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BORDER TAX ADJUSTMENTS AND DEVELOPING COUNTRIES: A PERSPECTIVE FROM CHINA

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ABSTRACT

It is no hyperbole to say that climate change is one of the most urgent crises all humans face together. Among the many ways that governments have attempted to curb carbon emissions, border tax adjustments (BTAs) have majorly aimed to restore the competitiveness of developed countries with more stringent carbon control policies. This article carefully examines the proposal under the tests of international environmental laws to evaluate the implications of BTAs in international legal system. The article argues that the imposition of BTAs will be inconsistent with set principles of the common but differentiated responsibility (CBDR), sustainable development and polluter pays and cause environmental injustice due to the adaptation and vulnerability of developing countries.

I. INTRODUCTION

More consecutive days with high temperature, frequent drought and flooding in different areas simultaneously, the concerned record cold winter with more storms, increased risk of food insecurity in some coun-

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tries and the outsized public budget for assisting the conditions¹ are some of the emerging phenomena that have made the negotiation for a post-Kyoto climate regime imperative and as urgent as it can be. Following the framework under the Kyoto Protocol, most industrialized countries² have come up with carbon control policies and therefore, have borne higher carbon prices.³

To avoid carbon leakage⁴ and restore the fairness of competition, developed countries have proposed unilateral border tax adjustments (BTAs) on goods manufactured in or services associated with developing countries. Theoretically, BTAs might sound as a fair way to curb climate change based on carbon intensity. However, the complexity and uncertainty have drawn keen discussions as to whether it will increase or decrease trade transparency and competitiveness of developed countries. Conventional analysis has primarily reviewed this important policy question through the lens of economic policy analysis or the legality under the WTO. Some researchers argue that BTAs are required for economic efficiency in carbon abatement.⁵ Others consider that such a proposal would be a nuclear option in terms of trade consequences and not so effective in reducing global emissions.^{6,7} There is also abundant discus-

1. According to The U.S. Government Accounting Office (GAO), annual federal climate spending has increased from \$4.6 billion in 2003 to \$8.8 billion in 2010, amounting to \$106.7 billion over that period. The money was spent in four general categories: technology to reduce greenhouse gas emissions, science to understand climate changes, international assistance for developing countries, and wildlife adaptation to respond to actual or expected changes. See Larry Bell, *The Alarming Cost of Climate Change Hysteria*, FORBES (Aug. 23, 2011), <http://www.forbes.com/sites/larrybell/2011/08/23/the-alarming-cost-of-climate-change-hysteria/>.

2. Industrialized countries refer to the Annex I Parties listed under the United Nations Framework Convention on Climate Change. Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, U.N. Doc FCCC/CP/1997/7/Add.1, 37 I.L.M. 22 (1998), https://unfccc.int/parties_and_observers/parties/annex_i/items/2774.php.

3. See Nicholas Herbert Stern, *The Economics of Climate Change: The Stern Review* (Cambridge Univ. Press 2007).

4. Carbon leakage is defined as “the increase in CO₂ emissions outside the countries taking domestic mitigation action divided by the reduction in the emissions of these countries.” Intergovernmental Panel on Climate Change [IPCC], *Climate Change 2007: Mitigation*, at 665 (2007), available at https://www.ipcc.ch/publications_and_data/ar4/wg2/en/contents.html.

5. See, e.g., Raymond J. Kopp & William A. Pizer, *Assessing US Climate Policy Options Resources for the Future* (2007), available at http://www.rff.org/News/Features/Documents/CPF_COMPLETE_REPORT.pdf. See also Roland Ismer & Karsten Neuhoff, *Border Tax Adjustment: A Feasible Way to Support Stringent Emission Trading*, 24 European J. L. & Econ. 137 (2007).

6. See Aditya Matto et al., *Reconciling Climate Change and Trade Policy* (Ctr. For Global Development, Working Paper No. 189, 2009), <http://www.cgdev.org/content/publications/detail/1423204> (“Our estimates show that imposing tariffs across-the-board based on the carbon content of imports would address competitiveness concerns of domestic producers and contribute to further emissions reductions. But it would be a ‘nuclear option’ in terms of trade consequences.”).

sion on whether the proposal is compatible with existing WTO trade rules.⁸⁹

However, the implementation problems inherent to the proposal do not only involve the competitiveness in the trade policies of developed countries. More importantly, it concerns the interests and welfare of developing countries, which remain the most vulnerable due to natural disasters¹⁰ and implications from current international environmental law. Few articles that have addressed BTAs have attempted to theorize the ways in which international environmental law should play an important role in assessing BTAs.

By examining why and how BTAs would influence developing countries, this article seeks to offer insight into a number of broader ongoing debates, including implications in international environmental law, responses from developing countries,¹¹ legal development¹² and environmental injustice in China.¹³ Specifically, the imposition of BTAs impedes the concepts well-developed in international environmental law¹⁴ of the Common but Differentiated Responsibility (CBDR) principle, the state responsibility principle and the polluter pays principle, by causing disharmony of international environmental law. This article also analyzes the important reasons opposing the practice of BTAs through

7. Niven Winchester et al., *Will Border Carbon Adjustments Work?*, 11 B.E. J. ECON. ANALYSIS & POL'Y (2011) ("For 2025, we find that BCAs reduce leakage by up to two-thirds, but result in only modest reductions in global emissions and significantly reduce welfare. In contrast, BCA-equivalent leakage reductions can be achieved by very small emission charges or efficiency improvements in nations targeted by [border carbon adjustments] (BCAs), which have negligible welfare effects. We conclude that BCAs are a costly method to reduce leakage, but may be an effective coercion strategy.").

8. See, e.g., Timothy E. Deal, *WTO Rules and Procedures and Their Implication for the Kyoto Protocol*, (2008), https://uscib.org/docs/wto_and_kyoto_2008.pdf; Ernst-Ulrich Petersmann, *International Trade Law and International Environmental Law: Environmental Taxes and Border Tax Adjustment in WTO Law and EC Law*, in ENVIRONMENTAL LAW, THE ECONOMY AND SUSTAINABLE DEVELOPMENT: THE UNITED STATES, THE EUROPEAN UNION AND THE INTERNATIONAL COMMUNITY 127-55, (Richard L. Revesz ed., 2000).

9. For example, the WTO issue on border tax adjustments relates to the National Treatment Principle set in Article III of GATT, Article 17 of GATS and Article 3 of TRIPS. WTO, *Principles of the Trading System*, https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact2_e.htm.

10. See United Nations Framework Convention on Climate Change [UNFCCC], *Climate Change: Impacts, Vulnerabilities and Adaptation in Developing Countries*, 5 (2007), <http://unfccc.int/resource/docs/publications/impacts.pdf>.

11. See *infra* Part II for a discussion of responses from officials of China and India regarding the EU tax on aviation.

12. See *infra* Part IV.C.

13. See *infra* Part IV.D.

14. See *infra* Part IV.A.

the test of adaptation capacity,¹⁵ and the continuing efforts made by developing countries and environmental justice.

This article proceeds in five parts. Part II sets forth a background narration of the proposal for BTAs. Part III examines the most solid proposal with the case of the European Union's (EU) attempted tax on aviation as an example. Part IV turns to the central thesis of this article, offering an explanation for why BTAs might not be an ideal tool in curbing climate change.

First, BTAs are supposed to encourage voluntary reduction, not impose mandatory penalties under the CBDR principle.¹⁶ Also, the state responsibility principle is not triggered under the Kyoto Protocol for developing countries. Second, developing countries are the most vulnerable to climate change impacts due to lack of resources.¹⁷ Under the concept of sustainability development, limited resources should be distributed to developing countries in priority to assist adaptation and mitigation work, instead of being reallocated to developed countries through BTAs.¹⁸

Third, some developing countries, such as China, have invested significantly in green industries and set noticeable national targets in reducing energy intensity per unit of GDP. China, in particular, has set a national target of reducing its energy intensity per unit of GDP by 40 to 45% by 2020, compared to 2005 levels.¹⁹ It corresponds to the principles of CBDR and polluter pays. In 2013, alone, China had once again invested more than the U.S. and other industrialized countries in renewable energy industries.²⁰ It seems unjustified to impose BTAs against developing countries for the efforts in cutting emissions. Last, under the consideration of environmental justice, the adoption of BTAs will lead to welfare losses of low-income people in both developing and developed countries, resulting in an increased unemployment rate in developing

15. See *infra* Part IV.B.

16. See DUNCAN BRACK, MICHAEL GRUBB & CRAIG WINDRAM, INTERNATIONAL TRADE AND CLIMATE CHANGE POLICIES 163 (Earthscan 2000); John Hontelez, *Time to Tax Carbon Dodgers*, BBC NEWS (Apr. 5, 2007), <http://news.bbc.co.uk/2/hi/science/nature/6524331.stm>; THE PEW CENTER ON GLOBAL CLIMATE CHANGE, *Beyond Kyoto: Advancing The International Effort Against Climate Change* (2003), http://stephenschneider.stanford.edu/Publications/PDF_Papers/BeyondKyoto.pdf.

17. See UNFCCC, *supra* note 10.

18. *Id.*

19. Hai Chen, *Stricter Regulations Required to Reap Benefits from China's Green Investments New Report Highlights Country's Leading Role in Renewable Energy*, UNEP NEWS CENTER (Nov. 26, 2013), <http://www.unep.org/newscentre/Default.aspx?DocumentID=2755&ArticleID=9713&language=en-us> (last visited Apr. 5, 2015).

20. Lan Lan, *Renewable Get China A Push*, CHINA DAILY, Jun. 5, 2014.

countries and further obstacles against transitioning towards a sustainable society.²¹ Since public participation is still limited in China, it is tough to meaningfully involve the affected communities and have their opinions be considered.

Finally, Part V argues that the implementation of BTAs will be inconsistent with existing principles in international environmental law and does not seem to be an ideal solution, owing to negative impacts without efficiently reducing global carbon emissions. This part makes a proposal for initiating a climate regime that will encourage substantial participation of developing countries²² as the most effective way to the abatement of global emissions.

II. A BACKGROUND NARRATION

As governments of many countries have considered reducing carbon emissions, an accompanying question is what measures are appropriate to adjust competitive disadvantages to producers in energy-intensive industries (EIs) and service providers with high carbon emissions. The costs to make products that consume lots of energy and to provide service with high carbon emissions are higher in the countries with more stringent environmental policies than those without such policies.²³ With the hope of restoring competitiveness, EIs from developed countries have actively lobbied for measures like BTAs against goods imported from developing countries or services associated with developing countries.

BTAs, also known as border tax assessments,²⁴ are import taxes levied by carbon-taxing countries on goods manufactured in or service associated with non-carbon-taxing countries.²⁵ In addition to promoting fair competition, BTAs also aim at dealing with the problem of carbon leakage.²⁶ Carbon leakage occurs when carbon emissions decrease in one country while increasing in another country. However, the global emis-

21. See UNFCCC, *supra* note 10.

22. International Institute of Sustainable Development [IISD], *Encouraging Developing Country Participation in Future Climate Change Regime*, 1-3 (2009), https://www.iisd.org/pdf/2009/developing_country_participation_in_climate.pdf.

23. See Paul Ekins, *How Large a Carbon Tax is Justified by the Secondary Benefits of CO₂ Abatement?*, 18 RESOURCE & ENERGY ECON. 161, 186-7 (2014).

24. *Update on Border Tax Adjustments and Competitiveness Issues*, CARBON TAX CENTER (Aug. 2, 2013), <http://www.carbontax.org/issues/nuts-and-bolts/going-global/>.

25. See Gilbert E. Metcalf & David A. Weisbach, *The Design of a Carbon Tax*, 33 HARV. ENVTL. L. REV. 499 (2009).

26. See Mustafa H. Babiker, *Climate Change Policy, Market Structure, and Carbon Leakage*, 65 J. INT'L ECON. 421, 445 (2005).

sions are not necessarily decreased, creating the problem of carbon leakage.²⁷

Some measures have been discussed at the international level to ensure the integrity of carbon emissions reduction efforts and to reduce the likelihood of carbon leakage from developed countries to developing countries. Unfortunately, most of these discussions ended up as quarrels over global justice between developed and developing countries and eventually failed to reach in any enforceable agreements. On the one hand, from the perspective of developed countries, a trade limitation measure like a BTA is one of the options available to maintain the competitiveness.²⁸ On the other hand, developing countries consider these competitive provisions unfair due to the different paths and costs that each country can afford. So, each country must base whether or not to progress on carbon abatement on its own capacity.²⁹

It is an especially heated topic for some developing countries like China and India, which have more prosperous economies to discuss what the proper policies are regarding climate change with corresponding international obligations. To respond to the calling of BTAs, many developing countries, like China, have decided to gradually step forward and attempt to establish their own state-based carbon tax system or cap-and-trade program. Instead of paying import fees, taking early actions can effectively keep resources domestically and accelerate adaptation and mitigation. This paper will discuss the concerns towards the imposition of BTAs against developing countries under the examination of international environmental law from the perspective of a leading developing country, China.

III. THE EU TAX ON AVIATION

The EU has set up emission trading schemes (ETS) through Directive 2003/87/EC, which was later amended by Directive 2004/101/EC. The EU ETS is the first international company-level cap-and-trade scheme in the world.³⁰ The carbon tax can also be imposed onto any service with carbon intensity. For example, the EU has attempted to impose carbon

27. However, a measure might reduce carbon leakage while not reducing global emissions as a whole, and in that case, the measure does not really contribute to carbon abatement since the trait for carbon pollution is transboundary.

28. See *supra* note 5.

29. Barry Smit & Johanna Wandel, *Adaptation, Adaptive Capacity and Vulnerability*, 16 GLOBAL ENVTL. CHANGE 282, 292 (2006).

30. Directive 2003/87/EC, of the European Parliament and of the Council of 13 October 2003 Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community and

taxes on air travel toward any airlines to, from, or within the EU's airports with effect from January 1, 2012. Airlines will face a bill in 2013 after 2012's carbon emissions have been tallied. Under the EU ETS planing, any airline that does not comply could face a fine of 100 Euros (\$128 USD) for each ton of carbon dioxide emitted for which they have not surrendered allowances.³² The EU claimed that the carbon tax will help achieving the goal of cutting emissions by 20% by 2020.³³

Many countries, including China, India and the U.S., have strongly opposed the imposition of airline carbon tax. A group of 26 countries opposing the tax even met in Moscow for countermeasures in 2012.³⁴ Compliance with the airline carbon tax means that customers taking these airlines will have to pay additional costs for the fares, which will lead to disadvantages to the airlines. Even with great contentions, the European Court of Justice declared the plan valid, ruling against the U.S. carriers contesting the legislation.³⁵ Under the concept set by the Kyoto Protocol, it is precluded to use any methods to combat climate change outside of the United Nation's scheme. The imposition of a global tax based on the EU ETS could violate the rights under international laws and protection of sovereignty entitled to by each country.

As the leader of developing countries, China's government prohibited its airlines to pay for the tax and also barred the airlines from increasing their fares or adding new charges for the scheme.³⁶ Further, India joined China in boycotting the airline carbon tax. India barred its airlines from complying with the European Union's carbon taxation scheme, with the

Amending Council Directive 96/61/EC, available at <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32003L0087&from=EN>.

31. Directive 2004/101/EC of the European Parliament and of the Council of 27 October 2004 amending Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms, <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32004L0101&from=EN>.

32. Nigam Prusty, *EU Airline Carbon Tax Hurts Climate Change Fight, Claims China And India*, REUTERS (Feb. 14, 2012), <http://www.reuters.com/article/2012/02/14/eu-aviation-basic-idUSL5E8DE8AS20120214>.

33. *India Bans Its Airlines from Paying EU Carbon Tax*, AGENCE FRANCE-PRESSE (Mar. 23, 2012), <http://www.thejakartaglobe.com/business/india-bans-its-airlines-from-paying-eu-carbon-tax/506698>.

34. Will Nichols, *Opponents Discuss 'Countermeasures' to EU's Aviation CO₂ Plan*, GREEN BUSINESS (Feb. 20, 2012), <http://webcache.googleusercontent.com/search?q=cache:9nd-b9446gIJ:www.businessgreen.com/bg/news/2153544/opponents-discuss-countermeasures-eus-aviation-co2-plan+&cd=1&hl=en&ct=clnk&gl=us>.

35. *Europe's Top Court Backs EU on Airline Carbon Tax*, EURONEWS (Dec. 21, 2011), <http://www.euronews.com/2011/12/21/europe-s-top-court-backs-eu-on-airline-carbon-tax/>.

36. *China 'Bans' Airlines from Joining EU Carbon Scheme*, BBC NEWS (Feb. 6, 2012), <http://www.bbc.co.uk/news/business-16901106>.

Indian government declaring that no Indian carrier would share emissions data with the EU.³⁷ India especially expressed the concerns that the finance commitment promised by developed countries was yet not fulfilled, and that now the imposition of the airline carbon tax will have incidence on developing countries. The India's Finance Ministry emphasized that "the multilateral negotiations must ensure that incidence should not fall on developing countries which is in violation of the CBDR principle."³⁸

Because of the huge divergence of border tax on aviation, the EU ETS excluded the flights to and from non-EU countries in 2012.³⁹ Flights within EU are still subject to the tax. The International Civil Aviation Organization (ICAO) has reached a consensus agreement to establish a market-based mechanism when the Assembly meets in 2016, which can be expected to be implemented in 2020.⁴⁰ In order to give enough time for a global scheme to be discussed, the EU further extended the exemption for flights not within the EU to 2017.⁴¹

There seems to be a tug-of-war between developed and developing countries over the border tax issue. But, the truth is that not only developing countries like China and India lined up to oppose the carbon tax. The committees in both chambers of the U.S. Congress approved bills blocking participation in the program as well.^{42,43} Even with a strong commitment to dealing with climate change, President Obama signed a law

37. See *India Bans Its Airlines*, *supra* note 33.

38. *India Concerned Over Carbon Tax on Airlines by EU*, ZEE NEWS (Jul. 24, 2012), http://zeenews.india.com/business/news/economy/india-concerned-over-carbon-tax-on-airlines-by-eu_56498.html.

39. EUROPEAN COMM'N, REDUCING EMISSIONS FROM AVIATION, *available at* http://ec.europa.eu/clima/policies/transport/aviation/index_en.htm (last visited Mar. 16, 2015).

40. ICAO, REPORT OF THE EXECUTIVE COMMITTEE ON AGENDA ITEM 17 (SECTION ON CLIMATE CHANGE) 17-7 to 17-16 (2013), *available at* http://www.icao.int/Meetings/a38/Documents/WP/wp430_en.pdf.

41. *EU Backs Compromise on Plane CO₂ Emissions*, BBC NEWS (Apr. 3, 2014), <http://www.bbc.com/news/world-europe-26870587>.

42. *US Opposition to EU Airline Carbon Tax Builds*, JOC, <http://www.joc.com/international/us-opposition-eu-airline-carbon-tax-builds> (last visited Mar. 16, 2015).

43. See ICTSD REPORTING, CLIMATE CHANGE: COMPETITIVENESS CONCERNS AND PROSPECTS. TESTIMONY BEFORE THE SUBCOMMITTEE ON ENERGY AND AIR QUALITY, US HOUSE OF REPRESENTATIVES, COMMITTEE ON ENERGY AND COMMERCE, PETERSON INSTITUTE FOR INTERNATIONAL ECONOMICS, (Mar. 5, 2008); INTERNATIONAL TRADE REVIEW, U.S. CLIMATE CHANGE LEGISLATION AND THE USE OF GATT ARTICLE XX TO JUSTIFY A COMPETITIVENESS PROVISION IN THE WAKE OF BRAZIL-TYRE (2008); *Climate Plan Faces Challenge after Narrow US House Victory*, BLOOMBERG, Jun. 29, 2009; *Obama Opposes Trade Sanctions in Climate Bill*, N.Y. TIMES, Jun. 28, 2008.

excluding U.S. airlines from the EU's carbon trading system.⁴⁴ The U.S. stands firmly with China and India against the EU's carbon tax because a global level carbon border tax is both complex and controversial. Since the impacts of climate change cross nations, the cooperation from each separate group is indispensable to the success of any international measure, such as the cross-border carbon tax.

IV. REASONS AGAINST BTAS BASED ON CARBON INTENSITY

A. VIOLATION OF THE CBDR PRINCIPLE

The concept of CBDR⁴⁵ is receiving increasing recognition in international law.⁴⁶ Obviously, developing countries like China and India oppose these trade limitation measures requiring their industries to pay taxes for selling goods to developed countries. As the Finance Ministry of India pointed out, the incidence of the carbon tax is more likely to fall to developing countries. Because most of the goods made by developing countries are sold to and eventually consumed by consumers in developed countries, it seems unfair to impose carbon taxes based on where the goods are manufactured.

Developing countries have asserted and it is recognized by the U.N. that, like any industrialized nation in the world, each country has a right to develop its economy and pursue prosperity.⁴⁷ Although emissions from developing countries are emerging, developed countries should be mainly responsible for the GHG emissions according to the statistics relied upon by the IPCC.⁴⁸ Due to historical GHGs emitted by developed countries, climate change actually resulted from industrial activities during the Industrial Revolution two centuries ago.⁴⁹ Hence, BTAs based on current carbon intensity against developing countries will be deemed as inequitable, while developing countries also have a solid ground to impose BTAs against developed countries that do not comply with GHG

44. Suzanne Goldenburg, *Obama Fails First Climate Test by Rejecting EU Aviation Carbon Regime*, GUARDIAN (Nov. 27, 2012), <http://www.theguardian.com/world/2012/nov/28/obama-fails-climate-test-aviation>.

45. Duncan French, *Developing States and International Environmental Law: The Importance of Differentiated Responsibilities*, 49 INT'L & COMP. L. Q. 35 (2000).

46. Christopher D. Stone, *Common but Differentiated Responsibilities in International Law*, 98 AM. J. INT'L L. 276, 276 (2004).

47. U.N., *The United Nations: Development Agenda: Development for All*, 67-72 (2007), <http://www.un.org/esa/devagenda/UNDA1.pdf>.

48. Tariq Banuri et al., *Equity and Social Considerations*, in CLIMATE CHANGE: ECONOMIC AND SOCIAL DIMENSIONS OF CLIMATE CHANGE 53, 94 (Cambridge Univ. Press 1995).

49. *Id.*

emissions reduction standards. This corresponds to the spirit of the CBDR principle.⁵⁰

Article 10 of the Kyoto Protocol reaffirms the CBDR principle by requiring “[a]ll Parties, [to take] into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances. . . .” It establishes unequivocally the common responsibility of States to protect the global environment.⁵¹ Next, it builds on the acknowledgement by industrialized nations that they must bear the primary responsibility in causing climate change.⁵² Last, it finds grounds for developing countries to join and start the emissions reduction.⁵³

Under the scheme of the Kyoto Protocol, only the Annex I Parties, which are developed countries, are obligated to reduce GHGs emissions by 2012. These Annex I Parties have committed themselves to national or joint reduction targets,⁵⁴ which range from a joint reduction of 8% for the European Union, 7% for the U.S.,⁵⁵ 6% for Japan and 0% for Russia. The treaty also permits emission increases of 8% for Australia and 10% for Iceland.⁵⁶ Besides these countries, other countries are categorized as non-Annex I Parties, like China and India.

Most non-Annex I Parties belonged to the low-income group, with very few classified as middle-income. These developing countries have no international mandatory responsibility to reduce GHGs emissions based on the Kyoto Protocol. Noticeably, the responsibilities of developed and developing countries are distinguished by the rich-poor axis. The difference was actually derived from the CBDR principle and the idea is memorialized in Principle 7 of the Rio Declaration on Environment and Development:

50. See Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, U.N. Doc FCCC/CP/1997/7/Add.1, 37 I.L.M. 22 (1998), https://unfccc.int/parties_and_observers/parties/annex_i/items/2774.php.

51. Lavanya Rajamani, *The Principle of Common but Differentiated Responsibility and the Balance of Commitments Under the Climate Regime*, 9 REV. EUROPEAN COMM. & INT'L ENVTL. L. 120, 120-131 (2000).

52. *Id.*

53. This notion is especially important for including developing countries in climate negotiation by addressing its differentiated, but “shared” duties under the UNFCCC.

54. In Article 4.1 of the Kyoto Protocol, it is formally called quantified emission limitation and reduction objectives (QELRO).

55. The goal is non-binding as the U.S. was not a signatory until now.

56. Industrialized Countries to Cut Greenhouse Gas Emissions by 5.2%, United Nations Environment Programme, (Dec. 11, 1997).

States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.⁵⁷

Principle 6 of the Rio Declaration also states that due to the “special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable, shall be given special priority.”⁵⁸

Accordingly, BTAs based on carbon intensity against developing countries will most likely violate the CBDR principle set by the Kyoto Protocol. By reevaluating BTAs under the CBDR principle, BTAs are supposed to encourage voluntary reduction action, not act as mandatory penalties. Although the term of the common but differentiated responsibility was first included in the Kyoto Protocol, other conventions that did not use the term still differentiated obligations. The 1987 Montreal Protocol to the Vienna Convention for the Protection of the Ozone Layer is an example of the common but differentiated spirit.⁵⁹ The protocol gave less-developed countries a grace period for coming into compliance and established a fund to provide them with the incremental costs to implementation.⁶⁰ Many argue that the Kyoto Protocol interpreted the spirit wrongfully. While developing countries were only given grace period for implementation in the Montreal Protocol, there are completely no responsibilities for developing countries in the Kyoto Protocol. Therefore, the Kyoto Protocol has been called the “most rigid application”⁶¹ of the

57. United Nations Conference on Environment and Development, Rio de Janeiro, Braz., June 3-14, 1992, *Rio Declaration on Environment and Development*, U.N. Doc. A/CONF.151/26/Rev. 1 (Vol. I), Annex I (Aug.12, 1992) [hereinafter Rio Declaration on Environment and Development].

58. *Id.*

59. See Montreal Protocol on Substances That Deplete the Ozone Layer, *opened for signature* Sept. 16, 1987, 1522 U.N.T.S. 3 (entered into force Jan. 1, 1989).

60. See Amendments to Montreal Protocol, art. 10.

61. Michael Weisslitz, Note, *Rethinking the Equitable Principle of Common but Differentiated Responsibility: Differential Versus Absolute Norms of Compliance and Contribution in the Global Climate Change Context*, 13 *COLO. J. INT'L ENVTL. L. & POL'Y* 473, 483 (2002); See also Kristen Sheeran, *Beyond Kyoto: North-South Implications of Emissions Trading and Taxes*, 5 *SEATTLE J. Soc. JUST.*, 697, 703 (2007).

CBDR principle because developing nations assumed that no binding obligations were manifested in the Kyoto Protocol.

Whether the Kyoto Protocol has interpreted the spirit correctly is irrelevant. Because the value of CBDR lies on the notion of equality, the Kyoto mechanism is designed to inspire developing countries to voluntarily reduce GHG emissions and in nowhere composes compulsory punishment against non-Annex I Parties for non-compliance.⁶² To be in accordance with the scheme, all trade limitation measures should be used to encourage voluntary reduction action, instead of penalties or mandatory tools. Therefore, the rationale behind BTAs is inconsistent with the CBDR principle. Although the principle of state responsibility has been introduced to remedy an intentionally wrongful act of a State,⁶³ the wrongful act must be governed by international law and constitute a breach of international responsibility of the State.⁶⁴ As discussed, The Kyoto Protocol does not carry obligatory carbon reductions towards developing countries, and hence, state responsibility is not triggered.

B. ADAPTATION AND VULNERABILITIES OF DEVELOPING COUNTRIES UNDER THE SUSTAINABLE DEVELOPMENT PRINCIPLE

Based on projections from the three reports produced by the IPCC in 2007 (IPCC 2007), the urgency and need for adaptation⁶⁵ is highlighted.⁶⁶ The 2007 report "Climate Change: Impacts, Vulnerabilities, and Adaptation in Developing Countries" by the UNFCCC concluded that developing countries were the most vulnerable to climate change impacts due to fewer resources available to adapt "socially, technologi-

62. Developing countries are exempted for the reduction obligation because they are non-Annex I Parties, but the exclusions of countries like China and India also make the Kyoto Protocol crippled in enforcement. A meaningful climate negotiation should have substantial participation from developing countries. *See infra* Part V.

63. *See* JAMES CRAWFORD, *THE INTERNATIONAL LAW COMMISSION'S ARTICLES ON STATE RESPONSIBILITY: INTRODUCTION, TEXT AND COMMENTARIES* 77-86 (2002).

64. U.N. Charter, Responsibility of States for Internationally Wrongful Acts art. 1, 2001, reads: "[e]very internationally wrongful act of a State entails the international responsibility of that State." Article 2 reads: "[t]here is an internationally wrongful act of a State when conduct consisting of an action or omission: (a) is attributable to the State under international law; and (b) constitutes a breach of an international obligation of the State."

65. "Adaptation" refers to a process, action or outcome in a system, like in household, community, group, sector, region, or country, in order for the system to better cope with, manage or adjust to some changing condition, stress, hazard, risk or opportunity. N. Brooks, *Vulnerability, Risk and Adaptation: A Conceptual Framework* (Tyndall Ctr. For Climate Change Research, Working Paper No. 38, 2003).

66. *See* UNFCCC, *supra* note 10, at 5.

cally and financially.”⁶⁷ Climate change is anticipated to have far reaching effects on the sustainable development⁶⁸ of developing countries, including their ability to attain the United Nations Millennium Development Goals by 2015,⁶⁹ ranging from halving the extreme poverty and ensuring environmental sustainability to growing global partnerships for development.

Indeed, climate change has demonstrated its global impact on each country in every region on Earth. Numerous countries have suffered sizable losses as a result of extreme weather events because climate change tends to increase the frequency of extreme weather, such as severe storms, extensive droughts and wildfires. In the U.S., one important consequence of climate change for disaster risk is the increase in weather extremes. The U.S. Global Change Research Program has noted that “changes in these kinds of weather and climate events are among the most serious challenges to our nation in coping with a changing climate.”⁷⁰

Even though many countries come up with disaster response plans accordingly, in reality, most governments have not completely met the responsibility of covering substantial losses from recurrent, small-scale events, which are usually transferred to and borne by low-income households.⁷¹ This explains why climate change has brought disproportionate impacts to low-income households, which exist mostly in developing countries. There is also empirical evidence that shows that poor areas suffer disproportionately high levels of damage in disasters and that this is related to factors such as unsafe housing.⁷² This makes developing countries much more vulnerable as compared to developed countries to disasters related to climate change. While the developed nations of the

67. UNFCCC, *Climate Change: Impacts, Vulnerabilities, and Adaptation in Developing Countries*, at 5 <https://unfccc.int/resource/docs/publications/impacts.pdf>.

68. To decide the extent of development for each country, the information regarding sustainability must be provided by each country. Though there are many definitions of sustainability development, for the most commonly cited one see Rep. of the World Comm. on Environment and Development: *Our Common Future*, U.N. Doc A/42/427 (1987) (“development that meets the needs of the present without compromising the ability of future generations to meet their own needs”).

69. *Id.*

70. U.S. GLOBAL CHANGE RESEARCH PROGRAM, *GLOBAL CLIMATE CHANGE IMPACTS IN THE UNITED STATES* 32 (2009), available at <http://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf>.

71. U.N., *Global Assessment Report on Disaster Risk Reduction: Revealing Risk, Redefining Development: Summary and Main Findings*, 12 (2011), <http://www.preventionweb.net/english/hyogo/gar/2011/en/home/executive.html>.

72. U.N., *International Strategy for Disaster Reduction: Global Assessment Report on Disaster Risk Reduction*, ch. 1, 3-12 (2009), <http://www.preventionweb.net/english/hyogo/gar/report/index.php?id=9413>.

world produce the majority of GHG, the burden of impact, nevertheless, is somehow more severe on developing countries.⁷³

As one of the most core concepts in international law,⁷⁴ the principle of sustainable development reflects the development that meets the needs of the present without compromising the ability of future generations to meet their own needs.⁷⁵ It is often illustrated as the balance between economic development and environmental protection. Unfortunately, BTAs primarily deal with the issue of competitiveness of developed countries. The consequence of this could be deterrent for developing countries to transit to a sustainable ecology.⁷⁶

Developing countries not only have larger vulnerable populations and national economies dependent on agricultural production, they are also less equipped to deal with extreme weather events.⁷⁷ The UNDP Crisis Prevention and Recovery (BCPR) report, "Reducing Disaster Risk: a Challenge for Development," concluded that poorer countries have disproportionately higher mortality and economic loss risks, given several levels of exposure to all the hazards. In fact, high-income countries account for 39% of the exposure to tropical cyclones, but low-income countries account for no less than 81% of the mortality risk.⁷⁸ The International Strategy for Disaster Reduction, a U.N. agency based in Geneva, estimated that the share of the global economy at direct risk from floods has doubled since 1990 and that in 2007, 28% more people are now vulnerable to losing their homes, incomes, and lives than two decades ago.⁷⁹ In particular, Asia is home to 75% of the world's at-risk population for floods.⁸⁰ It might come as a shock that 40% of the world's natural disasters occurred in Asia from 1999 through 2008, as the continent accounted for 80% of disaster-related deaths.⁸¹

Despite the lack of an internationally recognized way of categorizing countries according to their level of vulnerability, many scientists con-

73. United Nations Development Programme [UNDP], *The Crisis Prevention and Recovery (BCPR) Report Reducing Disaster Risk: A Challenge for Development*, 6 (2004), <http://www.un.org/special-rep/ohrls/ldc/Global-Reports/UNDP%20Reducing%20Disaster%20Risk.pdf>.

74. Barry Smit & Olga Pilifosova, *Adaptation to Climate Change in the Context of Sustainable Development and Equity*, 8 SUSTAINABLE DEV. 879, 902 (2003).

75. See *supra* note 68.

76. See SUSTAINABLE DEVELOPMENT COMM'N, *Prosperity Without Growth?-The Transition to a Sustainable Economy* (2009).

77. See UNDP, *supra* note 73.

78. See Global Assessment Report on Disaster Risk, *supra* note 71.

79. See ASIAN DEVELOPMENT BANK, *DEALING WITH DISASTERS* 1-29 (2011).

80. *Id.* at 7.

81. See *id.* at 14.

sider China to be the world's most threatened nation in terms of loss and damage due to climate change.⁸² As a rapidly emerging country, China is especially susceptible to droughts, floods, typhoons, and rises in sea level attributable, overall, to the long coastline and overpopulation.⁸³ Even though the average annual number of births during 2012 per 1,000 persons in the population is 12.31 (births/1000 population), which is lower than the U.S. of 13.7, China now has a population of about 1.353 billion.⁸⁴ Compared to the 315 million people in the U.S.,⁸⁵ the population density in China is 143 people per square kilometer of land area versus 34 in the U.S., around a quarter of China's population density. Living conditions are meant to be harsh for the majority of Chinese people and the high occurrence of extreme weather events further forces the Chinese government to face a rigid examination of disaster preparation. The government has only started to learn cooperation with private charities since the Wenchuan Great Earthquake in 2008.⁸⁶

Disaster risk associated with climate change is actually worse than expected because of poor disaster risk management (DRM) and for lack of awareness towards DRM. How to respond to disasters "promptly, effectively and in a fair way" becomes a tremendous challenge to either developed or developing countries. Among these three goals, most of the time, accuracy and fairness are sacrificed for pursuing timely assistance. Even for a developed country like the U.S., the disaster of Hurricane Katrina posed a serious test to its emergency response system. Based on the final report of the select bipartisan committee to investigate the preparation for and response to Hurricane Katrina made by the U.S. House in 2006, it is clear that the federal government, in general, and the Department of Homeland Security (DHS), in particular, were not prepared to respond to the catastrophic effects of Hurricane Katrina.⁸⁷

82. Lisa Friedman, *Which Nations Are Most Vulnerable to Climate Change? The Daunting Politics of Choosing*, N.Y. TIMES (Feb. 24, 2011), <http://www.nytimes.com/cwire/2011/02/24/24climatewire-which-nations-are-most-vulnerable-to-climate-95690.html?pagewanted=print>.

83. Gideon Kracov, Shufan Sung & Mitchell M. Tsai, *Can Citizen Suits Help China Battle Pollution?*, L.A. DAILY J., Jan. 8, 2014, <http://www.gideonlaw.net/news/CitizenSuitsInChina.pdf>.

84. See *China Population Statistics*, STATISTA, <http://www.statista.com/statistics/19323/total-population-of-china/> (last visited Mar. 16, 2015).

85. *U.S. and World Population Clock*, U.S. CENSUS BUREAU, <http://www.census.gov/main/www/popclock.html> (last visited Mar. 16, 2015).

86. 王振耀 [Zhenyao Wang], *中国灾难应变与公益五年史 [The Five-Year History of Chinese Disaster Response and Public Interest]*, 慈讯网 [CIXUN] (May. 7, 2013), <http://www.icixun.com/2013/0507/862.html>.

87. SELECT BIPARTISAN COMM. TO INVESTIGATE THE PREPARATION FOR AND RESPONSE TO HURRICANE KATRINA, A FAILURE OF INITIATIVE, H.R. REP. NO. 109-396, at 151 (2006), <http://www.disastersrus.org/katrina/USHousereport.pdf>.

The U.S. Federal Emergency Management Agency (FEMA) was provided with the authority to forge a federal approach to emergency management and was in charge of the release of disaster response assets to the state when Hurricane Katrina hit Louisiana in 2005. It turned out that FEMA disbursed more than \$8 billion in assistance payments, some of which were later determined to have been improperly paid to individuals who were ineligible or who received duplicate payments. Because FEMA relaxed its internal controls in order to provide expedited delivery of assistance grants to displaced disaster survivors, the debts in question thus arose. In order to solve the problem, Congress passed and the President signed the Disaster Assistance Recoupment Fairness Act of 2011 (DARFA) to provide FEMA discretionary authority to waive debts arising from improper payments provided for disaster declared between August 28, 2005 and December 31, 2010. It caused \$250 million worth of financial loss and, in order to implement the provisions of DARFA, it cost FEMA another \$7.28 million to train its staff and conduct waiver activities. A total of \$257.28 million in taxpayers' money was wasted lightly in a single disaster.⁸⁸

This does not only happen in the U.S. In China, for example, the central government's auditing towards each province's disaster response assets allocation implementation becomes an important task for auditors of the People's Bank of China, the central bank of China. The improper allocation of disaster response assets is a disaster itself for the unfairness created and money wasted. It can be fiscally irresponsible and environmentally damaging if the decision is not made in a risk-sensitive way. Especially in a society lacking of information transparency, Chinese people can hardly know how much each disaster assistance program costs them and how the money is spent.

Therefore, in order to identify, access and reduce disaster risk, the U.N. approved the Hyogo Framework for Action 2005-2015 at its World Conference of Disaster Reduction (WCDR) in 2005.⁸⁹ The idea is to provide an internationally accepted framework for disaster risk reduction with principles to follow. In the "National Progress Report on the Implementation of the Hyogo Framework for Action (2011-2013) – interim," prepared by China's Ministry of Civil Affairs, among the many constraints

88. OFFICE OF INSPECTOR GEN., DEP'T. OF HOMELAND SEC., *OIG-12-127, FEMA'S EFFORTS TO RECOUP IMPROPER PAYMENTS IN ACCORDANCE WITH THE DISASTER ASSISTANCE RECOUPMENT FAIRNESS ACT OF 2011*, 2-9 (Sept. 2012), http://www.oig.dhs.gov/assets/Mgmt/2012/OIG_12-127_Sep12.pdf.

89. U.N. Office for Disaster Risk Reduction [UNISDR], *Hyogo Framework for Action (HFA)*, <http://www.unisdr.org/we/coordinate/hfa> (last visited Mar. 16, 2015).

discussed, the most serious critiques were that China still had weak disaster prevention and reduction infrastructures,⁹⁰ without a normative and unified national disaster risk management data standard system at the national level⁹¹ and the Chinese government inputs limited expenditures on disaster prevention and reduction science and technology R&D and application each year.⁹²

Furthermore, local governments depend too much on funding support from the central government and undertake major responsibilities of disaster reduction and relief with limited participation of social resources.⁹³ What is perhaps worst of all, is that it is very difficult to drive community disaster reduction in rural areas, especially in western and central regions,⁹⁴ which could enlarge the urban and rural development gap. This is because of the considerably uneven development among regions and between rural and urban areas and the export of a large number of migrant workers with stay-at-home senior citizens and children.⁹⁵

A strong civil society and the media play critical roles in creating awareness of the rights and the social demand for DRM.⁹⁶ With increasing government transparency and public participation, developing countries like China can become more open over time, enabling people to get involved in the policy-making process. But before that comes, China will need to develop an integrated and effective disaster risk evaluation system so it can cope with severe challenges and support its sustainable development. Developing countries need far more financial and technical assistance from developed countries in order to help establish DRM and adapt impacts of climate change sooner. Instead of constructing these regions in a sustainable way, trade limitations, such as BTAs, will work on the contrary.

C. EFFORTS FROM DEVELOPING COUNTRIES FOR BEING GREEN UNDER THE POLLUTER PAYS PRINCIPLE

Most people might still bear the inaccurate impression that developing countries make less or no effort in reducing GHGs emissions. China, for

90. CHINA'S MINISTRY OF CIVIL AFFAIRS, NATIONAL PROGRESS REPORT ON THE IMPLEMENTATION OF THE HYOGO FRAMEWORK FOR ACTION 2011-2013 – INTERIM 30 (2012), <http://www.preventionweb.net/english/countries/asia/chn/>.

91. *Id.* at 16.

92. *Id.* at 24.

93. *Id.* at 40.

94. *Id.* at 26.

95. *Id.*

96. See Global Assessment Report on Disaster Risk, *supra* note 71, at 17.

example, has long been criticized by the international community for not taking any carbon emissions reduction responsibilities. In the meantime, China made it clear that it will not follow any country's footprint in reducing carbon emissions, but it will make its own policy and implement it according to China's economic and social development conditions. In fact, developing countries like China and India are considered "greener" than many developed countries. Under the principle of polluter pays, polluting entities are legally and financially responsible for the harmful consequences of their pollution.⁹⁷ The polluter pays principle requires the responsible individual, firm, or nation to bear the cost of pollution and reduce the harm.⁹⁸ Although developing countries like China and India are not mandatory in reducing their emissions, these countries, like China for example, have exhibited thriving efforts to support the voluntary reduction mission.

First, compared to developed countries, the energy use per capita in developing countries is still very low. For example, in 2010, the energy use (kg of oil equivalent per capita) in China was last reported at 1807 and Hong Kong was at 1951.⁹⁹ Meanwhile, in the same year, India was at 565 and Brazil was at 1362.¹⁰⁰ Although the 2011 data for these countries are yet to be published, the previous 2010 data can be compared with the 2011 data reported by the following developed countries. In 2011, the United States was reported at 7069, Canada was at 7426, Australia was at 5295, Norway was at 6032, Luxembourg was at 8027 and the Netherlands was at 4644.¹⁰¹ Energy use per capita in most developed countries is 3 to 18 times higher than developing countries.

Secondly, despite that lifestyles in developing countries are inherently more energy conservative and economical than developed countries, in 2009, China led the U.S. and other G-20 members in clean energy investments and finance, according to data released by the Pew Charitable Trusts, with \$34.6 billion invested by China, which nearly doubled the

97. See Stefanie Sommers, *The Brownfield Problem: Liability For Lenders, Owners, and Developers in Canada and the United States*, 19 COLO. J. INT'L ENVTL. L & POL'Y 259, 266-7, 277-91 (2008) (comparing the application of the polluter pays principle in the United States and Canada and discussing Brownfield liability in Canada and the problems of enforcing Canada's Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)).

98. See Rio Declaration on Environment and Development, *supra* note 57. See also SUMUDU A. ATAPATTU, *EMERGING PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW* 470 (Transnational Publishers 2006).

99. *Energy Use (kg of oil equivalent per capita) in 2010*, WORLD BANK, <http://data.worldbank.org/indicator/EG.USE.PCAP.KG.OE>.

100. *Id.*

101. *Id.*

U.S.'s total of \$18.6 billion.¹⁰² That is not all. Further, in 2010, China was the leading country in new capacity investment of renewable energy, followed by Germany, the U.S., Italy and Brazil. Turning to the aspect of renewable power capacity, in 2010, China owned the most abundant renewable power capacity in the world, if hydro power capacity is included. China also overtook the U.S. as the global leader in installed wind power capacity in 2010. According to the newest data released by the Chinese Renewable Energy Industry Association (CREIA),¹⁰³ by the end of 2010, China had installed a total of 41.8 gigawatts (GW) of wind capacity, just ahead of the U.S.'s total of 40.2 GW. The growth of China's wind sector is more impressive. While the U.S. added only about 5 GW of new capacity in 2010, China installed 16 GW in the same year.¹⁰⁴ In 2011, China contributed one fifth of its total investment volume for 52 billion USD, topping the U.S. in renewable energy investment.¹⁰⁵ Germany, Italy and India rounded out the top five on the list.¹⁰⁶ It is obvious that China not only tops, but also leads in global renewable energy investment.

Third, the Chinese government announced in January 2012 that it would levy a carbon tax before 2015. Actually, proposals for a new environmental taxation system had already been submitted for review to the Ministry of Finance and were expected to be implemented before the end of the 2011-15 Five-Year Plan.¹⁰⁷ This means that China intends or at least is preparing to launch a national carbon tax system in 2015. This country not only performs impressively in spending money, but also in decreasing carbon intensity and energy intensity. Between 2006 and 2010, the country achieved a 19.1% drop in energy intensity, roughly meeting its five-year target to improve energy efficiency by 20%.¹⁰⁸ The

102. *Pew Study: China Leads G-20 Members in Clean Energy, Finance and Investment*, PR NEWSWIRE (Mar. 25, 2011), <http://www.prnewswire.com/news-releases/pew-study-china-leads-g-20-members-in-clean-energy-finance-and-investment-89084252.html>.

103. Chinese Renewable Energy Industry Association [CREIA] is established under the approval of the Ministry of Civil Affairs of the People's Republic of China and with support from the project of "Acceleration in China's Commercialization of Renewable Energy Capacity-Building," overseen by the Chinese Ministry of Commerce. CREIA, <http://www.creia.net/>.

104. *China Becomes World's Largest Wind Installation Country, Challenges Remains*, GREENPEACE (Jan. 29, 2011), <http://www.ibtimes.com/articles/106571/20110129/greenpeace-china-becomes-world-s-largest-wind-installation-country-challenges-remain.htm/>.

105. Frank Jordans, *China Topped USA in Renewable Energy Investment in 2011*, USA TODAY, Jun. 11, 2012, <http://usatoday30.usatoday.com/money/industries/energy/story/2012-06-11/Renewable-energy-investment/55517876/1>.

106. *Id.*

107. Sid Maher, *China to Tax Carbon by 2015*, THE AUSTRALIAN (Jan. 7, 2012), <http://www.theaustralian.com.au/national-affairs/china-to-tax-carbon-by-2015/story-fn59niix-1226238633181>.

108. Li Jing, *Carbon Intensity Targets Unveiled*, CHINA DAILY (Mar. 1, 2011), http://www.chinadaily.com.cn/china/2011-03/01/content_12092285.htm.

country has a target to reduce the level of GHG emissions per unit of GDP by 17% during 2011-2015, with a 2050 goal of cutting emissions by 40-45% as compared to 2005 levels.¹⁰⁹ In 2012, the government had announced that China outperformed its carbon intensity reduction targets with a 3.5% cut, which illustrates China's ability to emit gradually less carbon per unit of economic output.¹¹⁰

As the largest developing country in the world, China's good attempt to enhance energy efficiency and reduce carbon intensity is just one example of how developing countries try to fulfill their responsibilities effectively, but voluntarily. Though developed countries aggressively propose to levy BTAs to push developing countries into reducing GHGs emissions, it seems unjustified for some developing countries that sufficiently deal with the problem to further pay the tax. Moreover, considering the complexity of GHGs emissions calculation, it is almost impossible to calculate a precise rate for applying BTAs in each country.¹¹¹ For example, although most products are made by EII manufacturers in developing countries, these products are sold and eventually used by consumers in developed countries. Should BTAs solely be levied to manufacturers from developing countries?

Other than green investments, China has largely expanded its policies and laws to fulfill its international responsibility in carbon reduction. For example, at the Warsaw Climate Change Conference, China's government published its first National Climate Change Adaptation Plan (Plan), which is a laudable step in the direction for carbon reduction.¹¹² The publication of the Plan signifies the awareness of the importance of climate change tasks at the highest governmental level and marks the first time China's government has advanced climate change tasks to such a "national strategic" position.¹¹³ During the 11th five-year plan period (2006-2010), China's State Council announced a policy to shut down small coal-fired power plants with 50 gigawatts capacity causing air pollution and to replace smaller power plants with larger and more efficient

109. *Id.*

110. John Parnell, *Chinese Carbon Intensity Drops 3.5% in 2012*, RTCC (Jan. 11, 2013), <http://www.rtcc.org/chinese-carbon-intensity-drops-3-5-in-2012/>.

111. Warwick J. McKibbin & Peter J. Wilcoxon, *The Economic and Environmental Effects of Border Tax Adjustments for Climate Policy*, BROOKINGS TRADE FORUM 1, 4 (2008/2009) ("We conclude that it is an unnecessary distraction for the global community to focus much attention on negotiations over border tax adjustments as a component of climate policy.")

112. Shufan Sung, *China's Response and Commitment in Warsaw*, NAT'L ENV'T ENERGY & RESOURCES NEWSL.-A.B.A. Sec., Apr. 2014, available at http://www.americanbar.org/content/dam/aba/publications/nr_newsletters/ihc/201404_ihc.authcheckdam.pdf.

113. *Id.* at 18.

ones.¹¹⁴ In the 12th five-year plan period (2011-2015), China has been focusing on very aggressive targets in lowering energy consumption intensity per unit GDP by 16% and carbon dioxide emissions per unit GDP by 17%.¹¹⁵ At the same time, non-fossil fuels in primary energy consumption is set to reach 11.4%.¹¹⁶ In addition, China also amended its civil procedure¹¹⁷ and environmental protection law¹¹⁸ to permit citizen suits being brought by certain qualified groups, though the threshold remains difficult for citizens to participate and therefore, the amendments are being criticized.¹¹⁹

On the other hand, when OECD countries embrace BTAs to maintain competitiveness for their domestic manufacturers, the leading players, American firms, still enjoy unfair trade advantage because of the cheap energy.¹²⁰ Many American firms are continuing to be massively subsidized, with oil production being among one of the most heavily subsidized businesses, where tax breaks are available at every stage from exploration to the extraction process.¹²¹ According to a Congress Budget Office report released in 2005, the effective tax rate of capital investments in oil field leases and drilling equipment is around 9%, which is significantly lower than the average rate of 25% for businesses in gen-

114. 中华人民共和国国家发展和改革委员会 [NATIONAL DEVELOPMENT AND REFORM COMMISSION], 现有燃煤电厂二氧化硫治理“十一五”规划 [*the 11th Five-Year Plan for Administering SO₂ from Existing Coal-Fired Power Plant*], (2007), <http://www.sdpc.gov.cn/fzgggz/fzgh/ghwb/115zxgh/200709/P020070928509232490884.pdf>.

115. *China's 12th Five-Year Plan (2011-2015)*, XINHUA (Mar. 16, 2011), <http://news.sina.com.cn/c/2011-03-17/055622129864.shtml>.

116. *Id.*

117. Recognizing the role that citizen enforcement can play in protecting the environment, recent changes to Chinese laws may foster citizen suits and public interest environmental litigation. In 2012, the National People's Congress (NPC) (the Chinese government's national legislature) amended Article 55 of the Chinese Civil Procedure Law to permit "where environment is polluted, the lawful rights and interests of a throng of consumers are infringed upon, or other acts impairing the public interests are committed, the agencies stipulated by law and relevant organizations may bring actions to the people's court." See U.N., *International Strategy for Disaster Reduction*, *supra* note 72.

118. In October 2013, the NPC published a Third Draft Bill of the Environmental Protection Law. Proposed Article 48 was amended to broaden standing requirements to allow citizen suits by "national social organizations specializing in environmental and welfare activities for five consecutive years or more, reputable and legally registered in the Ministry of Civil Affairs. . . ." See U.N., *International Strategy for Disaster Reduction*, *supra* note 72.

119. *Id.*

120. Joseph E. Stiglitz, *A New Agenda for Global Warming*, *ECONOMISTS' VOICE* 2 (2004), available at http://www2.gsb.columbia.edu/faculty/jstiglitz/download/papers/2008_New_Agenda_for_Global_Warming.pdf.

121. David Kocieniewski, *As Oil Industry Fights a Tax, It Reaps Subsidies*, *N.Y. TIMES* (July 3, 2010), http://www.nytimes.com/2010/07/04/business/04bptax.html?pagewanted=all&_r=0.

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eral.¹²² If the U.S. were to levy import fees on goods from developing countries, it is fair that these developing countries should also impose energy tariffs on American goods, if such importation is not banned by these affected countries. Not to mention that, based on BP's statistic data, the U.S. prices of natural gas have stayed low since the Great Depression.¹²³ As a Siemens spokesman noted, "the U.S. energy market remains very competitive with record low natural gas prices and slow energy demand growth."¹²⁴

Although old grid infrastructures in many developing countries still remain a long way from massively reducing GHG emissions, developing countries eagerly cultivate new energy industries and attempt to improve service industries to fasten industrial trans-conformation and updating. With noteworthy accomplishments, the leading developing countries indeed share the responsibility in reducing carbon emissions under the polluter pays principle, rendering BTAs senseless.

D. THE NEGLECTED ENVIRONMENTAL JUSTICE

Environmental justice (EJ) is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.¹²⁵ In 1993, the U.S. Environmental Protection Agency (EPA) established the National Environmental Justice Advisory Council (NEJAC) in order to obtain independent, consensus advice and recommendations from a broad spectrum of stakeholders involved in environmental justice. It was first introduced into U.S. law by Executive Order of President Clinton in February 1994,¹²⁶ as he requested federal actions to address the EJ issue in minority populations and low-income populations. This federal action led environmental work towards more EJ promotion afterwards. As of today, it is common to test economics measures under such concepts in evaluation impacts, which might prejudice human welfare and wildlife protection. This is especially

122. CONGRESSIONAL BUDGET OFFICE [CBO], TAXING CAPITAL INCOME: EFFECTIVE RATES AND APPROACHES TO REFORM 11-28 (2005), available at <http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/67xx/doc6792/10-18-tax.pdf>.

123. *Statistic Data*, BP (2013), <http://www.bp.com/sectiongenericarticle800.do?categoryId=9037181&contentId=7068643>.

124. Ryan Tracy, *U.S. Wind Industry's Roar Might Diminish in 2013*, WALL ST. J., Jan. 16, 2013, at B2.

125. See *What Is Environmental Justice?*, EPA, <http://www.epa.gov/environmentaljustice/>.

126. Exec. Order No. 12,898, 59 Fed. Reg. 7629 (Feb. 16, 1994), available at http://www.epa.gov/region2/ej/exec_order_12898.pdf.

vital in the U.S. for a diverse environment with different races.¹²⁷ In China, around 90% of the population belongs to the Han ethnic group and only 10% of the population stands as a minority.¹²⁸

Carbon pollution is considered the main contributor to climate disruption,¹²⁹ which leads to extreme weathers like record-breaking heat waves and massive hurricanes. Minority and low-income communities are often disproportionately exposed to pollution and they become the main victims of carbon pollution. Therefore, different ways to offset production costs by manufactures must be examined carefully with a concern for EJ in order to consider cumulative impacts that might adversely affect the communities.

While the fair treatment means that no group of people, including any racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies,¹³⁰ the application of BTAs requires manufacturers from developing countries to pay diminishes on resources from developing countries that could be used to cope with climate change, which brings a disproportionate share of the negative environmental consequences from industrial activities. Instead of BTAs, developing countries would prefer to keep resources, assist in adaptation and mitigation, and reduce GHG emissions from manufacturing processes. From the perspective of developing countries, to levy an export carbon tax (ECT) is a much more appealing approach.¹³¹

127. See Manuel Pastor Jr., et al., *Which Came First? Toxic Facilities, Minority Move-In and Environmental Justice*, 23 J. URBAN AFFAIRS 1 (2001), available at http://www.cjtc.ucsc.edu/docs/a_Which_Came_First.pdf.

128. 國家統計局 [NATIONAL STATISTICAL BUREAU], 2005 年全国1%人口抽样调查主要数据公报 [2005 National Sample Survey of 1% of the population Main Data Bulletin], (Mar. 16, 2006), http://www.stats.gov.cn/tjsj/tjgb/rkpcgb/qgrkpcgb/200603/t20060316_30326.html. See *infra* discussions with migrating workers.

129. See Gayathri Vaidyanathan & Climate Wire, *The Worst Climate Pollution Is Carbon Dioxide*, SCI. AM. (Nov. 4, 2014), available at <http://www.scientificamerican.com/article/the-worst-climate-pollution-is-carbon-dioxide/>.

130. See DAVID SCHLOSBERG, *DEFINING ENVIRONMENTAL JUSTICE: THEORIES, MOVEMENTS, AND NATURE* 2-30 (Oxford Univ. Press 2007); Benjamin Hale, *The Moral Considerability of Invasive Transgenic Animals*, 19 J. AGRIC. & ENVTL. ETHICS 337, 337-66 (2006); Ramona Ilea, *Nussbaum's Capabilities Approach and Nonhuman Animals: Theory and Public Policy*, 39 J. SOC. PHIL. 547, 547-63 (2008); Jay Drydyk, *A Capability Approach to Justice as a Virtue*, 15 ETHICAL THEORY & MORAL PRAC. 23, 23-38 (2012); Kimberly K. Smith, *Animals and the Social Contract*, 30 ENVTL. ETHICS 195, 195-207 (2008); Anders Schinkel, *Martha Nussbaum on Animal Rights*, 13 ETHICS & ENV'T 41, 41-69 (2008).

131. See Andrea Baranzini et al., *A Future for Carbon Taxes*, 32 ECOLOGICAL ECON. 395, 408-

People with lower income in developing countries are the most potentially affected community residents and should have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment or health.¹³² In this case, when resources are taken away and given to subsidy manufacturers in developed countries, people or manufacturers from developing countries should be given chances to have their opinions be heard.¹³³ Though not necessarily public's contribution may influence the regulatory agency's decision and the concerns of all participants involved may not be addressed.¹³⁴ However, the decision makers should seek out and facilitate the involvement of those potentially affected.¹³⁵ By providing sufficient approaches for developing countries to convey their positions, it will remind the decision makers that the application of BTAs will have dramatic impacts to developing countries, so the issue should be addressed carefully with a consideration for EJ.

Even when developed countries impose import taxes on goods manufactured in developing countries, manufacturers will continue producing as long as there are customers. However, the additional expense will be passed to customers, which keeps the prices up and eventually leads to a decrease of import demand.¹³⁶ Developed countries will, instead, import goods from other countries with border tax to support BTAs and China will significantly shift its exports towards other regions without BTAs.¹³⁷ The purchase ability of low income people in developed countries will be affected accordingly by being forced to purchase more expensive products made in regions with BTAs. Of course, China's international trade will suffer large losses in exports, but in the long term, domestic markets will take over.¹³⁸

10 (2000); John Whalley et al., *The International Incidence of Carbon Taxes*, in GLOBAL WARMING: ECONOMIC POLICY RESPONSES 235-350 (Rudiger Dornbusch ed., 1991).

132. See Pastor, *supra* note 127.

133. *Id.*

134. The substantial participation of the public is important, but with its own limits due to the limited resources of agencies in reality and the timeline required to make a decision. See Cheryl Simrell King et al., *The Question of Participation: Toward Authentic Public Participation in Public Administration*, 58 PUBLIC ADMIN. REV. 317, 317-26 (1998); Caron Chess et al., *Public Participation and the Environment: Do We Know What Works?*, 33 ENVTL. SCI. & TECH. 2685, 2685-92 (1999); Gene Rowe et al., *Public Participation Methods: A Framework for Evaluation*, 25 SCI. TECH. & HUMAN VALUES 3, 3-29 (2000).

135. *Id.*

136. See Ling Tang et al., *Carbon-Based Border Tax Adjustments and China's International Trade: Analysis Based on a Dynamic Computable General Equilibrium Model* (Crawford School Research, Paper No. 1301, 2013), available at <http://ssrn.com/abstract=2213057>.

137. *Id.* at 1.

138. *Id.*

The more likely situation is where developing countries implement ECTs. Take China for example. Some research shows that it could be in China's interest to implement such tax. However, with a given ECT set at 200 Yuan/t CO₂, it would also lead to a decrease in export demand. This would result in an unemployment rate of about 0.05% in the short term since the unskilled rural-urban migrant workers could be released by the export-oriented enterprises and are hard to be absorbed by other sectors.¹³⁹ This group is often called "Nong Min Gong,"¹⁴⁰ meaning the migrant workers from rural to urban areas, and is a growing and floating population in China.

In China, Nong Min Gong are mostly composed of people with rural residences in the "hukou" (registered residence) system.¹⁴¹ The modern Hukou system was created in 1950s by the post-war communist government to control migration into and out of urban areas.¹⁴² However, the earliest Hukou system on record can be traced back to the Western Zhou Dynasty (1027-771 BC).¹⁴³ In addition to the inequality existing in housing, education, and social welfare, these rural migrants are more likely to be exposed to high levels of air and water pollution.¹⁴⁴ According to the statistical data released by China's National Bureau of Statistics, the population of these migrant workers reached 252 million in 2011.¹⁴⁵ The total population of these migrant workers rapidly grew from 70 million people in 1993 to 140 million in 2003, and reached over 252 million in 2011.¹⁴⁶ Considering these statistics, the population of the floating workers have doubled every decade.

139. Ji Feng Li et al., *Is It in China's Interest to Implement an Export Carbon Tax?*, 34 ENERGY ECON. 2072, 2072-80 (2012).

140. 中國新聞網 [CHINA NEWS WEB], 解析新型城镇化两大重点：户籍问题将农民工拦在外 [Resolve Two Key New Urbanization: The Tenancy Will Stopped Out of Migrant Workers], Feb. 2, 2015, <http://finance.sina.com.cn/china/20150202/141421454498.shtml>.

141. Chunbo Ma & Ethan Schoolman, *Environmental Justice in China*, Paper Presented at the Australian Sociological Association Annual Meeting of the Society for the Study of Social Problems (2008), <http://www.isecoeco.org/conferences/isee2012-versao3/pdf/848.pdf>.

142. *Id.* at 4.

143. 葛劍雄 [Jianxiong Ge], 戶籍制度的前世今生 [Past and Present of the Household Registration System], 彭澤研究所 [PENGPAI RESEARCH INSTITUTE] (Mar. 6, 2015), http://www.thepaper.cn/newsDetail_forward_1308420.

144. See Ma & Schoolman, *supra* note 141; Residents with urban Hukou became a privileged minority in China for the next three decades and are still heavily subsidized and favored by the state today. FEI-LING WANG, ORGANIZING THROUGH DIVISION AND EXCLUSION: CHINA'S HUKOU SYSTEM 47 (Stanford Univ. Press 2005).

145. 250 Million Nong Min Gong Group Survey: Lost between the City and Country, CRNTT (Jan. 16, 2013), <http://www.chinareviewnews.com/doc/1024/0/4/7/102404771.html?coluid=7&kindid=0&docid=102404771&mdate=0116172524>.

146. *Id.*

Yet, research for this special group is insufficient and social problems inherent to this disfavored group are abound. To address increasing concerns for these “shadows of the city,” under the 12th Five-Year Plan, the Chinese government has begun to investigate the unemployment rate of Nong Ming Gong, which has never been reported before.¹⁴⁷ The Chinese government established the data, but in the end, did not publish it with the concern that the number, at around 5%, might be too high.¹⁴⁸ Even so, calls for enhancing benefits for migrating workers have soared since human rights issues have received more attention in recent years. China’s government has proposed to formally include the study for the unemployment rate of migrating workers formally in the next 13th Five-Year Plan.¹⁴⁹ With little change to the unemployment rate, it could largely affect numerous low-income workers with minimum skills and obstruct the transition towards a sustainable economy.¹⁵⁰ These workers should not be treated unfairly simply because of their rural residence registry and work on a temporary basis. Such disproportionate treatment is considered as a violation of EJ.¹⁵¹

V. CONCLUSION

Developed countries have eagerly proposed BTAs to restore competitiveness and avoid carbon leakage. However, there are simply too many pitfalls for BTAs to be a good option to be followed. Mostly, it will violate the CBDR principle set by the Kyoto Protocol to encourage voluntary carbon reduction by developing countries. Thus, to oblige developing countries to take their shares with a stick is arguably valid. However, when financial and technical assistance for adaptation and mitigation are urgently needed in developing countries since developing countries are

147. 尚明等 [Ming Xiao, et al.], 常住农民工被纳入统计-调查失业率或将列入十三五规划 [Resident Migrant Workers to be Included in the Statistics - or Will be Included in the Survey Unemployment Thirteen Five Plan], 21 世紀經濟報道 [21ST CENTURY BUSINESS HERALD] (Jul. 29, 2014), <http://jingji.21cbh.com/2014/7-29/4NMDA2NTfMTI0ODI4NA.html>

148. *Id.*

149. *Id.*

150. See WU Y.J. AND XUAN X.W., THE ECONOMIC THEORY OF ENVIRONMENTAL TAX AND ITS APPLICATION IN CHINA (Economic Science Press 2002); Ke Wang et al., *Analysis of the Economic Impact of Different Chinese Climate Policy Options Based on a CGE Model Incorporating Endogenous Technological Change*, 37 ENERGY POL’Y 2930, 2930-40 (2009).

151. 李淑文 [Shuwen Li], 環境正義視角下“農民環境權”概念體系的建創 [Year Built Environment Perspective Justice ‘Farmers Environmental Right’ Concept System], 農村經濟 [RURAL ECONOMY], Aug. 2013; 周作翰 [Zuohan Zhou], 張英洪 [Yinghong Zhang], 当代中国农民的环境权 [Environmental Rights in Contemporary Chinese Peasants], 湖南师范大学社会科学学报 [HUNAN NORMAL U. SOC. SCI.] (Mar. 2007); 李淑文 [Shuwen Li], 任大鹏 [Dapeng Ren], 权力冲突视角下环境权的理性思辨——基于公民环境权保护的需要前沿 [Under the Authority of the Environmental Right Angle Conflict Rational Debate - Needs Based on the Forefront of Environmental Protection of the Right of Citizens], Issue 17, 2010.

most vulnerable to climate change impacts due to a lack of resources, BTAs will only serve to inefficiently reallocate resources from developing countries to developed countries. This frustrates the transition towards a sustainable society in developing countries. Further, though many developing countries have been blamed for doing nothing to reduce carbon emissions, leading countries like China and India, in fact, have transformed differently in response to the emissions reduction callings. By examining investments in green energy industries and lifestyles of developing countries and considering that these regions started reduction actions much later, it is persuasive that these developing countries are flourishing with good results in their upmost reduction endeavors. The impressive results correspond to their voluntary reduction duty under the principle of polluter pays.

Additionally, the consideration of environmental justice suggests that by applying BTAs, not only will low-income communities be adversely and disproportionately affected, but they will also hardly have a chance to get meaningfully involved. For large populations of migrant workers in China, the estimated unemployment rate that will be caused by BTAs will result in serious social problem and counteract the transition to a sustainable economy. Moreover, low-income people in developed countries will be compelled to fulfill daily needs by shifting the purchases from affordable goods made by developing countries to more expensive products made in other regions. BTAs are in no way a win-win strategy for developed and developing countries.

As discussed, China's government has pointed out that if there are BTAs or similar measures targeted on products made in China, it would rather implement a domestic cap-and-trade scheme or impose a carbon tax than pay import fees to satisfy the standard of environmental policy in another jurisdiction. The approach is understandable since the resources can be used to assist reduction action in China. The resources can also be used to subsidize carbon-intensity sectors that would be most affected, to update equipment and decrease pollution. By doing this, China would be the beneficiary from its cap-and-trade or ECT program without sharing the revenues with outsiders.

Other developing countries have also voiced that if there were BTAs, then, as response for an infraction of the non-discriminating principle set in WTO, those developing countries would consider levying taxes on every product exported from developed countries, not only the carbon-intensity products. This trade war could be very costly, but would not necessarily enhance the integrity of environmental protection.

A far more important question to deal with climate change is: how to meaningfully include substantial participation of developing countries in the post-Kyoto climate regime, and in which form? The exemption of developing countries in the Kyoto Protocol has created a “black hole,” which has crippled the scheme. As GHG emissions are coming from developing countries in a rapidly growing speed, any climate negotiation without the participation of leading developing countries like China and India will fail.

Besides BTAs, developed countries can form joint projects with developing countries to combat climate change. By cooperating with developing countries, developed countries can gain more practical and valuable experiences in new industries with better chances of gaining a larger market share by participating in the local market early. Under these circumstances, enterprises from developed countries can be profitable by opening joint markets with developing countries. In this way, partnership and joint investment can serve as alternatives to being adversaries. Before developed countries undertake any measures, it is essential to think about the ultimate costs and benefits and make sure that there is not a waste of resources, or that the measures were simply for a game.

The issue with BTAs or other similar trade limitation measures is that these types of measures will always interlock with the test of equality, justice and humanity. The CBDR principle should be followed firmly because it originates from humanity's tendency to help others with different capacities and it is inherent between citizens and their countries to want to reach an international cooperation with the possibility of success.