. "Copenhagen, the Accord, and the Way Forward," Policy Brief, PB10-5, Washington, DC: Peterson Institute for International Economics, 2010, p. 16.

[160] Ghosh and Yamarik have studied the impact of RTAs on the environment. They found that membership in an RTA reduces the amount of environmental damage by increasing the volume of trade and raising per capita income. They did not, however, find that RTAs directly impact the environment. These results suggest that recent surge of regional trading arrangements will not

Trans-Pacific Partnership Agreement.[161] Indeed, given how proactive developing countries are in the conclusion of RTAs, this option would be an effective way towards a future global climate change agreement, especially as Kyoto demands nothing concrete of them. In this regard, climate-based RTAs can be used as a legal mechanism to move forward the multilateral climate change agenda, thereby including also major developing countries.[162]

Admittedly, the approach of using climate-based RTAs as building blocks for multilateralism may lead to regulatory fragmentation as well as confusion,[163] legal conflict, and uncertainty,[164] whereas a global climate change agreement would serve as a more coherent and unified international framework for regulating climate change.[165] Moreover, as the building blocks approach does not require universal participation, it may reduce the urgency of global cooperation.[166] Therefore, even if climate change policy does become increasingly bilateral, these agreements would ultimately have to lead to a global climate treaty with common rules and common procedures. Nonetheless, overall there is much within the trade experience that can be inspirational for the case of climate change.

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increase the amount of pollution, but in fact may help the environment. See Ghosh, S. & Yamarik, S. "Do Regional Trading Arrangements Harm the Environment? An Analysis of 162 Countries in 1990", *Applied Econometrics and International Development*, 2006, 6 (2).

[161] The Trans-Pacific Partnership (TPP) Agreement is an Asia-Pacific regional trade agreement currently being negotiated among the US and eight other partners. The US' TPP negotiating partners are Australia, Brunei, Chile, Malaysia, New Zealand, Peru, Singapore, and Vietnam. For an analysis of the TPP Agreement, see Kolsky Lewis, M. "The Trans-Pacific Partnership: New Paradigm or Wolf in Sheep's Clothing?" *Boston College International and Comparative Law Review*, 2011, 34, 27.

[162] Some scholars have compared developments in the trade policy area with the building block approach to climate change governance. See Bodansky, D. & Diringer, E. "Towards an Integrated Multi-Track Climate Framework", Pew Center on Global Climate Change, December 2007, available at http://www.pewclimate.org/docUploads/Multi-Track-Report.pdf; Antholis, W. "Five 'Gs': Lessons from World Trade for Governing Global Climate Change", in Brainard, L. & Sorkin, I. (eds.) *Climate Change, Trade, and Competitiveness: Is a Collision Inevitable?* Washington, DC: Brookings Institution Press, 2009, pp. 121–138.

[163] Sugiyama, T. & Sinton, J. "Orchestra of Treaties: A Future Climate Regime Scenario with Multiple Treaties among Like-minded Countries", *International Environmental Agreements*, 2005, 5, 65–88.

[164] See, for instance, Stewart, R. "Environmental Regulatory Decision Making Under Uncertainty", in Zerbe, R.O. & Swanson, T. (eds.) *An Introduction to the Law and Economics of Environmental Policy: Issues in Institutional Design*, Leiden: Elsevier, 2002, 20, 71–126.

[165] See generally Biermann, F., Pattberg, P.H., van Asselt, H. & Zelli, F. "The Fragmentation of Global Governance Architectures: A Framework for Analysis", *Global Environmental Politics*, 2009, 9 (4), 14–40.

[166] Ibid., at p. 26.

5.2.3. Multilateralizing Bilateralism: Beyond China and the US

The conclusion of bilateral deals is preferred among some countries (India, China, and Brazil) because they offer more immediate returns alongside, and perhaps in competition with, the Kyoto Protocol. Examples of bilateral deals are the Australia-China Natural Gas Technology Partnership Fund,[167] the EU-China Partnership on Climate Change,[168] the US-India Civil Nuclear Cooperation Initiative,[169] the US-India Partnership to Advance Clean Energy, Energy Security and Climate Change,[170] and the EU-India energy cooperation.

What is absurd is that the world's first and second largest CO_2 emitters – i.e., China and the US, respectively – are not bound by the Kyoto Protocol to reduce GHG emissions: China because it is not an Annex I country, and the US because it has not ratified the Kyoto Protocol.[171] Together, they account for 42% of the world's total GHG emissions.[172] If we are serious about reducing GHG emissions, we must have both countries on board, without which it is difficult to continue with climate change negotiations effectively. The continuation of Kyoto as it is now is less effective in the absence of China and the US. The international community should amend Kyoto so that China and the US are legally bound. The US can influence and push China's international climate change policy in three ways: first, setting an example; second, helping China reduce abatement costs; and third, promoting China's concern over climate change issue. The US is a crucial country in climate change negotiations because it has both the technology and the financial capacity to reduce GHG emissions.[173] Having the US, China, and the EU on board would certainly expedite the creation of a future global climate change agreement.

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[167] http://www.gasfund.com.au/.

[168] Press release, MEMO/05/298, Brussels, 2 September 2005, available at http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/05/298.

[169] http://www.state.gov/p/sca/c17361.htm.

[170] http://www.state.gov/r/pa/prs/ps/2011/07/168743.htm.

[171] Seligsohn, D. *et al*. "China, the United States, and the Climate Change Challenge", *World Resources Institute Policy Brief*, October 2009; Pew Center & Asia Society, "Common Challenge, Collaborative Response: A Roadmap for U.S.-China Cooperation on Energy and Climate Change", January 2009; Stewart, R. & Wiener, J. *Reconstructing Climate Policy: Beyond Kyoto*, Washington, DC: American Enterprise Institute, 2003, Chapter 3 and pp. 102–109 (on how to attract the participation of China and other major developing countries).

[172] United Nations Statistics Division, "Millennium Development Goals Indicators: Carbon Dioxide Emissions (CO2)," available at http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=749&crid=.

[173] Pacala, S. & Socolow, R. "Stabilization Wedges: Solving the Climate Problems for the Next 50 Years with Current Technologies", *Science*, 2004, 305, 968–972.

The US and China are cooperating on several joint efforts over clean technology, which plays a major role in the relations of the two countries.[174] If the US and China can continue their clean technology collaborations, it will show the world that two major players on the international climate change platform are serious about combating the climate change challenge, and it will also encourage other countries to create alliances. Among the most noticeable efforts are:

> 1) The United States-China Clean Energy Research Center, which will facilitate research and development by a team of leading scientists and engineers in the clean technology industry. The initial research priorities include promoting energy efficiency,[175] clean vehicles, and clean coal, which includes carbon capture and storage.[176]
>
> 2) The United States-China Energy-Efficient Buildings, which is an action plan for green buildings and communities, industrial energy efficiency, consumer products standards, advanced energy efficiency technology, and public-private engagement.[177]
>
> 3) The United States-China Electric Vehicles, which reflects the shared Sino-American interest in greater utilization of electric vehicles to decrease oil dependence and greenhouse gas emissions, while promoting viable economic growth.[178]

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[174] Wolfson, S. "Gathering Momentum for U.S.-China Cooperation on Climate Change", *Tsinghua University Law Journal* (July 2009).

[175] See Havercroft, I., Macrory, R. & Stewart, R. (eds.) *Carbon Capture and Storage: Emerging Legal and Regulatory Issues*, Hart, 2011; Hunter Lovins, L. & Cohen, B. *Climate Capitalism: Capitalism in the Age of Climate Change*, New York: Hill and Wang, 2011 (who demonstrate that the future of capitalism in a recession-riddled, carbon-constrained world will be built on innovations that cutting-edge leaders are bringing to the market today. These entities, i.e., international corporations, small businesses, non-governmental organizations (NGOs), and municipalities, are creating jobs and driving innovation).

[176] Jiang, N. & Chua, E.J. "Clean Development Mechanism in China", *J. Int'l Bank. L. & Reg*., 2006, 21, 569; Kim, M. & Jones, R. "China: Climate Change Superpower and the Clean Technology Revolution", *Nat. Resources & Envt*., 2008, 22 (3), 9; Fernando, H. *et al.* "Capturing King Coal: Deploying Carbon Capture and Storage Systems in the U.S. at Scale", *World Resources Institute*, 2008, pp. 5–33; Gerrard, M. "Coal-fired Power Plants Dominate Climate Change Litigation", *New York Law Journal*, September 25, 2009; Biello, D. "The Price of Coal in China: Can China Fuel Growth without Warming the World?" *Scientific American*, December 16, 2010.

[177] Khoday, K. "Mobilizing Market Forces to Combat Global Environmental Change: Lessons from UN-Private Sector Partnerships in China", *Rev. Euro. Comm. & Int'l Envtl. L*., 2007, 16 (2), 173.

[178] Gang, F. *et al*. (eds.) *The Economics of Climate Change in China: Towards a Low Carbon Economy* (Earthscan 2010).

4) The 21st Century Coal Program,[179] which calls for collaboration among several companies in the United States, including General Electric, AES, and Peabody Energy. These companies will be working with several Chinese companies to develop an integrated gasification combined cycle power plants, methane capture, and other technologies that promote a cleaner use of coal resources.
5) The China Greentech Initiative.[180]
6) The United States Alliances in Chinese Cleantech Industry.[181] Currently, many companies from the US are exploring opportunities through alliances, clean technology, and capital technology transfer investments. This new exploration leads to an increase in opportunities to assist clean technology into becoming one of the largest industries on a global platform.
7) The United States-China Renewable Energy Partnership,[182] which develops roadmaps for widespread and continual renewable energy research, development, and deployment in the US and China,[183] including renewable energy road mapping,[184] regional deployment solutions, grid modernization, advanced renewable energy technology research, and development collaboration in advanced biofuels, wind, and solar technologies, as well as public-private engagement to promote renewable energy[185] and expand bilateral trade and

[179] The White House, Office of the Press, "U.S.-China Cooperation on 21st Century Coal", available at http://www.chinafaqs.org/files/chinainfo/US-China_Fact_Sheet_Coal.pdf.
[180] Kim, M. & Jones, R. "China: Climate Change Superpower and the Clean Technology Revolution", *Nat. Resources & Envt.* 2008, 22 (3), 9.
[181] See, for instance, "The US-China cleantech connection: shaping a new commercial diplomacy", PricewaterhouseCoopers, January 2011, available at http://www.pwc.com/en_US/us/technology/assets/us-china-cleantech-connection.pdf.
[182] See, for instance, US-China Quarterly Market Review, Spring 2011 (which examines the most significant developments in renewable energy markets, finance, and policy in the US and China during the first quarter of 2011).
[183] Hunter, L. *et al*. "Renewable Energy in America: Markets, Economic Development and Policy in the 50 States", American Council on Renewable Energy, Spring 2011.
[184] For more information, see the American Council on Renewable Energy at http://www.acore.org/.
[185] Firestone, J. & Kehne, J. "Wind," in Gerrard, M. (ed.), *The Law of Clean Energy: Efficiency and Renewables*, American Bar Association, 2011; Komanoff, C. "Whither Wind? A journey through the heated debate over wind power," *Orion*, 2006, September/October, 30–37; Hoffert, M. "Renewable Energy Options – An Overview", from workshop proceedings, "The 10–50 Solution: Technologies and Policies for a Low-Carbon Future", The Pew Center on Global Climate Change and the National Commission on Energy Policy, 2004, pp. 1–19, available at http://www.pewclimate.org/docUploads/10-50_Full%20Proceedings.pdf.

investment via a new annual United States-China Renewable Energy Forum.[186]

8) The United States-China Energy Cooperation Program,[187] which is a vehicle for companies from both countries to work together and pursue clean sector market opportunities, address any trade impediments, and increase sustainable development.

9) The US-China Regional Cooperation Initiatives, such as the US-China Green Energy Council (based in the San Francisco Bay area),[188] the US-Clean Energy Forum (based in Greater Seattle),[189] and the Joint US-China Cooperation on Clean Energy (based in Beijing, Shanghai, and Washington DC).[190]

A way forward in climate change negotiations is the creation of bilateral deals between developed and developing countries, possibly (and desirably) involving the US. These could include emissions allowances, a Kyoto-type Clean Development Mechanism, cash, and non-climate change benefits in trade or other side payments[191] or linkages,[192] for instance, and may solve some of the equity problems among countries of who pays how much.

6. Variable Geometry

Variable geometry is a possible option to move forward towards a global climate change agreement. A decentralized system, variable geometry, for purposes of this section, consists of making deals within smaller clubs[193] of like-minded countries such as those in the MEF, which brings together large emitters of

[186] McGee, J. & Taplin, R, "The Asia-Pacific Partnership and the United States' International Climate Change Policy", 19 *Colo. J. Int'l Envtl. L. & Pol'y* 2008, 179.
[187] http://www.uschinaecp.org/.
[188] http://ucgef.org/en.
[189] http://www.cleanenergyforum.org/.
[190] http://www.juccce.com/.
[191] On side payments, see the analysis by Scott Barrett, *Environment and Statecraft: The Strategy of Environmental Treaty-making*, New York: Oxford University Press, 2003, chapter 13.
[192] Ibid., chapter 12. See also Cottier, T. *et al*. "Climate Change and International Law: Exploring the Linkages between Human Rights, Environment, Trade and Investment", *German Yearbook of International Law*, 2010, 53, 139–188.
[193] See, for instance, Müller, B. "UNFCCC – The Future of the Process: Remedial Action on Process Ownership and Political Guidance," *Climate Strategies*, February 2011 (where Benito Müller looks at the use of small groups, be it during negotiations or informal consultations, and considers the way in which high-level stakeholders are to give guidance to the climate change negotiations process. The report gives a number of simple and practical ideas for dealing with these issues in a way that benefits the negotiating process).

GHG.[194] These clubs could eventually expand to reach the entire UNFCCC membership, as is the case of the so-called Green Room in the WTO,[195] a similar practice of which already exists in many forms in the UNFCCC negotiations. Another example of variable geometry at the WTO was the July 2008 WTO Mini-ministerial Conference, composed of a trade G-7,[196] because of the serious difficulties that arose from the entire WTO membership of more than 150 Members trying to move the trade agenda forward. The desire to complete the Doha Round of multilateral trade negotiations was such that the negotiations' membership was reduced to 40 countries and eventually just the seven key players at the WTO; hence the name mini-Ministerial Conference. That said, the mini-ministerial conference was just a means to try to reach an informal agreement in the WTO framework, whereas the actual WTO Agreement resulting from that mini-ministerial would need the approval of the entire WTO membership.[197] In the case of climate change, ideally these clubs of countries could be integrated into a single framework agreement on climate change, resulting in greater coordination and reciprocity.

In the EU context, there are two classic examples of variable geometry (or enhanced cooperation, as it is known in the EU parlance),[198] namely the Schengen

[194] Choosing the appropriate *forum* is not always easy. For example, if the MEF were to be chosen as the *forum* to move forward the climate change agenda, there would be a free-riding issue with Iran, which is a major GHG emitter, but not an MEF member.

[195] The "Green Room" is a phrase taken from the informal name of the WTO Director-General's conference room. It is used to refer to meetings of 20–40 delegations. These meetings can be called by a committee chairperson as well as the WTO Director-General, and can take place elsewhere, such as at Ministerial Conferences. In the past, delegations have sometimes felt that Green Room meetings could lead to compromises being struck behind their backs. Thus, extra efforts are made to ensure that the process is handled correctly, with regular reports back to the full membership. In the end, decisions have to be taken by all members and by consensus. No one has been able to find an alternative way of achieving consensus on difficult issues, because it is virtually impossible for WTO members to change their positions voluntarily in meetings of the full membership.

[196] This trade G-7 should not be confused with the finance G-7 representing the most industrialized nations in the world. The trade G-7 has replaced the so-called "Quadrilateral Trade Ministers' Meeting" or Quad and is composed of the Quad (the US, the EU, Canada, and Japan) plus China, India, and Brazil. Its purpose is to see how key trade and investment matters can be moved forward.

[197] On variable geometry, see the criticism by Daniel Drache of the Sutherland and Warwick Commissions in Drache, D. "The Structural Imbalances of the WTO Reconsidered: A Critical Reading of the Sutherland and Warwick Commissions", *Chaos International*, p. 9 (arguing that the downside of variable geometry, if adopted, is that it would, *de facto*, create two classes of WTO Members, making it more difficult for developing countries to defend their legitimate interests at the WTO). Available at http://www.yorku.ca/drache/academic/papers/structuralimbalancesoftheWTO.pdf.

[198] In the EU context, this concept refers to a situation in which some countries may integrate more (or faster) than others. This phenomenon has been given many other different names – among

Agreement and the Eurozone. The Schengen Agreement started in 1985 among five EU Member States for abolition of border control. As of 2008, 22 EU Member States and three other non-EU European countries were part of the Schengen Convention. In the case of the Eurozone, it started with 11 members. As of 2011, the Eurozone is composed of 17 of the 27 EU Member States, which have adopted the Euro as their common currency. These two experiences show that creating smaller working groups within the context of larger, less manageable systems can foster both cohesion among the members and advancement of the integration process.

Pursuing the climate change challenge in *fora* other than the UNFCCC could complement evolution within the UNFCCC (i.e., it does not have to be an either/or situation). If the UNFCCC stalls, these non-UNFCCC processes would become more urgent. For example, as countries move forward with domestic emissions trading systems, they probably will look for opportunities to link them through bilateral or plurilateral arrangements. Moreover, if, for instance, climate-related trade disputes begin to arise more frequently, they could easily lead to cases before the WTO, which might be then forced to consider rules to mediate between trade and climate policy.

Although it is absolutely vital to encourage reforms of the UNFCCC process, they will take time and their success is not guaranteed. Hence, new approaches tackling climate change outside of the UNFCCC process should be pursued simultaneously with the UNFCCC platform.[199] Countries could be encouraged to test new structures that could, in the long run, be expanded to other countries, predefining more comprehensive or even global regimes. It is relevant to explore what structures, institutions, and processes should be set up to ensure the functioning of such transnational mitigation regimes, which conditions should

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them, flexibility, differentiated integration, closer (or enhanced) cooperation, concentric circles, Europe *à la carte*, and two-speed (or multi-speed) Europe. The 1997 Treaty of Amsterdam represented the first attempt to formalize this principle. Before that, however, the UK's and Denmark's opt-outs on the Economic and Monetary Union, the UK's and Ireland's exemptions from the Schengen Agreement, and Denmark's opt-out on anything to do with a common EU defense policy had already created *de facto* variable geometry. Another example was the admission to the EU of the neutral States of Austria, Finland, Sweden, and Ireland, which were not full members of the Western EU and would inevitably be forced to resort occasionally to constructive abstention in foreign and security affairs. Given the prospect of the EU growing even less homogeneous with the accession of former Soviet bloc countries, such divergences appeared likely to increase rather than to diminish.

[199] Some commentators, however, argue that the quest for a legally binding international agreement should abandon the idea of a new treaty altogether and instead do with what we have, i.e., the Kyoto Protocol (in a suitably modified form). See, for instance, Müller, B. "Plan C: The Role of the Kyoto Protocol in a Legally Binding Outcome", *Oxford Energy and Environment Brief*, September 2011.

be foreseen for later participation of other countries, and how such regimes would relate to the UNFCCC process.

6.1. The Underlying Rationale

Based on empirical observation, variable geometry (or a 'club' approach) seems both logical and fair as a mechanism to move forward the climate change agenda, given that a relatively small number of countries produces a large majority of GHG emissions. Moreover, from a practical viewpoint, it is easier to negotiate among a small number of large players than among a large number of small players, which explains the creation of clubs. Thus, bringing together a group of countries (i.e., major GHG emitters in the case of climate change, whatever the format may be, whether bilaterally or plurilaterally) seems to make sense, especially because there is more pressure to deliver when the group of countries is smaller.[200] Furthermore, less time is spent on procedural matters when dealing with a small group of countries. Moreover, based on international negotiating experience from other fields, the only way to get any real business done is in small meetings (sometimes tête-à-tête meetings between key leaders).[201]

Indeed, Figure 3 shows that 15 out of the 195 UNFCCC Members were responsible for approximately 80% of global GHG emissions in 2005.[202] This figure means that the remaining UNFCCC membership was only responsible for around 20% of global emissions. In other words, very many countries have contributed very little to climate change, but very few countries have contributed very much. This latter small group of countries should therefore be responsible for fixing the current situation, which would be easier and less complex to fix in a small club than among the entire UNFCCC membership. The vertical axis of Figure 3 denotes the percentage of 2005 global GHG emissions, whereas the horizontal axis denotes the number of countries most involved in the UNFCCC. Moving from left to right, countries are added in order of their absolute GHG emissions, with the largest GHG emitter added first.[203]

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[200] Abbot, K. & Snidal, D. "Why States Act Through Formal International Institutions", *Journal of Conflict Resolution*, 1998, 41 (1), 1–32, at p. 23.

[201] Poteete, A. Janssen, M. & Ostrom, E. *Working Together: Collective Action, the Commons, and Multiple Methods in Practice*, Princeton University Press, 2010.

[202] These numbers exclude emissions from land use, land-use change, forestry, and international bunker fuels.

[203] Note that the data are pre-2007. Since then, China, and not the US, is the largest emitter of GHGs.

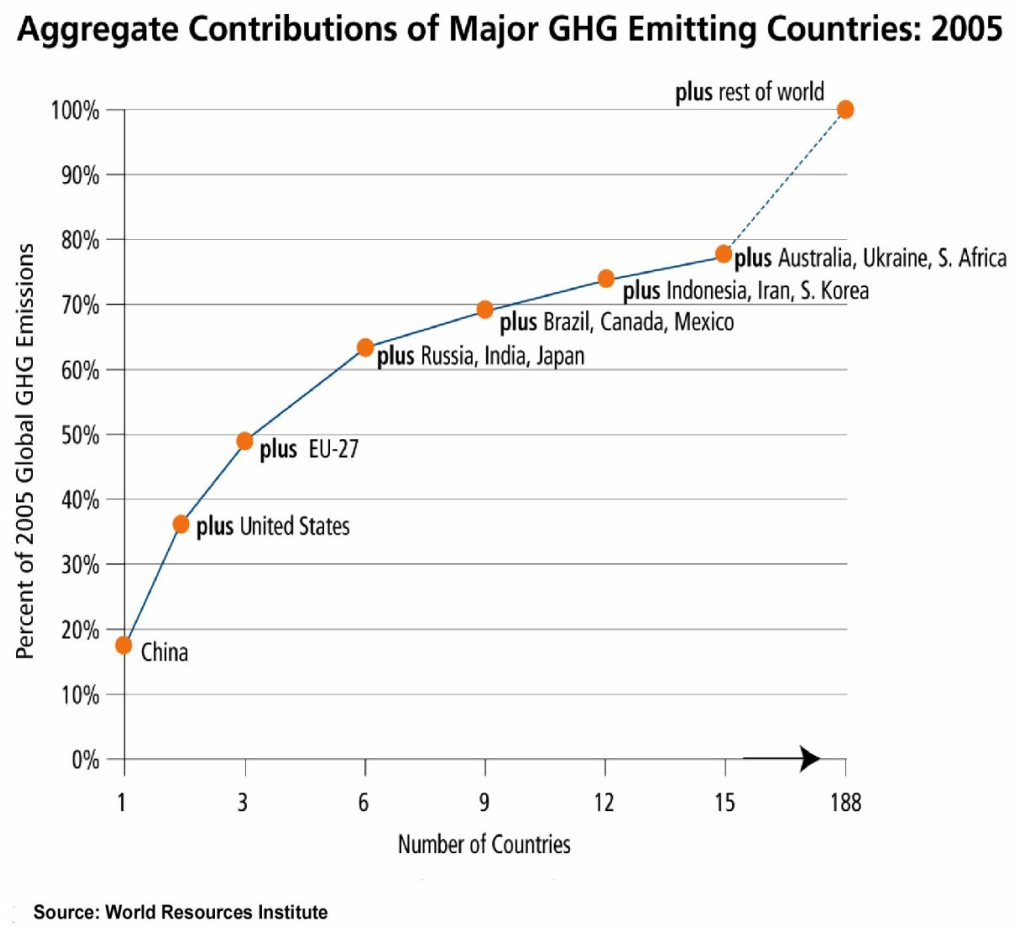

Figure 3: *Source*: World Resources Institute.

If we accept this club approach, what *fora* may be used for formulating a global response to climate change?[204] The G-20, the MEF, the climate G-8,[205] the G-3,[206] and regional groupings all seem plausible options to provide political

[204] See the views by Michael Levi, "Beyond Copenhagen: Why Less May be More in Global Climate Talks", *Foreign Affairs*, 22 February 2010; see also Stavins, R. "Options for the Institutional Venue for International Climate Negotiations", *The Harvard Project on International Climate Agreements*, Issue Brief 2010-3, May 2010.

[205] The climate G-8 would be composed of China, the US, the EU, India, Brazil, South Africa, Japan, and Russia. This group represents the key economies in each region of the world and is responsible for 70% of global GHG emissions. This number includes land use, land-use change, and forestry. For views on the climate G-8, see Stern, T. & Antholis, W. "Toolbox: Creating an E-8," *American Interest*, Winter 2007, 2 (3), 43–49.

[206] I am referring to the G-2 (US and China) plus the EU.

leadership. They all have the shared vision that GHG emissions must be reduced, with targets for developed countries and actions from developing countries. As mentioned earlier, however, not every part of the world needs to be represented at the beginning. The global GHG contribution of the least-developed countries and small island developing states is so minimal, that it seems logical to start with the major GHG emitters and eventually have the rest of the world join in the quest for GHG emissions reduction. Once the major parties are grouping together, the chance of having other countries join increases.[207] Previous experience shows that negotiating and decision-making resulting from such clubs has been valuable in *fora* such as the UN Convention on the Law of the Sea, the WTO or the creation of the Montreal Protocol.[208] Thus, there seems to be added value to formalizing negotiations in smaller groups.

There are, however, disadvantages to the variable geometry option. If one were to start with a smaller group of players, say the EU, the US and China, and, by virtue of doing so, one keeps, for instance, the most vulnerable countries out of the climate negotiations, how does one ensure sufficient ambition to reduce GHG emissions? There is a time window, optimistically, up to 2020 to reverse the trends in global GHG emissions and begin their sharp decline, at least if we are to keep global average temperature increases below 2°C with reasonable certainty. Having only the major GHG emitters on the table may translate into a possible situation where these countries would indulge in rather low GHG emission ambition,[209] agree quickly among themselves, and then sell the results as major achievements in climate diplomacy, whereas in fact they lock-in the world into a disastrous climate change scenario simply because of the very limited remaining carbon budget.[210] This is in contrast to the negotiation of trade agreements, where delays may mean little more than a delay of economic benefits from such agreements, and ambition can be increased at any later stage.

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[207] See Barrett, S. *Environment and Statecraft: The Strategy of Environmental Treaty-making*, New York: Oxford University Press, 2003, pp. 260–261.

[208] Kahler, M. "Multilateralism with Small and Large Numbers", *International Organization*, 1992, 46 (3), 706.

[209] See, for instance, Sunstein, C. "The World vs. the United States and China? The Complex Climate Change Incentives of the Leading Greenhouse Gas Emitters", *UCLA Law Review* 1675 (2008) (arguing that the US and China may not be better off with a global agreement to control GHG emissions than would be in the world's interest. This is simply because both countries would most probably have to bear a disproportionate cost of any significant emissions reduction effort and gain disproportionately little from emissions controls). See also Yang, Z. & Sirianni, P. "Balancing contemporary fairness and historical justice: A 'quasi-equitable' proposal for GHG mitigations", *Energy Economics*, 2010, 32 (5) 1121–1130.

[210] Carbon budget refers to the contribution of various sources of carbon dioxide on the planet. It is a cap on the total quantity of carbon emitted. For further information on the concept of carbon budget, see Houghton, R. "The Carbon Budget in Soils", *Annual Review of Earth and Planetary Sciences*, 2001, 29, 535–562.

Furthermore, why would countries engage in minilateral[211] or even bilateral agreements that have any reasonable hope of meeting the 2°C target? When negotiating trade agreements, parties have an interest to negotiate as they believe they will benefit from the agreement. By contrast, in climate change negotiations, most parties see mitigation as a burden to their economies, i.e., they negotiate to ensure that they do not have to do more than other parties in the negotiation. This would be different if there were a general belief that mitigation is beneficial for the economy and therefore needs an international agreement to maximize the parties' benefits. Although there are voices that point to the many economic benefits of ambitious mitigation, this belief has yet to enter the minds of finance ministers, companies, and society at large. One wonders whether the comparison between climate change and trade negotiations is valid, as the motivation to enter into negotiations may be very different.

6.2. Forum Options

This sub-section argues that polycentric systems can produce collective action more effectively than unified institutions such as the UNFCCC/Kyoto Protocol process.[212] Moreover, it is also argued that climate governance should follow the examples of concentric circles in larger structures in other fields of global governance. For instance, just as the G-20 in the context of the International Monetary Fund or the Security Council in the context of the UN are examples of concentric circles for monetary and foreign policy, respectively, the MEF may serve as a concentric circle for the UNFCCC in global climate governance. However, in the case of climate change negotiations, least-developed countries and small island states have constantly shown their preference for the UNFCCC as a negotiating platform.[213] Below are some non-exhaustive suggestions of plausible forum options to produce collective action in climate change mitigation

[211] Minilateralism can be defined as a relationship that is more than bilateral, but less than multilateral. Minilateralism has been studied in fields other than climate change. For example, Daniel Kono has studied whether minilateral agreements help or hinder multilateral cooperation. See Kono, D. "When Do Trade Blocs Block Trade?" *International Studies Quarterly*, 2007, 51, 165–181. See also minilateralism in the context of peace operations in Attina, F. & Irrera, D. (eds.) *Multilateral Security and ESDP Operations*, Ashgate, 2010.

[212] See, for instance, the work of Elinor Ostrom on the management of common pool resources and on global environmental change in Ostrom, E. "Beyond Markets and States: Polycentric Governance of Complex Economic Systems", *American Economic Review*, 2010, 100, 641–672; Ostrom, E. "Polycentric Systems for Coping with Collective Action and Global Environmental Change", *Global Environmental Change*, 2010, 20, 550–557.

[213] See, for instance, Durrant, N. "Guyana's Participation in Multilateral and Regional Trade Negotiations and the United Nations Framework Convention on Climate Change (UNFCCC)", Working Paper, Overseas Development Institute, April 2002, available at http://www.odi.org.uk/resources/download/3614.pdf.

and adaptation. The various selected concentric circles from smaller to larger are the G-3, the MEF, and the G-20, which does not reflect an order of preference. The list of possible concentric circles could go on and on, and there have been suggestions for other possible *fora*.[214]

6.2.1. The G-3

An agreement among a small group of major GHG emitters (e.g., China, the US, and the EU, i.e., the G-3) could provide a starting point for building new international emission-reduction commitments involving all major emitting countries. If this group of countries can agree to some meaningful measures, then the arrangement might be expanded to include Brazil, Japan, Australia, Canada, India, Indonesia, South Africa, possibly Russia, and other major emitting countries. This major emitter "club" could be built under the auspices of an existing international *forum*, such as the G-20 group of major developed and developing countries, or a new network organization, and eventually feed back into the UNFCCC, which would provide much more legitimacy to the exercise. By contrast, major countries that are not at the table may object to a three-party initiative (such as the suggested one of China, the US, and the EU), triggering backlash that could impede progress on global emissions reductions.

6.2.2. The Major Economies Forum on Energy and Climate (MEF)

The MEF was launched on March 28, 2009.[215] The MEF is intended to facilitate a candid dialogue among major developed and developing economies, help generate the political leadership necessary to achieve a successful outcome at future UN climate change conferences, and advance the exploration of concrete initiatives and joint ventures that increase the supply of clean energy while cutting GHG emissions. The MEF partners include: Australia, Brazil, Canada, China, the EU, France, Germany, India, Indonesia, Italy, Japan, Korea, Mexico, Russia, South Africa, the UK, and the US.[216] Bringing together these major emitters, which were responsible for around 75% of GHG emissions in the world as of

[214] For instance, the G-8+5, which would be composed of the G-8 (i.e., the US, Canada, UK, Germany, France, Italy, Russia, and Japan) plus five leading developing countries (Brazil, India, China, Mexico, and South Africa).
[215] The MEF has gone through several name changes. It was previously called the Major Emitters Forum and the Major Economies Process on Energy Security and Climate Change.
[216] See Major Economies Forum on Energy and Climate, available at http://www.majoreconomiesforum.org/about/descriptionpurpose.html.

2009 (these numbers include land-use change),[217] will increase the likelihood of reaching a climate change agreement, as the MEF is a more efficient negotiating forum than the UNFCCC.[218] Furthermore, an agreement among them would be almost as valuable as an agreement among all UNFCCC parties in terms of absolute GHG emissions reductions, as most GHGs come from the MEF partners.

The MEF is therefore a means to facilitate progress in the climate change negotiations. The MEF has a controversial relationship with the UNFCCC/Kyoto Protocol process and offers a substantially different means to respond to climate change.[219] The Kyoto Protocol is universal in scope, whereas the MEF is based on small-group negotiations among 17 parties; the Kyoto Protocol is legally binding, whereas the MEF stresses voluntary measures; the Kyoto Protocol focuses on GHG emissions reduction, whereas the MEF fosters technological innovation.[220] To avoid the obstacles faced by the UNFCCC machinery, the MEF should focus on each member's economic weight, GHG emissions reduction responsibilities, and the calculation of responsibility for GHG emissions such as sharing the burden equally between producers and consumers, to decide fairly who should reduce GHG emissions and by how much. For instance, most GHGs are emitted because countries do not have clean sources of energy. They have no choice but to use available technologies. If energy producing countries have to pay 50% of the cost, there would be a greater incentive to shift energy production from fossil fuels to clean energy.

6.2.3. The G-20

Most of the largest GHG emitters have large economies, large populations, or both. Given the direct link between climate change and the world economy, the G-20 could be a plausible *forum* for moving forward the climate change agenda.[221] The G-20 "brings together important industrial and emerging-market

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[217] Broder, J. "Clinton Says U.S. is Ready to Lead on Climate", *The New York Times*, 27 April 2009, available at http://nyti.ms/huEbYb.

[218] Oye, K. "Explaining Cooperation under Anarchy", *World Politics*, 1985, 38 (1), 21.

[219] On differentiation of countries' future commitments, see, for instance, Berk, M. & den Elzen, M. "Options for Differentiation of Future Commitments in Climate Policy: How to Realise Timely Participation to Meet Stringent Climate Goals?" *Climate Policy*, 2001, 1 (4), 465–480; den Enzen, M. "Differentiation of Countries' Future Commitments in a Post-2012 Climate Regime: An Assessment of the 'South-North' Dialogue", *Environmental Science and Policy*, 2007, 10 (3), 185–203.

[220] Major Economies Forum on Energy and Climate, "Technology Action Plan – Executive Summary", December 2009, available at http://www.majoreconomiesforum.org/images/stories/documents/MEF%20Exec%20Summary%2014Dec2009.pdf.

[221] See The Pew Charitable Trust, "Who's Wining the Clean Energy Race? Growth, Competition and Opportunity in the World's Largest Economies", 2010, (which reviews the status of clean

countries from all regions of the world. Together, member countries represent around 90% of global gross national product, 80% of world trade [including intra-EU trade] as well as two-thirds of the world's population. The G-20's economic weight and broad membership gives it a high degree of legitimacy and influence over the management of the global economy and financial system".[222] In 2008, the G-20 represented 66% of the world's population and produced over 80% of the world's GHG emissions.[223]

7. Incentives for Cooperative Compliance

7.1. Compliance

Regarding the creation of incentives for a future climate change agreement, an optimal treaty should be such that no State can benefit from withdrawing and no party can benefit from failing to comply. Incentive is a major reason why countries agree to ratify agreements. The EU is a good example of European countries willing to give up (some of) their sovereignty to join a supranational institution (i.e., the EU) because there are clear advantages to becoming a member. Another example is China's accession to the WTO, which meant reforming much of China's economy to be WTO-compatible, in return for which China has benefited immensely on a domestic front. However, ratifying an agreement does not always translate into automatic compliance with the agreement's obligations.

Moving forward post-COP-16 in Cancún, two main issues are necessary for the creation of a global climate change agreement: (1) obtaining binding commitments and (2) the enforcement of obligations, which is crucial for any international agreement to be meaningful. The first attempt to negotiate specific binding commitments began in 1995 with the Berlin Mandate, which grew out of the impending failure of industrialized countries to implement the voluntary commitments in Article 4 of the UNFCCC. Two years later, countries signed an agreement in Kyoto that contained binding provisions, including specific targets and timetables for emissions reductions below 1990 levels (–7% for the US, –8% for the EU, –5% for industrial countries overall, based on average emissions in 2008–2012 compared to 1990). The Kyoto Protocol also included novel and

energy finance and investment in the countries of the G-20). Available at http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Reports/Global_warming/G-20%20Report.pdf.

[222] See http://www.g20.org/about_what_is_g20.aspx.

[223] These numbers exclude land use, land-use change, and forestry. See US Energy Information Administration, *International Energy Statistics 2009*, 2009.

controversial flexible mechanisms for meeting those obligations, largely to satisfy the concerns of the US that it would not otherwise be able to meet its target.

Basically, States commit to treaties because it is in their own interest. In the first place, treaties are bilateral, where there is a *quid pro quo*. An example is bilateral investment treaties, where the investing State will provide investment capital in exchange for a degree of security in the way that capital and the resulting returns are treated. Later, there appear multilateral treaties setting up a legal regime,[224] so that a State does not bind itself without there being a credible multilateral regime under which a substantial number of States are bound, thus providing the *quid pro quo*.[225]

The basic problem with establishing a regime on GHG emissions reductions has been the failure to establish a balance between setting up a regime and having a built-in reciprocal element – in part because of the insistence of the developing countries that, because of their low historic contribution to climate change, they should be excused from onerous commitments and, in part, but linked to the first element, because of the reluctance of the US to undertake commitments which many see as unilateral as well as onerous.[226] In the past, the UN machinery has produced agreements well enough where it can be shown that there is a degree of fairness for all.[227]

Thus, if the commitments are to be offered by States as binding obligations, one has to look for another way. In some cases, regional organizations might spearhead the way if each State thought that they were all in the same boat and that there was a balance. The EU has done this in several contexts and then extended its system broadly into a multilateral regime.

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[224] In the case of investment treaties, see, for instance, Leal-Arcas, R. "The Multilateralization of International Investment Law", *North Carolina Journal of International Law and Commercial Regulation*, 2009, 35 (1), 33–135.

[225] Some highly successful treaties both set up a regime and have a built-in reciprocal element, such as the Vienna Convention on Diplomatic Relations. See Denza, E. *Diplomatic Law: Commentary on the Vienna Convention on Diplomatic Relations*, 3rd ed., New York: Oxford University Press, 2008, pp. 1–3. The Treaty on the Non-Proliferation of Nuclear Weapons of 1968 is an example of a treaty which contained a *quid pro quo* as well as establishment of a regime and a system for verification of compliance which has been extended. For an analysis, see Joyner, D. *International Law and the Proliferation of Weapons of Mass Destruction*, Oxford: Oxford University Press, 2009, Chapter 1.

[226] See the proposal by the Brazilian Ministry of Science and Technology, "Technical Note on the Time-Dependent Relationship between Emission of Greenhouse Gases and Climate Change", January 2000; see also proposed elements of a Protocol to the UNFCCC, presented by Brazil in response to the Berlin Mandate.

[227] See, for instance, the string of law-making agreements and environmental agreements such as that on the ozone layer in the 1985 Vienna Convention for the Protection of the Ozone Layer, (1985) 26 ILM 1527 and the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer, (1987) 26 ILM 1550.

Generally, in many areas the EU has adopted standards and then required aspirant trade partners or those countries hoping for EU development aid, partnership, or EU membership to swallow these standards by way of approximation. The essential elements clauses for human rights and non-proliferation, to name but a few, show the technique. By conceptual analogy, one could well envisage the use of this technique for GHG emissions reduction commitments. With the other areas, for the most part there exist multilateral agreements already to which the suppliant State is expected to accede.

7.2. Enforcement

As for the enforcement of obligations, if the Kyoto Protocol obligations are a last, rather than a first step towards worldwide GHG emission cuts, they would not, in and of themselves, reduce GHG emissions very much due to the absence of any long-term commitments or developing country involvement.[228] A global carbon trading zone was envisioned in Kyoto in 1997, but not as much as initially desired came out of it in part because it had to be established and enforced by a legally binding treaty. Therefore, this study suggests the creation of a new mechanism modeled on the GATT that would monitor national commitments to cut GHG emissions, even if it is acknowledged that multilateralism is not doing that well these days.

Using the GATT monitoring as a model would be perfectly feasible so long as the monitoring is carried out by an international body with environmental expertise. There may well be lessons to be learned from the GATT techniques as regards compensatory adjustments for violations. Clearly, it would not be acceptable for country A to feel free to disregard its own GHG emission commitments because country B has – in the opinion of country A – already disregarded its commitments.[229] The monitoring problem arises only once the

[228] Barrett, S. "Climate treaties and the imperative of enforcement", 24 *Oxford Review of Economic Policy* 2008, 239; Wang, X. & Wiser, G. "The Implementation and Compliance Regimes Under the Climate Change Convention and its Kyoto Protocol", 11 *RCEIL* 2002, 181; Victor, D. & Skolnikoff, E. "Translating Intent Into Action: Implementing Environmental Commitments", *Environment* 41 (2), at 16 March 1999.

[229] It would be useful to see how the WTO Trade Policy Review Mechanism worked in trade policy for a possible replica in the case of climate change. See, for instance, Levi, M. "Creating a Climate Policy Review Mechanism", *Harvard Project on International Climate Agreements* (2009), available at http://belfercenter.ksg.harvard.edu/files/levi.pdf; Collins-Williams, T. & Wolfe, R. "Transparency as a Trade Policy Tool: The WTO's Cloudy Windows", *World T.R.*, 2010, 9 (4), 551–581; Charnovitz, S. "Trade and Climate Change: A Report by the United Nations Environment Programme and the World Trade Organization", *World T.R.*, 2010, 9 (1), 273–281; Tamiotti, L. "Trade and the Environment: Fundamental Issues in International Law, WTO Law and Legal Theory", *World T.R.*, 2010, 9 (1), 285–288.

commitments are made, even if sometimes States are reluctant to undertake commitments because they believe that others will cheat and not be caught out.[230]

So how would a new mechanism modeled on the GATT monitor national commitments to cut GHG emissions? Unlike the Kyoto Protocol, which would have subordinated a State's policies to the decisions of an international organization, a future General Agreement to Reduce Emissions (GARE) would perform in the same manner as the 1947 GATT in terms of setting rules, non-binding dispute settlement, and creating incentives (such as financial incentives for technology transfer) for countries to coordinate their efforts in reducing GHG emissions.[231] Just as was the case in the GATT, the advantage of the proposed GARE is that it would not have to be established or enforced by a legally binding treaty.[232] Countries could join the GARE by adopting their own ambitious and verifiable reductions targets based on domestic legislation.[233] Thus, although the international dimension of the GARE would be politically binding, the GARE would be based on legally binding national obligations.[234]

Parties to the GARE would cooperate with each other to make sure that all of them have reliable reporting, monitoring, and enforcement mechanisms. Once the laws of the various participating countries are sufficiently ambitious in reducing emissions, and once they have confidence in one another's compliance with their own targets, international emissions trading would be the logical next

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[230] For an analysis of the problem of enforcement of obligations, see Ulfstein, G. (ed.) *Making Treaties Work: Human Rights, Environment and Arms Embargo*, Cambridge: Cambridge University Press, 2007.

[231] William Antholis and Strobe Talbott have studied the possibility of creating an international mechanism modeled on the GATT that would monitor national commitments and create incentives for other countries to coordinate their efforts to cut GHG emissions. See Antholis, W. & Talbott, S. *Fast Forward: Ethics and Politics in the Age of Global Warming*, Washington, DC: Brookings Institution Press, 2010.

[232] There is a difference between a treaty and an (executive) agreement. A treaty is an agreement formally signed, ratified, or adhered to between two or more nations or sovereigns and governed by international law. "The legal terminology used by the United States to describe international agreements is markedly different from that employed elsewhere. Under the US Constitution, the term 'treaty' has a particular meaning – an agreement made by the President with the advice and consent of the Senate". See Bederman, D. *International Law Frameworks*, 2001, 158. An executive agreement, however, is an international agreement entered into by the President, without approval by the Senate, and usually involving routine diplomatic or military matters. See Garner, B. *Black's Law Dictionary*, 9th ed. West, 2009, p. 651.

[233] For further discussion on this point, see Wiener, J. "Incentives and Meta-Architecture", in Aldy, J. & Stavins, R. (eds.) *Architectures for Agreement: Addressing Global Climate Change in a Post-Kyoto World*, Cambridge: Cambridge University Press, 2007.

[234] On the domestic political and economic constraints that nations face in moving towards a globally integrated goal, see Ruggie, J. "International Regimes, Transactions, and Change: Embedded Liberalism in the Postwar Economic Order", in Krasner, S. (ed.) *International Regimes*, Cornell University Press, 1983.

step.[235] A single set of rules would presumably lower the transaction costs for participants; and investors would be inclined to fund projects[236] in countries with the most cost-effective emission-reduction policies.[237]

The GARE would effectively link domestic action with an international agreement.[238] It would also avoid moving too quickly to a full-blown international institution.[239] A GARE system could be built on the G-8 or major emitters' group.[240] A core set of the most important countries could start the process, and this ultimately would be compatible with regional and bilateral agreements. On an annual basis, leaders of this group could meet at the summit level to evaluate progress and to help give a boost to the ongoing negotiations.[241] Countries can choose domestically to cut their GHG emissions in the way that makes most sense, given their domestic constraints. Rather than prioritize a treaty as a goal in and of itself, a GARE would start with domestic legislation and help nations strengthen – that is, gear up – their ambition.[242]

With the high barriers to legislative approval in the US,[243] the GARE would be a major incentive for the US because it would not be a treaty but an

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[235] For an examination of whether international emissions trading falls within the scope of WTO Agreements, whether it might violate substantive WTO rules and, if so, whether it could be covered by exemption clauses, see Voigt, C. "WTO Law and International Emissions Trading: Is there Potential for Conflict?" *Carbon and Climate Law Review*, 2008, 2 (1), 52–64.

[236] Already in the 2009 COP-15 in Copenhagen, consensus was emerging among the Parties to the UNFCCC that a new international climate fund should be established, a fund which would dwarf all existing funds dedicated to supporting developing country climate change activities. At the same time, there is a growing realization that the current relationship providing guidance and ensuring accountability between the UNFCCC's Conference of Parties and the existing operating entity, is in need of reform. For an analysis of how such a reform could be carried out and how it could be used in providing a legitimate and effective process to set up the new fund, see Müller, B. "Why Reinvent the Wheel?: on establishing new funds while guiding and holding accountable operating entities of the UNFCCC financial mechanism", *Oxford Energy and Environment Comment*, October 2010. See also Müller, B. & Chandani, A. "What Expertise? On who should be drafting the framework documents for a new Global Climate Fund", *Oxford Energy and Environment Comment*, November 2010.

[237] For more details on the GARE proposal, see Stern, T. & Antholis, W. "A Changing Climate: The Road Ahead for the United States", *Washington Quarterly*, Winter 2007–2008, 31, 175–188; see also Petsonk, A. "Testimony before the Subcommittee on Energy and Air Quality", Committee on Energy and Commerce, 27 March 2007; Purvis, N. "Trading Approaches on Climate: The Case for Climate Protection Authority", *Resources*, Summer 2008.

[238] Antholis, W. 'Five "Gs": Lessons from World Trade for Governing Global Climate Change', Brookings Trade Forum, 2008/2009, pp. 121–138, at 126.

[239] Ibid., at 126.

[240] Idem.

[241] Idem.

[242] Ibid., at 128.

[243] According to the US Constitution, for a treaty to enter into force, two-thirds of the US Senate has to ratify it. See Article II, Section 2, of the US Constitution.

agreement. The practical implication of this distinction between a treaty and an agreement is that the GARE would require a 60-vote majority in the US Senate, instead of the 67 votes necessary for treaty ratification. Moreover, current US legislation already authorizes the United States Environmental Protection Agency (EPA) to trade emissions permits with any "national or supranational foreign government"[244] that imposes a mandatory cap on GHG emissions. Furthermore, the current legislation also requires the EPA to determine that the foreign country's program is "at least as stringent as the program established by this title [Title VII], including provisions to ensure at least comparable monitoring, compliance, enforcement".[245] In other words, countries could legislate nationally and coordinate globally.

In summary, enforcement and compliance will happen more effectively with the creation of a specialized court dealing with such issues.

8. Conclusion

Avoiding the linkage between trade and climate change is not possible. From an economic, environmental, and political point of view, these two areas are inextricably linked, and therefore the international community must find a mechanism to continue to lower barriers to trade while also combating or mitigating the effects of climate change.[246] Ideally, the conclusion of an effective and comprehensive global climate change agreement should be a priority, given that climate change is a global problem. Yet, the division in the UNFCCC between Annex I and non-Annex I countries has proven very resistant to evolution. If the international community wishes to continue with the current top-down architecture for international climate policy (UNFCCC/Kyoto Protocol), in my view it would need to eliminate the UNFCCC's Annex I and provide an additional ingredient: a burden-sharing element, designed to produce a fair distribution of burdens across countries (beyond Annex I countries), while also giving priority to green economic development, addressing concerns about wealth inequality, and achieving emissions reductions consistent with limiting the expected increase in global average temperature to 2°C, without sacrificing economic growth.

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[244] The conditions for trading are set out in US House of Representatives, "American Clean Energy and Security Act of 2009", 111 Congress, 1 sess., HR 2454, Title VII, Part C, Section 728, International Emissions Allowances, p. 774.

[245] Ibid.

[246] In the case of the EU, see Coleman, J. "Environmental Barriers to Trade and EC Law", *European Environmental Law Review*, 1993, 11 (2) 295.

However, there is no need to have a global solution/universal agreement to this global problem so long as the major GHG emitters reduce their emissions locally. In other words, if China's (or any other major emitter's) GHG emissions decrease, it will benefit the rest of the world, whereas if China's (or any other major emitter's) GHG emissions increase, it will affect the rest of the world. A local solution can therefore have a global effect. Thus, from an economic and environmental point of view, it is vital that China brings down its GHG emissions.

Pragmatism should be the crucial element in moving the climate agenda forward: plurilateral agreements over a universal climate agreement, flexibility over rigidity, and practical results over utopian ideals. Today, the UNFCCC is one participant among many in climate governance. Ideally, the international community should preserve the successes of the global regime and move on regionally or with coalitions of the willing. In the absence of such a global, universal agreement on climate change, it would make sense to explore, along with the current legal platform of UNFCCC/Kyoto Protocol, the "clubs approach" – such as the MEF, the G-3 or the G-20 – given that the atmosphere does not care where emissions come from because GHG emissions mix globally in the atmosphere. This means that it does not matter where GHG emissions reduction takes place. One could also explore the RTAs possibility and the avenue of a future General Agreement to Reduce Emissions for the creation of a global climate change agreement based on the success of international trade agreements in the past. In this regard, using the evolution of the GATT and WTO as models for building an effective global architecture to combat climate change is desirable. This inter-regime coordination and coherence is a future challenge.

Regarding ways to move the climate change agenda forward, it is well known that equitable and efficient international cooperation is very difficult at the multilateral level. The geometries of power have fundamentally changed with the rising power of China and India. International pressure is increasing in developing countries to reduce their GHG emissions. No breakthroughs will take place regarding a global climate change agreement until there is more political maturity and commitment on the side of the US regarding climate change, and until rapidly emerging economies such as China and India indicate that they are ready to play their part in tackling climate change, as they are part of the solution. Large emitters of GHGs need to be involved for negotiations to come to a conclusion. Much progress is still needed until we reach an international agreement that covers all the world's countries and that is strong enough to tackle climate change effectively, and equitable enough to gain the sympathy of all countries.

Based on the experience of incremental multilateralism in the context of the WTO and the EU, an incremental and gradual approach to multilateralism in climate change may take time until all countries of the world are covered by a

global agreement on climate change. However, so long as the major GHG emitters are reducing their GHG emissions, not having the full UNFCCC membership on board does not really matter, given that the contribution to climate change by non-major emitters of GHGs is minimal. Every country in the world will benefit even in the case where only major GHG emitters reduce their emissions. *A sensu contrario*, the whole world will suffer if major GHG emitters increase their emissions, as climate change is a global problem.

Moreover, the fact that perhaps only a club of major emitting countries may move the climate change agenda forward plurilaterally to limit GHG emissions – instead of the entire UNFCCC membership – is not as problematic as would be the case in the multilateral trading system, where issues of violation of the WTO law principle of non-discrimination would arise. Unlike the case of multilateral trade agreements, in the climate field, it may be preferable to have a minilateral climate change agreement (through clubs or coalitions of the willing) than no agreement at all, if that means making sure that the Earth's rising temperature is being addressed. There are clear costs and risks in not reaching a climate change agreement. Therefore, in the absence of a global climate change agreement, proceeding without the entire UNFCCC membership as the second best option appears to be a wise option.[247]

[247] In the meantime, the global economic crisis, which started in 2008, has resulted in mitigation of emissions because of low economic growth in major GHG emitters.