Dalhousie Journal of Legal Studies

Volume 19 Article 3

1-1-2010

# Governing the Sulphur Dioxide Emissions of Multinational Corporations: Putting the Breaks on the Race-to-the-Bottom

Maren Zimmer

# GOVERNING THE SULPHUR DIOXIDE EMISSIONS OF MULTINATIONAL CORPORATIONS: PUTTING THE BRAKES ON THE RACE-TO-THE-BOTTOM

Maren Zimmer*

## INTRODUCTION

Multinational corporations are now part of global politics. For effective governance of international environmental problems, their roles in the political process cannot be ignored. This paper will examine "race-to-the-bottom" theory and evaluate whether this race has occurred as a reaction to sulphur dioxide (SO2) regulation, resulting in a need for increased global governance surrounding environmental issues. The paper focuses on SO2 because the *Trail Smelter* case,[1] which is seen as the birth case for international environmental law, recognized the harm stemming from this pollutant in 1941; scientific evidence has also linked SO2 emissions to acid rain and respiratory problems associated with smog,[2] and advancements have been made in regulating the compound. However, despite the advancements that have been made in regulating SO2 pollution in Canada and in other developed nations, global SO2 emissions have risen.[3] Given the academic support for the race-to-the-bottom theory, the global nature of multinationals, and transboundary harm resulting from air pollution, a new international structure is needed – one that looks at environmental problems from an issue-level, and one that includes multinational corporations in relevant decision-making processes.

---

* Maren Zimmer is a third year law student at Dalhousie University's Schulich School of Law. Her main academic interest is in Environmental Law. Before entering law school, Maren completed a bachelor of Environmental Studies at the University of Waterloo, and worked as an environmental consultant in Vancouver. She is currently a board member of East Coast Environmental Law.

1 *Trail Smelter (US v. Canada)* (1941) 3 R.I.A.A. 1905, excerpts reprinted in Hugh M. Kindred, *et al., International Law: Chiefly as Interpreted in Canada and Applied in Canada,* 5th ed. (Toronto: Emond Montgomery Publications Limited, 1993) at 750 (referred to as *Trail Smelter* case throughout the paper).

2 Environment Canada, "Acid Rain and Air Quality" The Green Lane (viewed 30 October 2009), online: Environment Canada <http://www.ec.gc.ca/acidrain/acidair.html>.

3 Allen S. Lefohn, Janja D. Husar & Rudolf B. Husar, "Estimating historic anthropogenic global sulfur emission patters from the period 1850-1990" (1999) 33 Atmospheric Environment, at 3441.

This topic is timely given the complex questions that surround environmental regulation of multinational corporations when dealing with air pollution. Given the state of scientific knowledge about the movement of air pollution and the harm stemming from compounds released into the air, it is imperative that this issue be examined. Specifically, the increasing importance of the regulation of greenhouse gases associated with global climate change necessitates such a study. The race-to-the-bottom associated with $SO_2$ and the ineffectiveness of multinational regulation at the global level highlight the need to rethink future global atmospheric policy.

The paper will begin with a case study on $SO_2$ that explores the history and regulation of the compound. I will examine regulation at the international and domestic levels, and then explore how global smelting operations and $SO_2$ emissions have shifted into the developing world. My evidence weakly indicates a shift, but does show that global emissions have not decreased despite increased regulation. I will then discuss the race-to-the-bottom theory, environmental regulation in general, and new international approaches to the problem. In conclusion, I propose that environmental regulation needs to occur at the global level and from an issue perspective. In order to be effective, this decision-making process should include various stakeholders, including multinational corporations.

## I. CASE STUDY: THE REGULATION OF $SO_2$ AND THE RACE-TO-THE-BOTTOM

The issue of $SO_2$ pollution hit the global consciousness with the recognition that harm from acid rain was linked to $SO_2$ emissions: "[s]ignificant damage to forests became a high priority environmental issue around 1980, while thousands of lakes in Scandinavia lost fish populations due to acidification from the 1950's to the 1980's."[4] This recognition led to individual, state, and international action, as well as corporate policies and technologies to address the problem. Increased regulatory pressure in developed nations had the potential to effect a shift in smelting operations to less regulated nations. Based on the evidence, a shift in these operations toward countries with fewer $SO_2$ regulations can be seen through the increase in air pollution problems in Asia and other areas in the developing world.[5] Much of the advancement in pollution control has been seen through the advancement in pollution reduction technology; however, "[w]hile the emission of pollutants can be significantly reduced for a small cost, few developing nations have made even small investments in pollution reduction measures, even though the environmental and population health benefits of such measures are evident."[6] While polluting companies may move to less developed countries, it is

4 United Nations Environment Programme, "Global Environment Outlook 3[GEO 3]" United Nations (2009), online: UNEP <http://www.unep.org/geo/geo3/english/366.htm> (excerpt from chapter 2) at 210.

5 World Health Organization, "Air Quality guidelines - Global Update 2005" WHO (2005), online: WHO <http://www.who.int/phe/health_topics/outdoorair_aqg/en/index.html>.

6 *Supra* note 4 at 211.

not always true that the technologies used in their home states also move with them.

This section will look at the history of SO2 regulation, starting with the *Trail Smelter* case and moving into the contemporary regulatory environment.

## 1. Limitations of the Case Study

There are a number of limitations of the following case study. First, the data gathered in this paper is mainly derived from secondary sources. Second, when embarking on a search of legislation in other jurisdictions, I was greatly limited by my linguistic ability, which resulted in my reliance on data from Anglophone countries only. Third, the lack of public emission reporting was a barrier to determining $SO_2$ levels from both countries and corporations. Finally, the complexity of corporate business resulting from mergers and acquisitions resulted in a barrier to following corporations' activities over time.

## 2. The Trail Smelter Case: An Early Example of Litigation Surrounding $SO_2$

In 1941, a final arbitration decision was released by a tribunal mutually agreed upon between the affected parties to address the issue of environmental harm to farmers' fields in Washington State stemming from a Canadian smelting operation in Trail, British Columbia.[7] The two states sought resolution after an impasse was reached during the International Joint Commissions (IJC) investigation.[8] The dispute centered on the wafting of $SO_2$ over the international boundary into Washington. The claim was based on nuisance, caused by a Canadian company to American citizens.[9] The company, The Consolidated Mining and Smelting Company, is now known as Teck-Cominco, listed on the Toronto Stock Exchange (TSX) and the New York Stock exchange (NYSE) as TCK.[10] The arbitration resulted in an order that the smelter refrain from causing further damage to Washington.[11] This order created a precedent that has since been espoused in international environmental law:

> States have […] the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies; and the responsibility to ensure that activities within their jurisdiction or control

7 *Supra* note 1.
8 *Ibid*.
9 John E Reid, *The Trail Smelter Dispute,* in Rebecca M. Bratspies & Russel A. Miller, eds., *Transboundary Harm in International Law Lessons from the Trail Smelter Arbitration* (New York: Cambridge University Press, 2006) at 27.
10 Teck, "Quotes and Prices" Teck (viewed 27 November 2009), online: Teck <http://www.teck.com/>.
11 Stephan C. McCafrey, "Of Paradoxes, Precedents, and Progeny: The Trail Smelter Arbitration 65 Years Later" in Rebecca M. Bratspies & Russel A. Miller, eds., *Transboundary Harm in International Law Lessons from the Trail Smelter Arbitration* (New York: Cambridge University Press, 2006) at 34.

> do not cause damage to the environment of other States.[12]

At the time the tribunal was looking for "a balanced solution, one that neither shut down the smelter nor left the agricultural interests entirely at the mercy of the fumes."[13] This balancing still occurs in states that are forced to decide between environmental protection and foreign investment revenue. Today, the operations in Trail continue, but the emissions are subject to regulatory measures under Canadian law.

The *Trail Smelter* dispute dealt with a clash of sovereignties: the Canadian right to exploit natural resources and recover profits, pitted against the American right to be free from external harm.[14] The clash led to the articulation of two international law principles: first, a state has a duty to prevent transboundary harm; and second, the "polluter pays" principle, which dictates that a polluter has the duty to pay for proven harm resulting from the pollution it causes.[15] Both of these principles are still present in international environmental law, and both have the potential to erode state sovereignty. Generally, the right to sovereignty gives a state unlimited authority to control pollution within that state's boundaries.[16]

This concept of state sovereignty is also eroded by international foreign investment through another well accepted international law principle, namely that "sovereignty over a purely domestic matter [can] be restricted if there is an international treaty dealing with the matter."[17] Through treaties, multinational corporations are able to encourage states to negotiate and sign away their sovereignty, which results in multinational corporations obtaining power over states' pollution control policies. This phenomenon conflicts with a state's duty to prevent harm, and weakens the "polluter pays" principle by decreasing a state's ability to change the harm threshold, resulting in inaction on new scientific evidence and enforcement of the "polluter pays" principle.

The *Trail Smelter* case has often been characterized as a dispute between two nations; however, as Miller points out, the dispute can also be characterized as one that pitted transnational business interests (i.e. those of The Consolidated Mining and Smelting Company) against a single-issue non-governmental organization, the Citizens' Protective Association.[18] This argument is strengthened by the fact that "US smelt-

12 *United Nations Framework Convention on Climate Change,* 1992, FCCC/INFORMAL/84, GE.05-62220, (entered into force 21 March 1994) at preamble.

13 *Supra* note 11 at 37.

14 Rebecca M. Bratspies & Russel A. Miller, eds., *Transboundary Harm in International Law Lessons from the Trail Smelter Arbitration* (New York: Cambridge University Press, 2006) at 3.

15 *Ibid*. at 3; Since this time, the polluter pays principle has been further articulated in international law and it is thought that this may now arguably be a principle of customary international law according to Meinhard Doelle, *From Hot Air to Climate Change, Compliance and the Future of International Environmental Law* (Toronto: Carswell, 2005) at 10.

16 M. Sronarajah, The International Law on Foreign Investment, (2004: Cambridge University Press, New York, USA) at 97.

17 *Ibid*. at 105.

18 Russell A. Miller, "Surprising parallels between Trail Smelter and the Global Climate Regime" in Bratspies & Miller, *supra* note 14 at 168-171.

ing interests sought leave (unsuccessfully) to join the matter on the Canadian side."[19] Re-characterizing the dispute highlights the important role of multinational business interests and citizen groups in the regulation of harmful pollutants.

## 3. The Early Days – Global Recognition of the Issue

Following the *Trail Smelter* case, more instances of harm stemming from smelting operations came to light in the industrialized world:

> Scientific evidence of the acidification of aquatic systems in Scandinavia and North America mounted throughout the 1960's and 1970's. Between 1972 and 1977, evidence linked acidification to the long-range transport of sulphur dioxide from sources in other countries – for Scandinavia, nations of continental Europe, and for Canada, the United States; within Canada there was also long-range transport between provinces.[20]

The harm resulting from acid rain, and more broadly from $SO_2$ emissions, was linked to respiratory problems, ecosystem damage, and property damage. The source pollution was linked to the metal smelting industry, fossil-fuelled power plants, and other industrial fossil-fuel combustion sources.[21] This link created a direct target for advocates of regulation.

An increased awareness of harm and the cause of such harm initiated a desire to change industrial processes and materials in the developed world. International negotiations were entered into and scientific research was embarked upon, both with the aim of creating a better understanding of the effects of acid deposition, and of curbing the resulting harm. States such as Canada began to introduce regulatory measures and to sign international protocols in relation to the issue. However, the response was not mirrored by the developed world, whose constituent states were not parties to the conventions.

## 4. Increased Regulation in the Developed World

As indicated above, the target for regulation was $SO_2$-producing industries. In the developed world, corporations control the metal smelting industry. Regulating multinational corporations is a complex problem. I will examine two main ways this regulation occurs: individual state regulation, and bilateral or multilateral treaties and agreements. My exploration is focused on the regulation of $SO_2$ emissions. It is also focused on international and regional agreements to which Canada is a party, and on domestic

19 *Ibid*. at 170.

20 Environment Canada, "Acid Rain History" (viewed 20 November 2009), online: EC <http://www.ec.gc.ca/cleanair-airpur/Pollution_Issues/Acid_Rain/History-WSBE9908B0-1_En.htm>.

21 Environment Canada, "Main Emission Sources" (viewed 20 November 2009), online: EC <http://www.ec.gc.ca/cleanair-airpur/Pollution_Issues/Acid_Rain/Main_Emission_Sources-WSC9867689-1_En.htm>.

regulations associated with such agreements.

### *Bilateral and Multilateral Treaties*

Corporations may be regulated indirectly through international mechanisms. It is important to recognize that international emission standards are a clear infringement on states' sovereignty,[22] which generally results in poor enforcement. For this reason, international agreements are generally unenforceable unless adopted into domestic law. Looking at international measures helps to illustrate what type of measures states are willing to agree, accept and adopt. Generally, multinational international agreements represent the lowest common denominator of environmental standards, as consensus is required.[23] Table 1, below, represents a chart of the relevant bilateral and multilateral agreements on air pollution to which Canada is a party, along with a list of the other ratifying countries.

***Table 1: International Agreements on Air Pollution to Which Canada is a Party***

| Name | Type of Agreement | Signatories/Ratification |
|---|---|---|
| *The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (AAEGO)*[24] | Multilateral agreement | 31[25]/25<br>Ratified: Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Hungary, Latvia, Lithuania, Luxemburg, Netherlands, Norway, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom, United States of America, European Community |
| *The 1994 Oslo Protocol on Further Reduction of Sulphur Emissions (FRSE)*[26] | Multilateral agreement | 28[27]/28<br>Ratified: Austria, Belgium, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Liechtenstein, Luxemburg, Netherlands, Norway, Poland, Portugal, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom, European Community |

22 Lee A. Tavis, "The Globalization Phenomena and Multinational Corporate Developmental Responsibility" in Oliver F. Williams, *Global Codes of Conduct: An Idea Whose Time has Come* (Notre Dame, Indiana: University of Notre Dame Press, 2000) at 22.

23 Timothy Swanson & Sam Johnson, *Global Environmental Problems and International Environmental Agreements,* (UK: Edward Elgar Publishing Limited, 1999) at 162-163.

| | | |
|---|---|---|
| Agreement between the Government of Canada and the Government of the United States of America on Air Quality (AQA)[28] | Bilateral agreement | Canada and the USA |

Both the *AAEGO* and the *FRSE* stem from the *Convention on Long-Range Transboundary Air Pollution (CLRTAP),* which entered into force in 1983.[29] The *CLRTAP* states, in the preamble, that the parties to the convention are:

> Cognizant of the references in the chapter on environment of the Final Act of the Conference on Security and Cooperation in Europe calling **for cooperation to control air pollution** and its effects, including long-range transport of air pollutants, and to the development through international cooperation of an extensive programme for the monitoring and evaluation of long-range transport of air pollutants, **starting with sulphur dioxide** and with possible extension to other pollutants.[30]

The convention goes on to state specific goals for reporting and sharing of technology to reduce transboundary air pollution including $SO_2$. The *AAEGO* sets up specific reduction targets for member states in regards to $SO_2$ emissions,[31] while the FRSE sets out the types of industries targeted and the potential for economic impacts on developing economies, with a focus on proper reporting of sulphur emissions in accordance with the adopted guidelines.[32] The FRSE also sets out past emissions levels and proposes future limits on emissions.

One thing to note when looking at the signatories of the protocols is that most, if not

24 *The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (AAEGO),* 30 November 1999, online: UNECE http://www.unece.org/env/lrtap/multi_h1.htm.
25 Signed but not ratified by: Armenia, Austria, Canada, Greece, Ireland, Italy, Liechtenstein, Poland, and Republic of Moldova. There are also seven parties to the protocol who have not signed or ratified.
26 *The 1994 Oslo Protocol on Further Reduction of Sulphur Emissions (FRSE)* 5 August 1998, online: UNECE <http://www.unece.org/env/lrtap/fsulf_h1.htm>.
27 There are 18 parties to the treaty who have not signed or ratified it.
28 *Air Quality Agreement,* United States and Canada, 1991, online: International Joint Commission <http://www.ijc.org/rel/agree/air.html#a>.
29 *The 1979 Geneva Convention on Long-range Transboundary Air Pollution (CLRTAP),* 1983, online: UNECE http://www.unece.org/env/lrtap/lrtap_h1.htm.
30 *Ibid*. at preamble.
31 *Supra* note 24 at Annex II, Table 1.
32 *Supra* note 26 at preamble.

all of the countries are considered developed nations. According to the IMF they are all in the top 50 richest countries (by GDP), except for Bulgaria, Croatia, Hungary and Slovenia, which are still within the top 75, and Cyprus – an outlier at 92.[33]

The *AQA* between Canada and the USA sets out specific air quality objectives[34] and is governed by the International Air Quality Advisory Board under the IJC. No bilateral air quality agreements between Canada and other states were found to exist at this time.

There is much academic criticism surrounding the usefulness of international environmental law: "texts are often phrased in a very vague fashion, so as to garner sufficient acceptances to give them effect, or (if not) they imply commitments that many states find unacceptable."[35] When states find treaty provisions unacceptable, there are always other options available to them, such as "signing the convention but not ratifying it, or signing with reservations."[36] These realities decrease the effectiveness of international environmental law. Despite these criticisms, however, there is an overwhelming consensus on the importance of international law as a tool for dealing with environmental issues.[37] Indeed, international law is required to deal with environmental issues, as these are, by nature, transboundary issues.[38] Air pollution is but one example of an environmental problem that cries out for international standards and consensus. It remains the case, however, that in order for an international obligation to be binding on states, it must be filtered down and adopted into domestic law.

### *Regulation at the Individual State Level*

The filtering down of regulation to the state level is where the fear of "encourag[ing] a race-to-the-bottom, where countries compete for foreign direct investment and try to increase their international competitiveness by relaxing environmental regulatory standards,"[39] becomes most poignant. Despite this concern, developed countries, which rely less on foreign investment dollars, have taken action against $SO_2$ emissions. Canada, for example, introduced the Eastern Canada Acid Rain Program in 1985.[40] This program and other actions on behalf of the Canadian government have resulted in "sulphur dioxide emissions [falling] 43 percent in Canada between 1980 and 1995, largely because of regulations that caused [technological] changes to industrial pro-

33 International Monetary Fund (IMF), "World Economic Outlook Database, October 2009" (viewed: 27 November 2009), online: IMF http://www.imf.org/external/pubs/ft/weo/2009/02/weodata/index.aspx.

34 *Supra* note 28 at Article IV

35 *Supra* note 23 at 162.

36 *Ibid*.

37 Renato Ruggiero, "Trade and the Environment" in WTO Secretariat ed., *Trade, Development and the Environment* (UK: Kluwer Law International Ltd., 2000) at 7.

38 *Ibid*.

39 Colin Kirkpatrick & Serban S. Scrieciu, "Is Trade Liberalisation Bad for the Environment? A Review of the Economic Evidence" (2008) 51 Journal of Environmental Planning and Management 497 at 499.

40 *Supra* note 20.

cesses."[41] The USA, through the Clean Air Act,[42] also took domestic action to stop $SO_2$ pollution. Canada has enacted a series of legislative provisions that help to encourage a reduction in air pollution and ensure Canada is in compliance with its international obligations. One example of such this legislation is the Canadian Environmental Protection Act (CEPA)[43] where toxic substances are defined and regulations are enabled to create a list of toxic substances. [44]

In 2003, $SO_2$ was added to the List of Toxic Substances of *CEPA* 1999,[45] rendering $SO_2$ a toxic substance under the act. The Minister also introduced a number of regulations under s. 92.1 of the act. These regulations reflect additions to the list and include *Environmental Emergency Regulations,*[46] *Regulations amending the Sulphur in Diesel Fuel Regulations*[47] and the *Sulphur in Gasoline Regulations*.[48] There is also a set of proposed regulations, drafted in 2006, requiring the preparation and implementation of pollution prevention plans in respect of specified toxic substances released from base metals smelters, refineries and zinc plants.[49]

In Canada this action has led to enforceable $SO_2$ limits that have been leveraged against companies. The British Columbia Court of Appeal held that "[w]hen hydrogen sulphide is burned it produces sulphur dioxide which causes a serious air pollution problem known as acid rain."[50] The Court went on to note that unacceptable emission levels could result in authorities restricting the emission of $SO_2$. In 1996 a case was brought before the Alberta Court of Appeal by a citizen group to hold Shell Canada to a more stringent emission standard then that which was outlined in the legislation due to specific community concerns. The Alberta Court of Appeal held that as long as Shell Canada complied with its permitted $SO_2$ emissions, there was no need to address site-specific factors.[51] In dissent, Conrad J.A. held that, "to deny local ranchers the right to call evidence of the effects of increased emissions of sulphur dioxide on cattle alleged to already be suffering from current emissions is, in my view, an egregious denial of the right to be heard by an affected party."[52] These decisions highlight the importance

41 David R. Boyd, *Unnatural Law: Rethinking Canadian Environmental Law and Policy* (Vancouver BC: UBC Press, 2003) at 96.
42 *Clean Air Act*, C.A.A. tit 42 ch. 85 (1990).
43 *Canadian Environmental Protection Act* (CEPA), 1999, c.33.
44 *Ibid*. at ss. 64, 92.1 and 93.
45 Environment Canada "Substance Detail" (viewed 29 November 2009), online: EC <http://www.ec.gc.ca/TOXICS/EN/detail.cfm?par_substanceID=161&par_actn=s1>.
46 *Environmental Emergency Regulations*, S.O.R./2003-307 at Schedule 1, Part 2.
47 *Regulations Amending the Sulphur in Diesel Regulations*, S.O.R./2005-305.
48 *Sulphur in Gasoline Regulations*, S.O.R./99-236.
49 Proposed by Rona Ambrose in 2006: Notice Requiring the preparation and implementation of pollution prevention plans in respect of specified toxic substances released from base metals smelters and refineries and zinc plants, C. Gaz. 2006. I. (April 29, 2006, CEPA), online: The Royal Gazette <http://gazette.gc.ca/archives/p1/2006/2006-04-29/html/notice-avis-eng.html#i5>.
50 *Westcoast Transmission Ltd. v. Langley/Abbotsford Assessor, Area No. 15*, 2001 CarswellBC 464, 2001 BCCA 188 at para. 24.
51 *Coalition of Citizens Impacted by the Caroline Shell Plant v. Alberta (Energy & Utilities Board)*, 1996 CarswellAlta 689, 41 Alta. L.R. (3d) 374 at para. 18.
52 *Ibid*. at para. 27.

of enforceable domestic standards. They also highlight the effectiveness of enforceable standards in ensuring that companies are liable for harm stemming from pollution sources.

A brief search of other, less developed, English-speaking jurisdictions (such as India,[53] Kenya[54] and the Philippines[55]) revealed no comparable emissions standards for $SO_2$.

## 5. Global Shift in $SO_2$ Emissions

Based on my research, there has been an increase in domestic and international law regulating $CO_2$ emissions in the developed world. However, this response has not been followed by developing nations. The question when applying the race-to-the-bottom theory then becomes: "has the unequal implementation of policy resulted in a global shift of industry and/or pollution?" This section looks at both corporate responses to the regulations and the more general growth of $SO_2$ emission in developing countries.

### *Shift in Corporate Smelting Operations*

In this section, I will examine three companies with a history of smelting in Canada: Noranda-Falconbridge, Teck-Cominoco and Corefco-Sherritt. Table 2, below, outlines the expansion of the companies over the time period during which regulation of $SO_2$ emissions increased in the developed world.

53 A search of the legislative database found online: Government of India <http://india.gov.in/govt/acts.php> under Ministry of Environment and Forests, Ministry of Coal and Ministry of Mines resulted in no relevant emission provisions. The most relevant act found was the *Air (Prevention and Control of Pollution) Act,* 1981 no. 14 of 1981 also contains no specific reference to SO2.

54 The Environmental Management and Coordination Act, 1999 No. 8 of 1999 (commencement 14 January 2000) of Kenya has air quality standards at s. 78, however, I could not find any specific emission allowances in relation to s.78. Online: Government of Kenya, <http://www.reconcile-ea.org/wkelc/env_mgt_act.pdf>.

55 The Philippines has the *Greenhouse Gas Emission Atmospheric Removal Act of 2008*, Senate No. 2292, which addresses greenhouse gas emissions, but has no mention of SO2. Online: Senate of the Philippines 14th Congress, <http://www.senate.gov.ph/lisdata/73616578!.pdf>.

***Table 2: Mining and/or smelting interests in Canada over time***

| Company | Mining and/or smelting operations - locations | | | |
|---|---|---|---|---|
| | Before 1980 | 1980-1990 | 1990-2000 | After 2000 |
| Noranda/ Falconbridge | Canada, Dominican Republic, Norway | Canada, USA, Dominican Republic, Norway | Canada, USA, Dominican Republic, Norway Jamaica, Chili | Canada, USA, Dominican Republic, Norway Jamaica, Chili, Peru[56] |
| Teck[57] Cominoco | Canada | Canada, USA | Canada, USA, Chili Peru | Canada, USA, Chili, Peru, Australia[58] |
| Corefco/ Sherritt | Canada | Canada | Canada, Cuba | Canada, Cuba, Madagascar[59] |

A corporation may decide to relocate operations or purchase new assets for a number of reasons. The increase in international operations over the years can be explained by a number of factors other than the increase in environmental regulation. A more detailed look into the shift in smelting operations would be required in order to gather conclusive evidence that operations are being explored in areas with fewer regulations. However, the trend established by the above table is still significant, as it indicates that operations are taking place in countries that have not ratified international agreements and that may be lacking effective domestic regulation of $SO_2$ pollution. As air pollution is a global problem, the fact that new operations are increasingly occurring in less developed countries is of concern.

Academic literature suggests that the increase in enforceable regulation in the USA and Canada may have dampened the profits of metal smelting in these countries,

56 Data gathered from the company's website: Falconbridge, *Locations,* online: Falconbridge, http://archive.xstrata.com/falconbridge/www.falconbridge.com/about_us/mining_life_cycle.htm. Looked at operations on the location map; exploration not included.

57 Originally The Consolidated Mining and Smelting Company, which was subject to the Trail Smelter arbitration: *supra* note 1.

58 Information obtained by from the company website through comparing the operations page with the history page, online: Teck, http://www.teck.com/Generic.

59 Information obtained from the company website through the global operations page, online: Sherrit, http://www.sherritt.com/doc08/index.php?category=front_page/front_col02/.

thereby encouraging the shift to other locations: "[s]tricter American environmental regulations have contributed to the international dispersion of some basic mineral-processing industries, such as cooper, zinc, and lead processing."[60] The shift, however, cannot be fully accounted for by the new domestic environmental regulations – the availability of resources also greatly contributes to the shift.[61] A study on Japanese foreign direct investment (FDI) showed that while overall a regulatory race-to-the-bottom was not apparent, "environmental regulations generally had larger impact on Japanese FDI decisions for resource-based industries compared to non-resource based industries."[62]

### *Shift in Global $SO_2$ Emissions*

While the shift in smelting operations may not be conclusive, overall there has been a global shift in $SO_2$ emission to developing countries. It should be noted that the shift is not entirely due to a change in industry location, as the data does not account for a number of economic development factors:

> In some parts of Europe, the anthropogenic $SO_2$ emissions, which lead to acid precipitation, have been reduced by nearly 70 per cent from their maximum values; there have also been reductions of some 40 per cent in the United States. This has resulted in a significant recovery of the natural acid balance, at least in Europe. On the contrary, as a result of the growing use of coal and other high sulphur fuels, increasing $SO_2$ emissions in the Asia and Pacific Region are a serious environmental threat.[63]

The gains made by developed countries in emission reductions have been countered by the increase in emissions in the developing world. A comprehensive study looking at sulphur emissions from the years 1850-2000 found that overall global $SO_2$ emissions have increased and are still rising.[64] The study notes that there have been a number of advancements in technology that have reduced emission in countries such as Germany and stabilized emission in the former USSR and the USA.[65]

Other studies have indicated that there is proof that emissions have shifted eastward and southward on a global basis, and that this shift is much more dramatic than originally predicted.[66] Much of this shift is due to events in rapidly industrializing countries, such as China: "[i]n the 1990s Asia became the largest source area. Chinese emissions

60 Jeffery H. Leonard, *Pollution and the Struggle for the World Product: Multinational Corporations: Environment and International Comparative Advantage*, (New York: Cambridge University Press, 1988) at 111.
61 *Ibid*.
62 Colin Kirkpatrick & Kenichi Shimamoto, "The Effect of Environmental Regulation on the Location Choice of Japanese Foreign Direct Investment" (2008) 40 Applied Economics 1399 at 1406.
63 *Supra* note 4 at "air pollution and air quality."
64 *Supra* note 3 at 3441.
65 *Ibid*. at 3435.
66 David I. Stern, "Global Sulfur Emissions from 1850 to 2000" (2005) 58 Chemosphere 163 at 170.

overtook US emissions in 1987 to make China the largest single emitter."[67] With the shift in emissions there has also been a shift in associated health concerns. According to the World Health Organization, more than half of the disease burden resulting from air pollution is felt by developing countries.[68]

Overall, the data shows support for the conclusion that $SO_2$ emissions are increasing globally, despite the reduction in emissions in the developed world.

## III. ANALYSIS

The data showing an increase in regulations only weakly supports a causal connection with the shift in industrial location. This weak connection has been noted in other studies and the literature has concluded that "a major methodological problem is that it is difficult to single out the effects of any one factor in assessing either international comparative advantage or individual industrial location decisions."[69] This difficulty makes it hard to substantiate an argument that corporations are choosing locations based on a single environmental advancement. However, the results and literature, when looked at on a broader scale, show that a shift is occurring. Regardless of the reason(s) for corporate relocation, increasing regulations in the developed world have not resulted in a decrease of global $SO_2$ emissions.

Based on the evidence in the preceding case study, two main things are apparent: first, there has been an increase in regulation in developed countries both at the international and domestic level, and second, global sulphur emissions have increased. This conclusion highlights the need to rethink global environmental governance.

While the evidence on corporate location is less persuasive, economic literature on the race-to-the-bottom theory and the effect on corporate location choices support the conclusion that trade and investment liberalization has resulted in negative environmental impacts.[70] Much of the literature cautions against taking a generalized approach to global environmental problems and highlights the need for a contextual analysis of these problems at the global level.[71] Solutions to the race-to-the-bottom phenomenon should be made at a more comprehensive, global level to be effective. Industry has the ability to choose the location in which it will invest, resulting in the potential for corporations to escape regulatory standards at the domestic level unless the regulation occurs higher up, at a global level.

67 *Ibid*. at 168.
68 *Supra* note 5 at 17-18.
69 *Supra* note 60 at 87.
70 *Supra* note 39 at 506.
71 *Ibid*.

## V. DISCUSSION

Today, when issues similar to those of the *Trail Smelter* case occur, the number of legal concerns is far greater than in 1941. Given advances in corporate law, questions such as where the company was incorporated, whether the company is a subsidiary and how closely the subsidiary is connected to the parent company become very relevant. Further, given the international nature of many corporations, we must also look at any investment treaties that may have been signed between two involved countries, and any soft law principles that may exist. The rise of multinational corporations has resulted in uncertainty over "the obligation of the home state to ensure that its multinational corporations comply with environmental standards in the host states, particularly if these standards are in accordance with emerging international environmental law."[72] The rise in corporate power has enabled corporations to escape strict environmental standards in the developed world in favour of lower production costs in the developing world.

The market economy was once praised as the solution to poverty. Development theorists advanced the idea that liberal market capitalism and good governance were the answer to global poverty; the World Bank and the International Monetary Fund agreed with this idea, and a number of policies were put in place to increase market capitalism in the developing world.[73] With the advance of the global market economy came the rise of multinational corporations and globalization:

> Globalization is perceived as being both a threat and a promise. The promise is seen in the rising prosperity experienced by many rich and poor countries alike in the aftermath of international linkages. The threat is the growing perceptions, by nations and individuals, that no longer can we control our way of life.[74]

The fear of losing control is often shrouded in the race-to-the-bottom theory. The theory rests on the idea that as competition to attract foreign investment dollars increases, the incentive for regulation decreases. The more power foreign investment dollars have over the type and amount of regulation that is enacted, the less control nations have over governing their citizens. The race-to-the-bottom theory can affect all types of regulation, from human rights regulation to environmental regulation.

Environmental regulation is of particular interest at this time as, unlike human rights regulation, there is no current consensus as to what constitutes "fundamental environmental rights." There may be an emerging idea of what constitutes pollution; however, the degree of acceptable pollution varies throughout the world. This problem creates

72 *Supra* note 16 at 180.
73 David Potter, "Democratization, 'Good Governance' and Development" in Tim Allen & Alan Thomas eds., *Poverty and Development in to the 21st Century,* (New York: Oxford University Press, 2000) at 375.
74 Oliver F. Williams, *Global Codes of Conduct: An Idea Whose Time Has Come* (Notre Dame, Indiana: University of Notre Dame Press, 2005) at xiii.

greater acceptance of individual states' decisions to pollute. This political reality is out of step with the scientific reality that environmental pollution is a transboundary issue that affects all global states, due to the interconnected nature of global environmental systems. Air pollution is an excellent example of how the effects on one nation can greatly impact all global nations. Currently, our international regime is not equipped to deal with the complexity of environmental degradation. The following sections will highlight these inadequacies.

### 1. Regulating Environmental Harm

Regulation of the environment, and more specifically of the air, is a very complex legal issue. It brings forward a suite of questions including, what is environmental harm? When does a disturbance of the natural environment become harmful? When does environmental harm become transnational harm? Generally, these questions are answered at the state level; however, state-level answers are increasingly seen to be ineffective when dealing with global problems.

Often, environmental questions are political and value laden,[75] and are seen to interfere with state sovereignty. This, along with the reality that environmental harm knows no boundaries, results in the creation of a difficult legal problem. Multinational corporations, much like environmental harm, have become international concerns, as liberal economic theory has transcended state boundaries. Contemporary systems of environmental law are not prepared to deal with the issues raised by environmental degradation. Corporations are built to "treat environmental management as a matter of business acumen, technological innovation, or obedience to regulatory commands."[76] This system of dealing with environmental problems has been critiqued, as it does not "safeguard ecological systems over the long term."[77]

The global inability to react to environmental degradation can be linked to liberal economic market-based thinking. The market system is set up to evaluate success based on economic goals: "[t]his economic rationality both fuels environmental degradation and constrains policy solutions when financial or other 'concrete' grounds to motivate action are seemingly lacking."[78] The market system views environmental resources as "natural assets" and, with capital value provided, they can be exploited and turned into goods.[79] It is this market view which has helped to encourage the race-to-the-bottom, where environmental concerns are seen as external products or liabilities within the system.

---

75 This reality is seen in international environmental movements where concerns of poverty, race, gender and socio-economic equality are commonplace in the debates.

76 Benjamin J. Richardson, "Putting Ethics into Environmental Law: Fiduciary Duties for Ethical Investment" (2008) 46 Osgoode Hall L.J. 1 at 3.

77 *Ibid*.

78 *Ibid*. at 4.

79 *Supra* note 23 at 4.

## 2. Race-to-the-bottom Theory

The regulation of multinational corporations is a controversial issue on the global stage. Generally, regulation occurs at the state level, such that environmental regulation is often seen as a detriment to investment. States that are competing for foreign investment income fear that the pressure to stay competitive means that they must sacrifice citizens' rights to strong environmental regulation.[80] The pressure felt by these states makes it hard to justify policies that may increase the cost of business.[81]

An empirical study that looked at regulatory competition and environmental enforcement measures found that states do, in fact, react to regulatory measures introduced by other states.[82] The study found that states are cognizant of environmental policies enacted by neighbouring and similarly-situated states, and that they react to these policies within their own state.[83] However, this reaction was found to occur as both a race-to-the-top as well as a race-to-the-bottom.[84] These results indicate that there may be a race away from the middle with respect to environmental standards, where states do not want to be out of synchronization with the regulatory levels of other, similarly-situated states.

Another study, conducted to examine race-to-the-bottom theory specifically as it applies to air pollution regulations in the USA, looked at the competitive advantage gained by US states in adopting a low standard in relation to the Clean Air Act.[85] The study found that US states did not embark in a race-to-the-bottom regarding clean air legislation. However, it did indicate that there was value in setting a minimum standard to ensure that a race-to-the-bottom does not occur: "it is possible that in the absence of national minimum standards, some [US] states might still lower their clean air policies below what the USEAP currently requires."[86] The study indicated the power of "green political dynamics" to resist the race-to-the-bottom in US states such as Maine and California.[87] This argument may be seen to support the race-to-the-top theory, but Konisky addresses this hypothesis, and notes that the argument misses the complex nature of state interaction: "states may differ in important respects (e.g., the size and structure of their economies) that may make them more susceptible to race to the bottom behaviour or more likely to engage in race to the top behaviour."[88]

---

80 Robert Chernoman & Ian Hudson, *Social Murder and Other Shortcomings of Conservative Economics,* (Winnipeg Manitoba: Arbeiter Ring Publishing, 2007) at 26.
81 *Ibid*.
82 David M. Konisky, "Regulatory Competition and Environmental Enforcement: Is There a Race to the Bottom?" (2007) 51 American Journal of Political Science 853, at 853-872.
83 *Ibid*.
84 *Ibid*.
85 Matthew Potoski, "Environmental: Clean Air Federalism: Do States Race to the Bottom?" (2001) 61 Public Administration Review 335 at 335-343; *supra* note 42.
86 *Supra* note 8 at 341.
87 *Ibid*. at 339.
88 *Supra* note 6 at 855.

Overall, the two studies support the conclusion that states are responsive to the advancements of other states regarding environmental policies, and that acceptance of a minimum standard helps to increase the potential for a competitive race-to-the-top. Currently, on a global scale, the race-to-the-bottom is more prevalent, as developing nations are more reliant on foreign investment dollars: "[a]cross the world, developing countries in their attempts to attract foreign investment dollars are not supporting labor and are turning a blind eye to environmental protection."[89] Following from Konisky's theory, other academics have made the argument that while the race-to-the-bottom may not be triggered in developed countries, "globalization does indeed trigger a race to the bottom in developing countries."[90] This divided race to both the top and the bottom is resulting in greater global inequality, coinciding with the adoption of global economic liberalization – the same economic liberalization that has lead to the increasing wealth of multinational corporations. Developing nations are thought to be battling for access to the wealth promised from foreign investment stemming from these corporations that now comprise "51 of the top 100 economic entities in the world," including independent states.[91]

Corporations, unlike states, are driven exclusively by a profit motive, and therefore have an interest in doing business at the lowest cost. Competition creates either a race-to-the-bottom, or in some cases a race-to-the-top, but either way competition is premised on a conflict between companies' profit motive and government regulation.[92] It may be that this divide between the race-to-the-top and race-to-the-bottom is premised on a development index based on differences in levels of economic and industrial development. The divide can also be attributed to the uneven bargaining power between rich developed nations and their corporations, and poorer developing economies; these developing economies are often forced to sit at the bargaining table with corporations that have a greater net worth than those of the states themselves. This imbalance often results in corporate policies winning the day. Indeed, "[t]he most fanatical supporters of deregulation are multinational companies, some of which have the power to put pressure for less strict rules or even to challenge government decisions in order to achieve a more lenient, if not deregulated government."[93]

Fewer regulations help in ensuring that profits are maximized. It should be noted that lenient regulation is not just an entry criterion; many multinationals also have an interest, when investing, in ensuring that the lax laws and regulations do not change. Often included as part of bilateral trade agreements is a "freeze" on environmental regulations, to exclude the option for increased regulation in the face of new scientific proof of harm.[94] This strategy often results in states not being allowed to be responsive

89 *Supra* note 22 at 18.
90 Nita Rudra, *Globalization and the Race to the Bottom in Developing Countries, Who Really Gets Hurt?* (UK: Cambridge University Press, 2008) at 3.
91 *Supra* note 80 at 5.
92 Stelios Andreadakis, "Regulatory Competition vs. Harmonization: Is There a Third Way?" (2009) 6 International and Comparative Corporate Law Journal 41 at 43-46.
93 *Ibid*. at 44.
94 *Supra* note 16 at 180.

to new environmental concerns, thus freezing the race at the bottom.

Currently, a global race-to-the-bottom is occurring in relation to environmental concerns. Research has shown that the imposition of minimum standards helps to facilitate a race-to-the-top. Binding global environmental standards have the ability to stop the race-to-the-bottom, empower developing nations to stand up to multinational corporations, and perhaps move us collectively towards a truly global race-to-the-top.

### 3. A New International Approach

Given the complex reality involved in governing environmental concerns and the current race-to-the-bottom phenomenon, the question then becomes: how do we regulate multinationals? I propose that instead of seeing multinational corporations and environmental regulation as divergent concepts, we ought to use the stateless commonality of these ideas to create comprehensive regulation. Historically, environmental harms have been dealt with through trade restrictions or international agreements.[95] Both of these options still deal with the regulation of individual states. By looking at the issue from another view, which recognizes the harm or the environmental issue as the starting point, perhaps we can develop a more effective solution. If the international community were to view these problems at the issue level, then stateless corporations might not be able to avoid regulation. If there were consensus on how to govern the issue, then regardless of where a corporation was situated, they would be governed. Multinational corporations are unique entities in that they have the ability to escape domestic law by racing to the bottom; however, a system that takes into account the global nature of these firms may help to address global environmental problems.

The next issue becomes one of compliance. This is an issue that is not new to international law scholars, and there is an overwhelming sentiment that the way we think about international law needs to be challenged. Academics have recognized the difficulty in moving forward with global regulation and thinking:

> To achieve the necessary international consensus, governments will need to rely on a fresh supply of intellectual capital generated either internally or in universities and think tanks. New negotiating tools and techniques may be required as well as more robust institutions and approaches to the resolution of conflict. In effect, the next decade is likely to see a major reconsideration of the design, content and techniques of the international trade regime.[96]

How can we create agreement at the international level? Joyner suggests that this can

95 Andrew P. Morriss & Roger E. Meiners, "Borders and the Environment" (2009) 39 Environmental Law 141 at 144.
96 Michael Hart, "Coercion or Cooperation: Social Policy and Future Trade Negotiations" (1994) 20 Canada-United States Law Journal at 24.

be done with the creation of transnational partnerships that are issue focused.[97] These issue-based partnerships would be charged with solving an environmental problem and would be funded by the various stakeholders: governments, intergovernmental organizations, non-governmental organizations and multinational corporations.[98] Provided that funding is adequate, and legally binding solutions are created, transnational interest coalitions may be the best solution we have for dealing with global environmental problems. It is important to note the presence of multinational corporations within the list of stakeholders: "given the power of multinationals, individually and collectively, these firms incur and increase responsibility for systemic results."[99] Encouraging the presence of these actors will help to ensure that binding agreements are created. It is important to ensure that these actors are present from the start of the process, and that the players are equal, so that fair regulation results from the process. Creating global environmental regulations on air pollution will "raise the bottom." A rise in the global minimum standards may help to foster a race-to-the-top and will ensure that states seeking foreign investment can bargain on a level playing field while ensuring global environmental protection.

## CONCLUSION

Race-to-the-bottom theory implies that as states compete for foreign investment dollars, they reduce their environmental and/or human rights regulations in order to increase their competitiveness. Studies have shown that globally, in response to environmental standards, there is a race-to-the-top among developed nations and a race-to-the-bottom among developing states. Sulphur dioxide legislation provides a good example of this divide, as developed nations have taken action to increase regulation while many developing and transitional economies are lagging behind. Globalization has increased the mobility of smelting corporations and has resulted in increased investments in developing nations that are not parties to international conventions dealing with $SO_2$ emissions. Due to the disparity in regulatory action, the global problem of $SO_2$ emission has been found to shift from developing countries to developed countries. This shift highlights the race-to-the-bottom, and results in an overall negative effect, given the transboundary nature of air pollution. International agreements, through the creation of issue-focused coalitions made up of various stakeholder groups, including multinationals, is necessary to ensure that global governance of the commons is achieved. Coalitions must seek to achieve solutions that are legally binding and that will "raise the bottom" so that all incentives are taken out of the race.

97 Christopher C. Joyner, "Rethinking International Environmental Regimes: What Role for Partnership Coalitions?" (2005) 89 Journal of International Law & International Relations 1 at 15.
98 *Ibid*. at 15.
99 *Supra* note 22 at 15.