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Why the World Should Act Like Children: Using the Building Blocks Method to Combat Climate Change, Beginning with Methane

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WHY THE WORLD SHOULD ACT LIKE CHILDREN: USING THE BUILDING BLOCKS METHOD TO COMBAT CLIMATE CHANGE, BEGINNING WITH METHANE

INTRODUCTION

In 2013 the Intergovernmental Panel on Climate Change ("IPCC") released an assessment report which stated the "warming of the climate system is unequivocal."[1] This certainty reflects years of data showing the global average surface temperature has been steadily increasing, and the past decade has been the warmest on record.[2] This rise in temperature has been linked to a myriad of catastrophic current and future events that will negatively affect the world we live in. Just a few of these impacts, recognized by the IPCC, are: the dropping of agricultural yields, the spreading of diseases, the displacement of people living on coastlines, and the increase of weather related disasters.[3]

The main causes of climate change result from human activity, primarily through the burning of greenhouse gases ("GHGs").[4] The six main gases identified in the Kyoto Protocol as the largest contributors to climate change are: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride.[5] Nations need to collaborate on a way to limit the amount of these gases in the atmosphere to curb the rising average surface temperature.

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1. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, SUMMARY FOR POLICYMAKERS, CLIMATE CHANGE 2013: THE PHYSICAL SCIENCE BASIS 4 (Mar. 2014), http://www.ipcc.ch/pdf/assessment-report/ar5/wg1/wg1ar5_spm_final.pdf (explaining that since the 1950s, the "atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased").

2. *See id.* at 5; *Past Decade Warmest on Record According to Scientists in 48 Countries*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (July 28, 2010), http://www.noaanews.noaa.gov/stories2010/20100728_stateoftheclimate.html.

3. *See Feeling the Heat: Climate Science and the Basis of the Convention*, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/essential_background/the_science/items/6064.php (last visited Sept. 15, 2016).

4. *See Causes of Climate Change*, U.S. ENVTL. PROT. AGENCY, https://www3.epa.gov/climatechange/science/causes.html (last visited Sept. 15, 2016).

5. *See* Kyoto Protocol to the United Nations Framework Convention on Climate Change, Annex A (1998), http://unfccc.int/resource/docs/convkp/kpeng.pdf.

In November to December of 2015 in Paris, a Conference of the Parties under the United Nations Framework Convention on Climate Change ("UNFCCC") met to discuss the importance of a complex global convention combating climate change.[6] The stated goal was to stabilize greenhouse gas concentrations "at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system," a goal the UNFCCC website itself described as "lofty."[7] The negotiations resulted in the world's first successfully negotiated pledge and universal climate change deal.[8] Scientists predict the deal will not solely solve global warming but aim to cut GHG emissions by "about half enough as is necessary to stave off an increase in atmospheric temperatures of 2° C."[9] It is praised as an important framework on global cooperation to tackle climate change, but whether or not it is successful will depend on how countries follow through with their commitments.[10]

In this comment, I will argue the current system under the UNFCCC regime is complicated and too difficult for worldwide participation. Any regime attempting to encompass multiple GHGs thus far has not been successful. The earth continues on its dangerous trajectory and the international political system has been unable to come to an agreement on how to mitigate the problem. I will argue that separate agreements which focus on smaller chunks of the climate change issue at a time will be more successful. These smaller conventions will allow more concrete limitations and allow countries to adapt while reducing emissions of GHGs. I will focus this comment on a global convention on methane, one of the six major contributors to climate change, and how this convention would be more successful than a larger international convention.

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6. *See Meetings*, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/meetings/paris_nov_2015/meeting/8926.php (last visited Sept. 15, 2016).

7. *First Steps to a Safer Future: Introducing the United Nations Framework Convention on Climate Change,* U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/essential_background/convention/items/6036.php (last visited Sept. 15, 2016).

8. *See Paris Pledge for Action Boosts Paris Climate Agreement,* U.N. CLIMATE CHANGE NEWSROOM (Dec. 16, 2015), http://newsroom.unfccc.int/unfccc-newsroom/paris-pledge/.

9. Coral Davenport, *Nations Approve Landmark Climate Accord in Paris*, N.Y. TIMES (Dec. 12, 2015), http://www.nytimes.com/2015/12/13/world/europe/climate-change-accord-paris.html?_r=0.

10. *See id.*

Part II of this comment will analyze the difficulties in reaching a broader climate change agreement. After pointing out flaws in previous attempts at conventions under the UNFCCC umbrella, I will use the building blocks theory to argue smaller conventions addressing chunks of the climate change problem are better suited for this issue.

In Part III, I will give an overview of the nature of methane and why it is considered an important GHG as it relates to climate change. I will briefly explain the five main sources of methane emissions: agriculture, coal mining, municipal solid wastewater, oil systems, and gas systems. Methane is an international issue which will require international cooperation, and this section will highlight that fact.

Part IV will explore the idea of sectoral climate change treaties as blueprints for a convention on methane, particularly the Montreal Protocol. This part will explore what a treaty on methane could look like. There are many moving parts in any international agreement, regardless of scope, such as: sectors that need to be controlled, countries that must be involved, and emissions limits that need to be set. This part will also address some of the counter arguments to this thesis. I will conclude, however, a global convention dealing solely with methane would be more successful in the long run than attacking climate change on a larger scale.

II. DIFFICULTIES IN REACHING A BROADER CLIMATE CHANGE AGREEMENT

Twenty-five years of international climate change negotiations have been largely ineffective. The negotiation strategy, described as the "global deal," had five elements: creating top-down policies based on general principles, trying to develop targets and concrete ways to mitigate climate change, attempting to be universal in application, presenting as universal in the negotiation process, and seeking to be legally binding.[11] This approach requires resulting treaties to either be non-binding or run the risk of lack of cooperation from major international players. The Copenhagen Accord was a failure, because the parties bargained over every element proposed to curb climate change, and "[r]ather than promote a global solution in the interest of climate protection, the

11. Robert Faulkner, Hannes Stephan, & John Vogler, *International Climate Policy After Copenhagen: Towards a 'Building Blocks' Approach*, 1 GLOB. POL'Y 252, 253 (2010).

major powers focused narrowly on securing their own national interest and avoiding costly commitments."[12] The Paris Agreement attempts overcome Copenhagen's failures, but until countries begin to make progress on their plans the success of Paris will be unknown.

A great impediment in this system is the divergence of goals between wealthier countries and poorer countries: wealthier countries aim to mitigate emissions, while poorer countries aim for adaptation assistance.[13] The inequalities of the international system are generally referred to as "common but differentiated responsibilities," but what is reflected are "very different visions for how the burdens and benefits of collective action should be allocated, as well as divisive views on the overall level of action required."[14] The Paris Agreement tried to overcome this, but still there was disagreement regarding a binding provision that rich countries provide $100 billion to help poor countries mitigate and adapt.[15] The poorer countries were able to get this language in the Paris decision, but not in the text of the actual Paris Agreement, and the pledge is not legally binding.[16]

The Paris Agreement requires every party to create and publish a plan detailing how that country will cut carbon emissions through 2025 or 2030.[17] The treaty itself does not have binding language on the parties to actually limit emissions, because countries like the United States would never be able to ratify such an agreement.[18] This means the success of this agreement depends substantially on the willing participation of the parties.[19] There is no enforcement mechanism ensuring parties follow through with their published plans to curb emissions.[20] As prominent climate

12. *Id.* at 256.

13. *See* DAVID G. VICTOR, INT'L CENTRE FOR TRADE & SUSTAINABLE DEV., THE CASE FOR CLIMATE CLUBS 2 (2015) http://e15initiative.org/wpublications/the-case-for-climate-clubs/.

14. *Id.*

15. *See* Davenport, *supra* note 9.

16. Robinson Meyer, *A Reader's Guide to the Paris Agreement*, THE ATLANTIC (Dec. 16, 2015), http://www.theatlantic.com/science/archive/2015/12/a-readers-guide-to-the-paris-agreement/420345/.

17. *See* Davenport, *supra* note 9.

18. *See id.*

19. *See id.*

20. *See id.*

change scientist James Hansen said, the Paris Agreement contains "no action, just promises."[21]

Aside from the lack of an enforcement mechanism, future political changes also make the success of the Paris Agreement precarious. The United States, in particular, may find it difficult to meet its published goals once President Obama is out of office.[22] Lack of legally binding language means a regime change in which successors decide not to honor the published plan could derail a country's participation. The more influential the country, the more likely a situation like this will affect the success of the Paris Agreement.

Considering these difficulties, the building blocks method would be a better strategy, in which countries develop smaller "elements of climate governance in an incremental fashion and embed[] them in an international political framework."[23] Conventions using this approach might limit the number of participants, include non-state actors, focus on specific types of activities, or utilize different modes of governance, while providing benefits to those participating.[24] These smaller conventions would provide flexibility for participants and a more simplified negotiating process. While there are many theories within the building blocks approach, this comment promotes the "low hanging fruit" strategy: countries aim to agree on conventions that resolve easier climate change problems first.[25] Progress may be incremental, but the international community can find footing with smaller agreements.

III. A LOOK AT METHANE

An attractive GHG for a smaller convention addressing climate change is methane. By studying ice cores, scientists have discovered that current levels of methane in the atmosphere have more than doubled since the industrial revolution.[26] Concentrations of

21. Oliver Milman, *James Hansen, Father of Climate Change Awareness, Calls Paris Talks 'A Fraud,'* THE GUARDIAN (Dec. 12, 2015), http://www.theguardian.com/environment/2015/dec/12/james-hansen-climate-change-paris-talks-fraud.

22. *See, e.g., id.*

23. Faulkner, *supra* note 11, at 252.

24. *See* Richard B. Stewart, Michael Oppenheimer, & Bryce Rudyk, *Building Blocks for Global Climate Protection*, 32 STAN. ENVTL. L.J. 341, 344 (2013).

25. Faulkner, *supra* note 11, at 259.

26. *See* Dave Reay, Pete Smith, & Andre van Amstel, *Methane Sources and the Global Methane Budget*, *in* METHANE & CLIMATE CHANGE 1, 1 (Dave Reay, Pete Smith, & Andre van Amstel eds., 2010).

methane are much lower than carbon dioxide but pose a much higher risk to climate change.[27] Regardless of its shorter lifetime in the atmosphere, methane is much more efficient at trapping radiation, increasing its potency as a GHG.[28] Compared to carbon dioxide, methane's impact on climate change is more than twenty-five times greater over a 100-year period.[29] It is estimated that methane emissions are responsible for one-third of anthropogenic global warming, making it a good focus for a smaller convention targeting climate change.[30]

A. *Sources of Methane Emissions*

Methane emissions result from a mixture of natural and anthropogenic sources. However, over 60 percent of emissions can be traced from human activities through the sources briefly described in this section.[31]

1. Agriculture

Agriculture is the primary source of methane emissions internationally.[32] Factors include: livestock management, management of animal waste, rice cultivation, and crop residue burning.[33] One of the largest contributors to methane production in this sector is manure management, as methane is emitted from decomposing livestock manure and agro-industrial wastewater.[34] Methane emitted from manure management systems can be recovered, or captured, using anaerobic digestive technology, making these emissions more manageable than other GHGs.[35]

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27. *See id.* at 2.

28. *Overview of Greenhouse Gases*, U.S. ENVTL. PROT. AGENCY, http://www3.epa.gov/climatechange/ghgemissions/gases/ch4.html (last visited Sept. 15, 2016).

29. *See id.*

30. *See Global Methane Emissions and Mitigation Opportunities*, GLOB. METHANE INITIATIVE (Apr. 2011), https://www.globalmethane.org/documents/analysis_fs_en.pdf.

31. *See Overview of Greenhouse Gases*, *supra* note 28.

32. *See id.*

33. U.S. ENERGY INFO. ADMIN., EMISSIONS OF GREENHOUSE GASES IN THE U.S. 2009 38 (2011), http://www.eia.gov/environment/emissions/ghg_report/pdf/0573%282009%29.pdf.

34. *See* GLOB. METHANE INITIATIVE, AGRICULTURAL METHANE: REDUCING EMISSIONS, ADVANCING RECOVERY AND USE OPPORTUNITIES 1–2 (2011), http://globalmethane.org/documents/ ag_fs_eng.pdf.

35. *See id.* at 2.

2. Coal Mining

Methane emissions from coal mines (CMM) occur from "active and abandoned underground mines and surface mines, and as a result of post-mining activities including coal processing, storage, and transportation."[36] In 2010, the highest CMM emitters were China, the United States, and Russia.[37] Overall, CMM contributed to 8 percent of the total global methane emissions.[38] Recent studies have found that recovered CMM can be used for profitable projects including electric power production, district heating, coal drying, and vehicle fuel, making CMM an economically beneficial emission to regulate.[39]

3. Municipal Solid Waste (Landfills)

Methane is produced by the process of organic material decomposing in wastewater and, under anaerobic conditions, in landfills.[40] "Globally, landfills are the third largest anthropogenic source of methane, accounting for approximately 11 percent of estimated global methane emissions."[41] The United States leads landfill methane emissions by a large margin, but countries with growing consumer economies have been steadily increasing.[42] Landfill gas, however, can be captured and used as an energy source in place of conventional fossil fuels.[43] As an energy source, these emissions are even more appealing as they are renewable, since landfill methane gas is generated constantly from wastes deposited in landfills.[44]

4. Oil and Gas Systems

This source of methane comes from the "production, processing, transmission, and distribution of oil and natural gas" and makes

36. *Global Methane Emissions and Mitigation Opportunities*, *supra* note 30, at 3.

37. GLOB. METHANE INITIATIVE, COAL MINE METHANE: REDUCING EMISSIONS, ADVANCING RECOVERY AND USE OPPORTUNITIES 2 (2011), https://www.globalmethane.org/documents/coal_fs_eng.pdf.

38. *Id.* at 1.

39. *See id.* at 2.

40. *See Global Methane Emissions and Mitigation Opportunities*, *supra* note 30, at 3.

41. GLOB. METHANE INITIATIVE, LANDFILL METHANE: REDUCING EMISSIONS, ADVANCING RECOVERY AND USE OPPORTUNITIES 1 (2011), http://globalmethane.org/documents/landfill_fs_eng.pdf.

42. *Id.* at 2.

43. *See id.*

44. *See id.*

up the second largest anthropogenic source of methane internationally.[45] Emissions result from "normal operations, routine maintenance, and system disruptions in the oil and natural gas industry," and "account for approximately 20 percent" of international methane.[46] Relatively cost effective opportunities to reduce emissions from this source can come from operational changes, updating industry equipment, and improving system procedures.[47]

B. *Methane as an International Issue*

According to data collected in 2010, 134 countries produced methane emissions.[48] China emitted far more than any other country, but India, Russia, the United States, and Brazil were also high contributors.[49] With such a large amount of contributing countries, curbing methane clearly requires international cooperation.

The Global Methane Initiative, created in 2004 by fourteen countries, including the United States, committed members to advance cost-effective, near-term methane recovery and use as a clean energy source.[50] The goal is for governments and private actors to work together on methane reduction projects internationally.[51] An announcement in 2010 noted that around 170 projects were already underway in different countries.[52] Notably, the United States has been incredibly influential in this process, pledging more than $50 million since it started in 2004.[53] The Initiative stated lofty goals, but has not updated its website to show

45. *See* GLOB. METHANE INITIATIVE, OIL AND GAS SYSTEMS METHANE: REDUCING EMISSIONS, ADVANCING RECOVERY AND USE 1 (2011), http://globalmethane.org/documents/oil-gas_fs_eng.pdf.

46. *Id.*

47. *See id.* at 2.

48. *Methane Emissions (kt of CO2 Equivalent)—Country Ranking*, INDEXMUNDI, http://www.indexmundi.com/facts/indicators/en.atm.meth.kt.ce/rankings (last visited Sept. 15, 2016).

49. *See id.*

50. GLOB. METHANE INITIATIVE, GLOBAL METHANE INITIATIVE FACT SHEET 1–2, https://sustainabledevelopment.un.org/content/documents/usa_annex2.pdf (last visited Sept. 15, 2016).

51. *See id.*

52. Karin Rives, *Global Initiative Seeks to Curb Methane Pollution*, U.S. DEP'T OF STATE IIP DIGITAL (Oct. 15, 2010), http://iipdigital.usembassy.gov/st/english/article/2010/10/20101015143326nirak0.9236109.html#axzz4Ack5uHWz.

53. *See id.*

any specific recorded reductions in methane.[54] The website states that "by 2015, the Initiative had the potential to deliver estimated annual methane emission reductions" but does not state whether any goals were achieved.[55]

Regardless of the apparent lack of success of the Initiative thus far, this level of global cooperation on a small scale supports the theory that a convention on methane is not only possible but likely to be successful. If projects are at least underway to limit the emissions of methane worldwide under this initiative, some infrastructure already exists to support such a convention. The cooperation of the United States, European Union, Russia, India, Brazil, and China also bodes well for future collaboration.

Apart from its involvement in the Global Methane Initiative, the United States has also announced a unilateral plan to drastically reduce domestic emissions of methane.[56] The EPA proposed the first U.S. federal regulation which would require the oil and gas industry to reduce methane emissions.[57] The new EPA regulation amends the new source performance standards ("NSPS") for certain equipment, processes, and activities across the oil and natural gas source category for methane.[58] Prior to this rule, methane was unregulated by the EPA under NSPS, therefore this regulation will affect every major oil and gas company.[59] Industry officials are criticizing these regulations as unnecessary and costly, claiming that companies already take such actions voluntarily.[60] However, many natural gas companies approve of these regulations, because cutting methane emissions would leave such companies with more gas to sell.[61] The EPA announced its final

54. *See, e.g.*, *About the Initiative*, GLOB. METHANE INITIATIVE, https://www.globalmethane.org/about/index.aspx (last visited Sept. 15, 2016).

55. *Id.*

56. *See* Gardiner Harris & Coral Davenport, *E.P.A. Announces New Rules to Cut Methane Emissions*, N.Y. TIMES (Aug. 18, 2015), http://www.nytimes.com/2015/08/19/us/epa-announces-new-rules-to-cut-methane-emissions.html.

57. *See id.*

58. *See* Oil and Natural Gas Sector: Emission Standards for New and Modified Sources, 80 Fed. Reg. 56593 (proposed Sept. 18, 2015).

59. *See id.* at 56594.

60. Amy Harder & Erin Ailworth, *EPA Proposes Cutting Methane Emissions From Oil, Natural-Gas Drilling*, WALL ST. J. (Aug. 18, 2015, 7:08 PM), http://www.wsj.com/articles/epa-proposes-cutting-methane-emissions-from-oil-natural-gas-drilling-1439915525.

61. *See id.* (explaining that natural gas is primarily composed of methane).

rule on May 12, 2016.[62] The regulations are expected to reduce emissions by 40 to 45 percent.[63]

IV. A TREATY ON METHANE

A. *Sectoral Climate Change Treaties*

The argument for sectoral climate change treaties is largely theoretical, as the "global deal" strategy has been the primary vehicle for climate cooperation thus far. However, the world found success with the Montreal Protocol, which focused only on a few pollutants and attacked solely the issue of ozone. A sectoral climate change treaty on methane could take a variety of shapes, but ultimately should resemble the Montreal Protocol: a convention involving all counties of the world, that is more narrow and specific, focused on a relatively smaller issue that all countries will find less complicated and more flexible to comply with.

1. The Montreal Protocol

The Montreal Protocol on Substances that Deplete the Ozone Layer, an agreement to protect the ozone layer by eliminating the use of ozone depleting substances, entered into force on January 1, 1989.[64] All United Nations (UN) member states universally ratified the protocol.[65] The protocol regulates nearly 100 chemicals, and in twenty-five years of service, it has decreased those chemicals by almost 100 percent.[66] All of the phase-out schedules for these chemicals were adhered to in most cases, and some were even completed ahead of schedule.[67] Kofi Annan stated in 2003

62. Press Release, U.S. Environmental Protection Agency, EPA Releases First-Ever Standards to Cut Methane Emissions from the Oil and Gas Sector (May 12, 2016), https://www.epa.gov/newsreleases/epa-releases-first-ever-standards-cut-methane-emissions-oil-and-gas-sector.

63. *Id.*

64. Pamela Wexler, *Protecting the Global Atmosphere Beyond the Montreal Protocol*, 14 MD. J. INT'L L. & TRADE 1, 1 (1990).

65. *Ozone, CFCs and the Montreal Protocol*, EARTH JOURNALISM NETWORK, http://earthjournalism.net/resources/ozone-cfcs-and-the-montreal-protocol (last visited Sept. 15, 2016).

66. Mario Molina & Durwood J. Zaelke, Opinion, *A Climate Success Story to Build On*, N.Y. TIMES (Sept. 25, 2012), http://www.nytimes.com/2012/09/26/opinion/montreal-protocol-a-climate-success-story-to-build-on.html?_r=0.

67. *International Day for the Preservation of the Ozone Layer*, UNITED NATIONS, http://www.un. org/en/events/ozoneday/background.shtml (last visited Sept. 15, 2016).

that the protocol is "[p]erhaps the single most successful international agreement to date."[68]

There are several reasons why the Montreal Protocol is so successful. First, it relies on a "basket" strategy allowing member states flexibility in the reduction of ozone depleting substances.[69] The treaty also incentivizes participation and discourages free riding by calling for tough trade measures and prohibiting parties from importing and exporting controlled substances from non-parties.[70] The protocol aids developing countries by creating a Multilateral Fund which provides money for the development and purchase of technology and products not harmful to the ozone layer.[71] Arguably the most important element of the protocol is the requirement to assess and review international controls at least every four years in order to reflect changing technologies and emerging pollutants.[72] All of these elements work together to form the most successful environmental agreement to date.

B. *The Benefits of the "Building Blocks" Approach*

The theory behind this strategy supports the UNFCCC regime, but would be completely different in execution. These smaller, or partial, agreements still require international cooperation and would need to eventually fit together to form a larger political framework.[73] Scholars see the potential benefit of this strategy, as increased participation and agreement among countries to commit to binding international agreements.[74] One factor is smaller agreements would simplify the GHG reduction process to a concrete number of pollutants and target only a portion of economic interests.[75] This makes the economic burden more feasible to participating countries and therefore enhance participation.

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68. *Id.*

69. *See* DAVID HUNTER ET AL., INTERNATIONAL ENVIRONMENTAL LAW & POLICY 552 (4th ed. 2011).

70. *See id.* at 553.

71. *See* James M. Patlis, *The Multilateral Fund of the Montreal Protocol: A Prototype for Financial Mechanisms in Protecting the Global Environment*, 25 CORNELL INT'L L.J. 181, 182 (1992).

72. *See* HUNTER, *supra* note 69, at 554.

73. U.N. ENVTL. PROGRAMME, A SUCCESS IN THE MAKING: THE MONTREAL PROTOCOL ON SUBSTANCES THAT DEPLETE THE OZONE LAYER 4 (2007).

74. *See* Stewart, *supra* note 24, at 344.

75. *See id.*

Another factor is more psychological: building blocks may break the current international environmental stalemate and build trust and cooperation among countries that could translate to other areas of climate change.[76] Individually, these agreements may not mitigate the total effect of climate change substantially, but cumulatively they would have a substantial effect on GHG emissions. Having widespread commitment, even on a convention only addressing a smaller aspect of climate change, would improve the atmosphere of international cooperation in future agreements.

Methane would work nicely as the first building block, as it can serve as the "low-hanging fruit" the international community can pick off. It is not as important as carbon dioxide, but a huge reduction in methane emissions would present immediate effects. The Arctic Monitoring and Assessment Programme predicts reducing emissions of short-lived pollutants like methane could reduce expected global warming by 0.2 degrees Celsius.[77] It would make a dent in global warming, with the added benefit of showing skeptics that concrete action against climate change is feasible.[78]

C. *Factors Involved in a Methane Treaty*

Creating any international convention is a complicated process regardless of the scope. The negotiating process often involves many different factors, negotiators, priorities, and drafts over the course of months or years. While it would be impossible to touch on all of the possible factors which might arise, the following sections outline potential elements of a treaty concerning methane.

1. Limiting Emissions

The benefit of a global convention concerning only methane is that targets can be simplified, much like with the Montreal Protocol. The Montreal Protocol utilized a "basket approach" toward regulating emissions: each party was designated an ozone depleting potential rating, which was the basis for calculating annual

76. *See* Faulkner, *supra* note 11, at 260.

77. *See Low-Hanging Dirt*, THE ECONOMIST (Oct. 3, 2015), http://www.economist.com/news/international/21669884-cutting-emissions-methane-and-soot-could-bring-swift-benefits-low-hanging-dirt.

78. *See* Victor, *supra* note 13, at 2.

production of emissions, including imports and exports.[79] Parties then calculated consumption by subtracting exports from production and imports, which created a "basket" from which reduction targets were determined.[80] A methane treaty could use the same strategy, in which countries create a "basket" of methane consumption and determine reduction targets. Then countries would have the flexibility to determine which of the four main sectors of methane emissions reductions would least impact the economy.[81]

The Montreal Protocol also notably had strict provisions and mechanisms built in to re-evaluate and amend regulations as new technology arose or as countries began hitting their targets faster than expected.[82] These amendments were determined by Meetings of the Parties and, once approved, took effect automatically without further ratification from the parties to the treaty.[83] This process would be very important to a methane treaty because stringent emissions limitations will be very technology dependent, as many types of methane emissions can be captured and repurposed.[84] A treaty on methane will need a strict time table for reevaluation every certain number of years or when the need arises because there has been a major technological advancement.

2. Country Involvement

For a methane treaty to substantially limit emissions of methane in the atmosphere, with no danger of increases in the future, it would need to be international. However, that does not mean that every country will have the same roles or limitations.

Countries that would have to sign on to this treaty in order for its success are: China, India, Russia, the United States, and Brazil, as these countries are the largest contributors to methane

79. *See* Bryan A. Green, *Lessons From the Montreal Protocol: Guidance for the Next International Climate Change Agreement*, ENVTL. L. (Jan.1, 2009), http://www.thefreelibrary.com/Lessons+from+the+Montreal+Protocol%3A+guidance+for+the+next. . .-a0196728997.

80. *See id.*

81. *See supra* Part III.

82. *See id.*

83. Mario Molina et al., *Reducing Abrupt Climate Change Risk Using the Montreal Protocol and Other Regulators Actions to Complement Cuts in CO2 Emissions*, INST. FOR GOVERNANCE & SUSTAINABLE DEV. (Aug. 31, 2009), http://www-ramanathan.ucsd.edu/files/pr169.pdf.

84. *See infra* Part IV.

emissions worldwide.[85] The strictest emissions limitations would have to be placed on these parties. The United States, luckily, has already taken steps domestically to reduce emissions in the oil and gas sectors through EPA regulations.[86] However, if methane emissions were eliminated or captured from only coal mines in only China, the United States, and Russia, 8 percent of total global methane emissions would be reduced immediately.[87] With the basket strategy, these countries will be able to reduce emissions flexibly in the sectors they choose, but their cooperation will be most vital to the success of a methane treaty.

Developing countries that do not produce nearly the same percentage of methane emissions as those countries in the paragraph above will still need to be involved in this treaty as well. As a state's economy develops, without any limitations on methane emissions, it follows that such emissions will increase gradually. For example, landfill methane emissions account for 11 percent of global methane emissions,[88] but this number will steadily increase as developing countries' consumer economies increase.[89] For a treaty on methane to be successful, it will need as close to universal participation as much as possible.

3. Fund for Technology

A very important element in any convention aimed at limiting GHG emissions is a multilateral fund to aid developing countries. The Montreal Protocol was the first environmental treaty to not only provide a fund for developing countries, but create a "financial mechanism with language that is direct, definite, and obligatory."[90] The fund specifically covers incremental costs developing countries incur while fulfilling their obligations under the Protocol and is funded voluntarily by developed parties.[91] Agreement to a multilateral fund will be integral to a methane treaty and perhaps any climate change agreement in the future. It is the best

85. *See Methane Emissions, supra* note 48.
86. *See* Harris & Davenport, *supra* note 56.
87. *See* COAL MINE METHANE, *supra* note 37, at 1.
88. *See Landfill Methane, supra* note 41, at 1.
89. *See id.* at 2.
90. Patlis, *supra* note 71, at 195.
91. *See* Green, *supra* note 79.

way to ensure compliance by developing countries, and put responsibility for such compliance directly on developed countries.[92]

Aid for developing countries in the Montreal Protocol is not only monetary, but also provides for the "transfer of technologies," so that developing parties can comply with the treaty.[93] Article 10A of the Protocol ties the technology transfer with the treaty's financial mechanism, and states that "[e]ach party shall take every practicable step . . . to ensure that the best available, environmentally safe substitutes and related technologies are expeditiously transferred" to developing countries.[94] This will be an important provision to use as a blueprint for a methane treaty, because technological advancements will be necessary to aid developing countries in hitting any emissions goals set by the treaty.

D. *Counter Arguments*

The Paris Agreement is seen as a landmark agreement, in which representatives of 195 nations committed to lower GHG emissions in order to curb climate change, and is an example of the global deal strategy.[95] To many experts, this agreement "represent[s] the world's last, best hope of striking a deal that would begin to avert the most devastating effects" of climate change.[96] The general attitude is that there is "no plan B" to this agreement.[97] Going backwards now to begin combating climate change piecemeal, using the building blocks strategy, may prove more harmful to the cause than beneficial.

Paris may not have legally binding language for emissions reductions, but it does have very strong reporting requirements for governments to stick to their published plans and a process for tracking progress.[98] "[I]ndividual countries' plans are voluntary, but the legal requirements that they publicly monitor, verify and report what they are doing" will create a "name-and-shame" sys-

92. *See* Patlis, *supra* note 71, at 196.

93. *Id.* at 197.

94. The Montreal Protocol on Substances that Deplete the Ozone Layer, art. 10A, Jan. 1, 1989, 1522 U.N.T.S. 35–36.

95. *See* Davenport, *supra* note 9.

96. *Id.*

97. *Id.*

98. Thomas Day et al., *What The Paris Agreement Means for Global Climate Change Mitigation*, NEWCLIMATE INST. (Dec. 14, 2015), http://newclimate.org/2015/12/14/what-the-paris-agreement-means-for-global-climate-change-mitigation/.

tem of accountability.[99] Most countries recognized that the universal goal must be to reduce the global temperature increase to 1.5°C, reflected in the IPCC's Fifth Assessment Report.[100] This overall agreement of developed and developing nations to create the Paris Agreement is indicative of the potential future success of the Paris Agreement, and hence the global deal strategy.

CONCLUSION

While it is necessary for the world that the Paris Agreement be successful, the fact remains that the current climate pledges from 188 of the 196 parties do not yet correlate with a 1.5 degrees Celsius rise in global temperature.[101] Nothing can be concluded until the individual plans are set in motion and the reporting process begins, but the agreement is starting off with current pledges predicted to result in reaching an average global temperature of 2.7 degrees Celsius, not the stated temperature goal.[102] There is the possibility the agreement will not be as stringent or effective as the world, particularly small island states, need it to be.

The Paris Agreement did, however, make it obvious climate change is now regarded as an international issue that 196 countries are willing to make a priority. Even if doesn't prove as fruitful as people hope now, the building blocks theory can augment this agreement in the future. The building blocks theory and the UNFCCC do not have to be mutually exclusive. Within the framework of UNFCCC there is the possibility of creating the individualized agreements described in this comment. To boost GHG reductions in order to make a bigger impact on climate change worldwide, a convention on methane would be the perfect starting point.

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99. Davenport, *supra* note 9.
100. *See* Day, *supra* note 98.
101. *See id.*
102. *See* Day, *supra* note 98.