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Silvia Fejka

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Silvia Fejka
American University Washington College of Law

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*by Silvia Fejka**

Carbon offsetting can have some laudable goals, including protection of the most pristine resources left on earth.[1] As a category, however, carbon offsetting and markets are inappropriate international solutions to climate change and environmental degradation. The two current carbon offsetting mechanisms have dubious environmental value and maintain destructive behavior rather than addressing current emissions. Climate change is an example of a collective action problem, where benefits are diffuse, creating little incentive for individual nations to act. This renders carbon offsetting programs particularly susceptible to free riders.[2] Further, carbon offset loopholes weaken equitability in international negotiations and allow developed nations to perpetuate wasteful behavior nationally.[3] Although critics have discussed these problems for years, carbon offsetting programs continue in full force.[4] A solution to the problems of inequity and the lack of collective action in the current scheme is to create a system of international obligations that also allows each country to achieve these goals within its own unique context.

Two prevalent types of carbon offsetting mechanisms exist: project-based offsets and carbon markets.[5] In the former case, parties pay for-profit firms or nongovernmental organizations[6] that engage in carbon offsetting activities, such as reforestation or efficient energy.[7] Individuals use these offsetting services at their own discretion.[8] The project-based carbon offsetting market is expansive and one can offset virtually anything, from driving to eating.[9] The second model is increasingly common; industry traders, states, or countries participate in a carbon trading market to meet reduction goals imposed through regulation. Examples include the international offsetting scheme under the Kyoto Protocol, the Clean Development Mechanism ("CDM") under the United Nations Framework Convention for Climate Change,[10] and the Regional Greenhouse Gas Initiative in the United States.[11] Similar mechanisms exist for offsetting different pollutants as well.[12] These mechanisms effectively create a right to pollute that can be bought and sold as a commodity.[13]

Critics of carbon offsetting point to its scientific unreliability and questionable environmental value.[14] Carbon markets alone do not reduce overall global carbon emissions, even at full efficiency.[15] The calculation of the reduction of carbon emissions is based on uncertain projections and misevaluation of natural resources.[16] The dubious environmental value of carbon offsetting also stems from its nature as an *ex post* solution that does not reduce consumption or the behaviors causing the harm.[17] Carbon offsetting is more susceptible to this critique than carbon markets, which may attempt to create systemic change, but markets also contribute to the polluting behavior for which they create a market, through the commoditization of a right to pollute.[18] Essentially, offsetting schemes skirt the need for wider, structural change and an economy that does not depend on carbon consumption.[19]

On an international scale, the need to allocate responsibility for environmental degradation magnifies the disadvantages of carbon offsetting. Offsetting carbon emissions reallocates the burden to change behaviors between nations.[20] Offsetting often perpetuates environmentally detrimental behavior in developed countries, and forces developing countries to either accommodate for less consumption or change behaviors on industrial and individual levels.[21] Environmental justice arguments against offsetting encompass this issue and raise the fact that poor communities are disproportionately affected by environmental degradation and climate change.[22] This is not to say that developing countries may disregard sustainability, but rather that all countries, especially those with carbon-based economies, should shoulder their respective burdens based upon their unique circumstances.

The attempts of nations to reallocate their burdens reflect that climate change is a classic collective action problem.[23] This means that an international forum is absolutely necessary because, in the climate change context, all nations benefit from a reduction of greenhouse gas emissions whether or not they assume the costs of that reduction.[24] Carbon free riders are a problem particularly in the CDM and Reducing Emissions from Deforestation and Forest Degradation in Developing Countries ("REDD") programs.[25] Although offsetting itself is technically not "free" riding, its "business as usual" approach demonstrates minimal effort in addressing the problem.[26]

This free riding problem explains the insufficiencies of current international climate change negotiations, such as the November 2011 Durban Conference.[27] Without other incentives, developed countries, including the United States, may hesitate to act because climate change mostly affects the impoverished and its benefits are diffuse.[28] This may be why Durban delegates failed to commit their countries to a binding plan.[29] Even more importantly, Durban negotiators seemed to have expanded carbon trading mechanisms that could further exacerbate the problem of "free" riders who may choose to buy credits instead of changing their own carbon-emitting ways.[30] The results of Durban show the need for a new international approach that creates obligations to promote internal changes in consumption and behavior without offset loopholes.

* *Silvia Fejka is a J.D. candidate, May 2013, at American University Washington College of Law.*

Nations must recognize that while offsets can preserve existing ecosystems and promote sustainable energy projects that benefit local populations, they merely allow developed countries to continue polluting at their given rate and prevent the realization of an equitable solution to the collective action problem of climate change. Although the Kyoto Protocol allows for lesser burdens on developing countries,[31] developed countries continue to find offset loopholes for their own commitments through CDM.[32] Developed nations should contribute to these efforts separately from their own reduction obligations, such as through the recently implemented Green Climate Fund.[33] The global issue of climate change requires both a concerted international effort and strong national action to move away from carbon-based economies and effectively address climate change.

Endnotes: Offsetting Programs: Struggling to Find an Equitable Solution Internationally

1 *See, e.g.*, *'Gold' Standard for REDD Forest Conservation Project in Colombia's Choco*, MONGABAY.COM (Feb. 15, 2012), http://news.mongabay.com/2012/0215-redd_choco-darien.html (describing a project to preserve rainforest in Colombia's Darien region, one of the most biodiverse ecosystems on earth).

2 *See infra* notes 23-25.

3 *See infra* notes 19, 20.

4 *See Carbon to Boom in Volume but Crash in Price, Say Analysts*, BUSINESSGREEN (Feb. 23, 2012), http://www.businessgreen.com/bg/news/2154348/carbon-boom-volume-crash-price-analysts?WT.rss_f=Home&WT.rss_a=Carbon+to+boom+in+volume+but+crash+in+price%2C+say+analysts (revealing that although carbon markets are set to crash in price this year, a break from previous trends, growing emerging carbon markets provide optimism for the long term).

5 *See infra* notes 6, 9-11.

6 *See generally* Collin Dunn, *Survey of Carbon Offset Services*, TREEHUGGER (March 21, 2006), http://www.treehugger.com/renewable-energy/survey-of-carbon-offset-services.html (describing organizations that provide carbon offsets).

7 *See* KEVIN SMITH, CARBON TRADE WATCH, THE CARBON NEUTRAL MYTH 5 (Feb. 2007), http://www.carbontradewatch.org/pubs/carbon_neutral_myth.pdf (discussing a variety of offset mechanisms, including tree planting and distribution of efficient light bulbs).

8 *See* Dunn, *supra* note 6 (describing organizations that provide offsets to individuals who can purchase an offset by metric ton of carbon).

9 *See, e.g.*, Damian Kahya, *Who pays and who gains from carbon offsetting?*, BBC NEWS (Nov. 26, 2009), http://news.bbc.co.uk/2/hi/business/8378592.stm (describing the variety of offsets available, from flights, car journeys, and home energy usage to food consumption and Christenings).

10 *See* Kyoto Protocol to the United Nations Framework Convention on Climate Change, art. 12, Dec. 11, 1997, U.N.T.S. A-30822 (allowing CDM countries with commitments under the Kyoto Protocol to implement emission-reduction projects in developing countries to earn credits that can be counted towards meeting Kyoto targets).

11 *See generally* Regional Greenhouse Gas Initiative, RGGI, INC. (last visited Mar. 4, 2012), rggi.org (providing a portal for participation in the RGGI market-based regulatory program).

12 *See CO2 Auctions, Tracking & Offsets, Offset Categories*, RGGI, INC. (last visited Mar. 4, 2012), http://www.rggi.org/market (citing methane and sulfur hexafluoride as eligible offset categories).

13 *See* Smith, *supra* note 7, at 32 (characterizing a project to grow trees in Uganda established by a Dutch organization as a project allowing pollution to continue in the Netherlands, thereby creating a "right to pollute").

14 *See, e.g.*, Smith, *supra* note 7, at 19-25 (asserting that the link between carbon offsetting and actual carbon reduction is tenuous at best); *see also* Elinor Ostrom, *A Polycentric Approach for Coping with Climate Change* 25 (World Dev. Rep. Policy Research Working Paper No. 5095, 2009), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1494833 (describing the vulnerability of offsetting to gaming, wherein offsetting credits become so valuable as to induce pollution for offsetting).

15 *See* Jon Strand, *Carbon Offsets with Endogenous Environmental Policy* 2 n. 1 (World Dev. Rep. Policy Research Working Paper No. 5296, 2010), http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2010/05/07/000158349_20100507104204/Rendered/PDF/WPS5296.pdf (stating the regulated market assumes a limited pollution baseline under which pollution is permitted, which creates value for the right to pollute).

16 *See* Smith, *supra* note 7, at 19-25 (noting the example of reforestation, the carbon value of which is based upon the assumption that each tree will be maintained for at least 100 years)

17 *See* Ezra Rosser, *Offsetting and the Consumption of Social Responsibility*, 89 WASH. U. L. REV. 27, 76 (2011) (arguing that while offsetting is an easy way for consumers to make a choice about products whose production they cannot otherwise affect, it is an imperfect substitute for reducing environmentally destructive behavior).

18 *See* Strand, *supra* note 15, at 2 (positing that the existence of carbon markets may create perverse incentives to raise emissions in a variety of ways).

19 *See* Smith, *supra* note 7, at 10 (establishing that offsets provide an opportunity to delay the transition to a low-carbon economy for as long as possible).

20 *See generally* Smith, *supra* note 7 (depicting a variety of offsetting projects wherein organizations collect money to change environmental behaviors in a different country).

21 *See* Smith, supra note 7, at 27 (describing the environmental burdens that implicate social justice issues).

22 *See, e.g.*, Intergovernmental Panel on Climate Change [IPCC], Climate Change 2007: Climate Change Impacts, Adaptation and Vulnerability, *Working Group II Contribution Intergovernmental Panel on Climate Change Fourth Assessment Report*, 8 (Apr. 13, 2007) (prepared by Neil Adger, et al.) (concluding that Africa is especially vulnerable to climate change effects because of "low adaptive capacity"); *see also* Eric Posner and Cass Sunstein, *Climate Change Justice*, 96 GEO. L.J. 1565, 1581 (2008) (accepting that climate change will especially affect Africa and India through climate-related diseases and dependence on agriculture). Environmental justice issues stem from certain countries being responsible for the majority of extracted resources and pollution, many of which are now better able to adapt to the impacts of their exploits, while countries that have not contributed to environmental degradation to this extent are in a vulnerable state. IPCC, *supra*.

23 *See* Ostrom, *supra* note 14, at 5-19 (stating that the collective action theory holds that "no one will change behavior and reduce their energy use unless an external authority imposes enforceable rules that change the incentives faced by those involved").

24 *See* Ostrom, *supra* note 14, at 2, 5 (emphasizing that no one country can solve a problem of the magnitude climate change, where a concerted effort is necessary).

25 *See* Ostrom, *supra* note 14 (describing CDM and REDD, a Kyoto Protocol initiative to fight deforestation, as especially susceptible to free ridership).

26 *See* Smith, *supra* note 7, at 9 (asserting that the "business as usual" approach manifest in carbon offsetting is corrosive to the climate change debate).

27 *See infra* note 29.

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cleancookstoves.org/ (last visited Feb. 20, 2012); Clean Air Initiative for Asian Cities, http://cleanairinitiative.org (last visited Feb. 20, 2012).

[74] *See* Malla, *supra* note 53, at 67.

[75] Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin, art. 1, Apr. 5, 1995, 2069 U.N.T.S. 3, www.mrcmekong.org/assets/Publications/agreements/agreement-Apr95.pdf.

[76] *Id.* at 1.

[77] *See id. See also* Malla, *supra* note 53, at 73.

[78] Press Release, *China Ready to Share Data on Mekong Water Levels Ahead of Regional River Summit*, Mekong River Comm'n (Mar. 26, 2010), *http*://ns1.mrcmekong.org/MRC_news/press10/China-ready-to-share-data-26-mar-10.htm.

[79] *See* Saira Kurup, *Water Wars: India, China and the Great Thirst*, The Times of India (July 25, 2010), http://articles.timesofindia.indiatimes.com/2010-07-25/special-report/28308457_1_water-wars-water-resources-water-deficit (describing the need for a bilateral agreement that goes beyond sharing hydrological data).

[80] Gov't of India, Ministry of Water Res., *India- China Co-operation*, http://wrmin.nic.in/index3.asp?subsublinkid=290&langid=1&sslid=372 (last visited Feb. 20, 2012). *See also*, Mirza Zulfiqur Rahman, *Quiet Flows the Brahmaputra?* Institute of Peace and Conflict Studies (Oct. 2, 2008), www.ipcs.org/article/south-asia/quiet-flows-the-brahmaputra-2695.html.

[81] *See* Kurup, *supra* note 79.

[82] Gov't of India, Ministry of Water Res., *Bilateral International Cooperation*, http://wrmin.nic.in/index2.asp?slid=368&sublinkid=365&langid=1 (last visited Feb. 20, 2012).

[83] *See* Malla, *supra* note 53, at 51, 80-83.

[84] *See* Jessica Seddon Wallack & Veerabhadran Ramanathan, *The Other Climate Changers: Why Black Carbon and Ozone Also Matter*, 8(5) Foreign Aff. Mag., Sept./Oct. 2009, at 105-113.

[85] *See, e.g.*, *id.* at 108-09. *See also* Cook-Anderson, *supra* note 15.

[86] *See generally* Gyami Shrestha, Samuel Traina, & Christopher Swanston, *Black Carbon's Properties and Role in the Environment: A Comprehensive Review,* 2 Sustainability, 1, 294-320 (Jan. 15, 2010), http://www.nrs.fs.fed.us/pubs/jrnl/2010/nrs_2010_shrestha_001.pdf.

[87] Jeremy Carl, *Rising From the Ashes: India's Black Carbon Opportunity*, India in Transition Blog (Jul. 19, 2009), http://casi.ssc.upenn.edu/iit/carl.

[88] *Consultation Meeting Explores Measures to Reduce Emissions of Short-lived Atmospheric Pollutants*, ICIMOD (Mar. 25, 2011), www.icimod.org/?q=3147.

[89] *Id*.

[90] Press Release, U.S. Dep't of State, Briefing on Global Climate Change and Clean Air Initiative (Feb. 16, 2012), www.state.gov/r/pa/prs/ps/2012/02/184042.htm.

[91] Press Release, U.S. Dep't of State, The Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants (Feb. 16, 2012), www.state.gov/r/pa/prs/ps/2012/02/184055.htm.

[92] *See Id.*

[93] Press Release, U.S. Dep't of State, Briefing on Global Climate Change and Clean Air Initiative (Feb. 16, 2012), www.state.gov/r/pa/prs/ps/2012/02/184042.htm.

[94] Young, *supra* note 31, at 21-23; *see also*, Elinor Ostrom, *A Polycentric Approach for Coping with Climate Change*, 32-39 (World Dev. Rep. Policy Research Working Paper No. 5095, 2009), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1494833.

[95] Heike Schroeder, Leslie A. King, & Simon Tay, *Contributing to the Science-Policy Interface in* Institutions and Environmental Change: Principal Findings, Applications, and Research Frontiers in Young, *supra* note 11, at 262-275.

[96] *See* Benfield, *supra* note 3, at 27-31, 147-86.

[97] *See generally* ICIMOD, *About Us*, http://www.icimod.org/?q=122 (last visited Feb. 20, 2012).

[98] *See generally* ICIMOD, Midterm Review 2007 of the ICIMOD Strategic Framework and Medium Term Action Plan 2008-2012 (Sept. 30, 2010).

[99] *See* Malla, *supra* note 53, at 83.

[100] *See* Malla, *supra* note 53, at 83.

[101] *See generally* ICIMOD, *Hindu-Kush Himalayan Region*, http://www.icimod.org/?q=1137 (last visited Feb. 20, 2012).

[102] *See, e.g.,* SAARC, 17th SAARC Summit, Addu, Maldives, Nov. 11, 2011, *Addu Declaration of 11 Nov. 2011*, SAARC/SUMMIT.17/13 (2011), www.seventeenthsaarcsummit.mv.

[103] SAARC Charter, *supra* note 66, art. 4.

[104] Ashfaque H Khan, *China and SAARC,* The Int'l News (Dec. 20, 2011), http://www.thenews.com.pk/Todays-News-9-83089-China-and-Saarc.

[105] Naser Mermon, *Shared Waters and Glacial Melt*, Dawn (Jan. 1, 2012), http://www.dawn.com/2012/01/01/shared-waters-glacial-melt.html. *See also* Second International Workshop Himalayan Sub-regional Cooperation on Water Security, Dhaka, Bangladesh, Jan. 15-16, 2010, *Dhaka Declaration on Water Security* (2010), http://www.strategicforesight.com/Dhaka%20Declaration.pdf. The multi-donor Abu Dhabi Dialogue, led by the World Bank, has brought together high-level representatives of Afghanistan, Bangladesh, Bhutan, China, India, Nepal, and Pakistan; *see* Geneive Connors, The South Asia Water Initiative, Presentation from the 2011 World Water Week in Stockholm, worldwaterweek.org/documents/WWW_PDF/2011/Sunday/K23/Promoting-Cooperation-in-the-Ganges-Basin-through-Dialog/Connors-SAWI-Seminar-ADD-Retrospective.pdf.

[106] Simon Montlake, *Climate Change: Southeast Asia's Preparation Falls Short*, Christian Sci, Monitor (Apr. 29, 2009), http://www.csmonitor.com/World/Asia-South-Central/2009/0428/p06s07-wosc.html.

[107] *See* Kurup, *supra* note 79.

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[28] *See* Ostrom, *supra* note 14, at 8 (communicating the difficulty of social dilemmas where benefits of a solution are diffuse).

[29] *See, e.g.*, David Crossland, *The Durban Climate Agreement 'Is Almost Useless*,' Spiegel Online Int'l (Dec. 12, 2011), http://www.spiegel.de/international/world/0,1518,803158,00.html (describing the new Durban agreements as too vague and reflecting slow progress in extending the Kyoto Protocol for five years, creating a delay in deciding on a wider pact); *see also Disastrous outcome from international climate talks in Durban*, News Releases, Friends of the Earth (Dec. 14, 2011), http://www.foe.org/news/news-releases/2011-12-disastrous-outcome-from-international-climate-talks (expressing concern that Durban failed to set clear, binding goals to reduce emissions).

[30] *See* Kate Horner, *The Durban Deal – An initial analysis of the outcomes*, Blog, Friends of the Earth (Dec. 12, 2011), http://www.foe.org/news/blog/2011-12-the-durban-deal—an-initial-analysis-of-the-outcome (observing the establishment of a process for developing new market mechanisms and potential of carbon offsets through REDD as part of the Durban Platform).

[31] *See* Mohamed Adow, *Durban Climate Talks: Mind the Gap*, Time for Climate Justice, Christian Aid (Nov. 2011), http://www.christianaid.org.uk/images/time-for-climate-justice-durban.pdf (recognizing that the Kyoto Protocol's Article 3 principle of "common but differentiated responsibilities" allows for a heavier burden on developed countries).

[32] *See id.* (outlining the accounting loopholes present in CDM, to demonstrate how credits loosen the degree to which developed countries must comply internally with Kyoto Protocol commitments).

[33] *See* United Nations Framework Convention on Climate Change, Draft Dec. –/CP-17, *Conference of the Parties, Green Climate Fund-Report of the Transitional Committee*, 17th Sess., Nov. 28-Dec. 9, 2011, U.N. Doc. FCCC/CP/2011/L.9 (Dec. 10, 2011), http://unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/cop17_gcf.pdf (establishing the Green Climate Fund to channel financial resources to developing countries in support of their efforts to reduce greenhouse gas emissions).