

2013

Solving "The Gravest Natural Resource Shortage You've Never Heard Of": Applying Transnational New Governance to the Phosphate Industry

Chelsae R. Johansen

Follow this and additional works at: <https://scholarship.law.vanderbilt.edu/vjtl>



Part of the [Transnational Law Commons](#)

Recommended Citation

Chelsae R. Johansen, Solving "The Gravest Natural Resource Shortage You've Never Heard Of": Applying Transnational New Governance to the Phosphate Industry, 46 *Vanderbilt Law Review* 933 (2021)
Available at: <https://scholarship.law.vanderbilt.edu/vjtl/vol46/iss3/5>

This Note is brought to you for free and open access by Scholarship@Vanderbilt Law. It has been accepted for inclusion in Vanderbilt Journal of Transnational Law by an authorized editor of Scholarship@Vanderbilt Law. For more information, please contact mark.j.williams@vanderbilt.edu.

Solving “The Gravest Natural Resource Shortage You’ve Never Heard Of”: Applying Transnational New Governance to the Phosphate Industry

ABSTRACT

Experts believe that global reserves of phosphates, an essential and irreplaceable ingredient in fertilizers, will only last another fifty to one hundred years. Although the consequences of a phosphate shortage include a global famine and decreased world population, the phosphate industry today operates with little concern for sustainable mining and use of the resource. Because the current system of international governance is neither raising awareness of the looming phosphate shortage nor incentivizing phosphate-industry members to act sustainably, the future of phosphates and of food security depend on a decentralized system of internal industry governance known as Transnational New Governance. This Note analyzes the current regulatory framework before walking through the barriers and steps in industry adoption and implementation of the Transnational New Governance scheme.

TABLE OF CONTENTS

I.	INTRODUCTION	934
	A. <i>The Global Phosphate Trade</i>	938
	B. <i>An Impending Shortage</i>	938
III.	TRANSNATIONAL NEW GOVERNANCE AS A REGULATORY FRAMEWORK FOR PHOSPHATES	940
	A. <i>How Current Policies Are Failing</i>	940
	1. An Underlying Lack of Concern	941
	B. <i>Transnational New Governance as a Solution</i> .	947
	1. An Introduction to Transnational New Governance	948
IV.	CAN THE TRANSNATIONAL NEW GOVERNANCE FRAMEWORK APPLY TO THE PHOSPHATE INDUSTRY?	952

A.	<i>Drawing upon Existing Applications of the Model</i>	953
B.	<i>Challenges Specific to the Phosphate Industry</i>	955
V.	IMPLEMENTING THE TRANSNATIONAL NEW GOVERNANCE FRAMEWORK IN THE PHOSPHATE INDUSTRY.....	960
A.	<i>Initiating Collective Standard Setting</i>	960
B.	<i>Hitting the Threshold Number of Private Actors</i>	963
C.	<i>Ensuring Proper Levels of Compliance</i>	966
VI.	CONCLUSION.....	967

I. INTRODUCTION

Environmental scientists believe that global production of phosphates, an essential nutrient for fertilizer and food production, will not meet demand within forty years, leading experts to call the future of phosphates “the gravest natural resource shortage you’ve never heard of.”¹ Despite the threat of a phosphate shortage, which would lead to increased global hunger,² the countries and corporations involved in the phosphate industry operate under little concern for phosphate sustainability.³ The global lack of concern for a phosphate shortage stems from the industry’s shortsightedness,⁴ scientific uncertainty and debate around the time frame of a phosphate shortage,⁵ and existing industry arrangements, which are incompatible with the natural phosphorus cycle.⁶

Operating with little regard for the looming phosphate shortage, the countries and private firms that control the resource focus mostly

1. See James Esler & Stuart White, *Peak Phosphorus*, FOREIGN POL’Y (Apr. 20, 2010), http://www.foreignpolicy.com/articles/2010/04/20/peak_phosphorus?page=0,0 (relying on analysis from scientists at the Global Phosphorus Research Initiative).

2. Dana Cordell & Stuart White, *Peak Phosphorus: Clarifying the Key Issues of a Vigorous Debate About Long-Term Phosphorus Security*, 3 SUSTAINABILITY 2027, 2036 (2011); see also Esler & White, *supra* note 1 (“If we fail to meet this challenge [to adopt sustainable practices in the phosphate industry], humanity faces a Malthusian trap of widespread famine on a scale that we have not yet experienced.”).

3. See Dana Cordell, Jan-Olof Drangert & Stuart White, *The Story of Phosphorus: Global Food Security and Food for Thought*, 19 GLOBAL ENVTL. CHANGE 292, 301 (2009) (stating that “global phosphate scarcity is missing from the dominant debates on global food security and global environmental change”).

4. See *id.* (explaining that decision makers are only looking five to ten years into the future).

5. Cordell & White, *supra* note 2, at 2033–34.

6. See Cordell, Drangert & White, *supra* note 3, at 301 (referring to this problem as “phosphate’s lack of fit between ecosystems and institutions”).

on maximizing their short-term economic welfare.⁷ This focus on the short-term incentivizes firms and governments on both the phosphate-importing and phosphate-exporting sides to resist regulations governing phosphate sustainability and to avoid adopting sustainability measures.⁸ Although international organizations, including the United Nations and the World Trade Organization (WTO), have imposed orders to facilitate the phosphate trade, phosphate-controlling entities have challenged and ignored such nonbinding policies.⁹

Given the failure of the current governance system to adequately regulate sustainable phosphate supplies, this Note argues that the future of phosphate depends on a system of internal governance known as Transnational New Governance. Transnational New Governance is a decentralized form of regulation that replaces the traditional regulator, the state, with a variety of industry actors and nongovernmental organizations (NGOs) that adopt and enforce business norms throughout a supply chain.¹⁰ The model's success in the phosphate industry depends on the participation of phosphate-mining firms, phosphate-fertilizer manufacturers, and farmers, as well as peripherally interested parties, such as banks, investors, and NGOs concerned with the social and environmental effects of the phosphate industry.

Under the Transnational New Governance model for the phosphate industry, the World Wildlife Fund (WWF), a strong advocate and past initiator of the Transnational New Governance model in other industries,¹¹ should invite phosphate-industry actors and interested NGOs to a roundtable meeting. At the roundtable, the parties collectively should set sustainability standards for phosphate-mining firms, phosphate-fertilizer manufacturers, and farmers. After the meeting, industry actors could adopt the agreed-upon sustainability standards and, later, ask an NGO to verify that the firms have met the standards and grant official "sustainable

7. See David Laibson, *Golden Eggs and Hyperbolic Discounting*, 112 Q.J. ECON. 443, 445–46 (1997) (explaining the phenomenon of hyperbolic discounting, which causes firms to value present-day benefits over future benefits).

8. See Richard B. Stewart, *Environmental Regulation and International Competitiveness*, 102 YALE L.J. 2039, 2054–56 (1993) (describing the rationales that guide players that operate in international environmental industries).

9. See *infra* Part III.A.2 (walking through UN and WTO regulations and decisions and examining their lack of success).

10. Kenneth W. Abbott & Duncan Snidal, *Strengthening International Regulation Through Transnational New Governance: Overcoming the Orchestration Deficit*, 42 VAND. J. TRANSNAT'L L. 501, 505–06 (2009).

11. Helen van Hoeben, *Balancing the Earth's Budget*, Q. UPDATE FIN. INSTITUTIONS, WWF MARKET TRANSFORMATION, Apr. 2010, at 1 (describing the WWF's Market Transformation Program, in place in the palm oil, soy, cotton, timber, and seafood industries, among others).

phosphate” certification.¹² The roundtable participants should then require that sustainable-phosphate-certified industry members *only* deal with other certified members across the supply chain. The requirement would create a demand for the certification in the industry and motivate other firms to seek sustainable phosphate certification.¹³ The result should be a system of decentralized governance that harnesses sustainability and human rights concerns in the phosphate industry and creates strong incentives for sustainability throughout the phosphate-fertilizer supply chain.

The global phosphate industry shares many features with industries that have already adopted the Transnational New Governance model, including dependence on various actors across a supply chain,¹⁴ opportunities to improve sustainability at each step in the production chain,¹⁵ and industry actors’ sensitivity to reputational threats.¹⁶ These parallels suggest that the phosphate industry can conform to the model. However, the phosphate industry also comes with unique problems that are unparalleled in existing applications of the Transnational New Governance model. Most significantly, phosphate reserves and the demand for phosphate fertilizer are distributed in a way that may allow for three countries, China, the United States, and Morocco, to exclude themselves from the Transnational New Governance scheme.¹⁷ However, the countries will likely not seize upon the possibility for self-exclusion because of their concern for their reputations,¹⁸ a growing awareness of the impending phosphate shortage,¹⁹ and pressure from the

12. This requirement is copied from a similar requirement in the Roundtable on Sustainable Palm Oil. See *How To Be RSPO Certified*, ROUNDTABLE ON SUSTAINABLE PALM OIL, http://www.rspo.org/en/how_to_be_rspo_certified (last visited Apr. 10, 2013).

13. See *Benefits of Certification*, ROUNDTABLE ON SUSTAINABLE PALM OIL, http://www.rspo.org/en/benefits_of_certification (last visited Apr. 10, 2013) (explaining the benefits of sustainability certification in a Transnational New Governance model).

14. Keith Syers et al., *Phosphorus and Food Production*, 2011 U.N. ENVTL. PROGRAMME Y.B. 35, 36 fig.1, U.N. Doc. UNEP/GC.26/INF/2, available at http://www.unep.org/yearbook/2011/pdfs/phosphorus_and_food_production.pdf.

15. See *id.* at 41–43 (describing sustainability steps that can be taken at each supply-chain level).

16. See *No More Mosaic Phosphate Imports from Western Sahara*, W. SAHARA RESOURCE WATCH (Aug. 26, 2010, 9:10 AM), http://www.wsrw.org/index.php?parse_news=single&cat=105&art=1568 [hereinafter *No More Mosaic*] (giving an example of a firm that changed its illegal practices after they were recognized by the Western Sahara Research Watch (WSRW)).

17. U.S. Geological Survey [USGS], *Phosphate Rock*, 2011 MIN. COMMODITY SUMMARIES 118, available at http://minerals.usgs.gov/minerals/pubs/commodity/phosphate_rock/mcs-2011-phosp.pdf.

18. See *No More Mosaic*, *supra* note 16 (illustrating that U.S. firms have changed their illegal practices because of a concern for reputation).

19. See *infra* Part III.B.2 (discussing growing concerns over an impending phosphate shortage); see also Tim Loughheed, *Phosphorus Paradox: Scarcity and Overabundance of a Key Nutrient*, 119 ENVTL. HEALTH PERSP. A208, A209 (2011)

Transnational New Governance leaders in the global phosphate industry.²⁰

Part II provides background information on phosphates' role in the global marketplace and describes the outlook on global supplies. Part III explains why the current system of phosphate regulation has failed to produce sustainability solutions and argues that Transnational New Governance can organize fears of the shortage into industry-wide sustainability regulations. Part IV draws parallels between the existing applications of the Transnational New Governance model and the global phosphate industry, explores the unique challenges the phosphate industry presents to the model, and concludes in an explanation of what the model would look like for the phosphate industry. Finally, Part V walks through each step in the Transnational New Governance model, tracing how it should be applied to the phosphate industry.

II. PHOSPHATES AS A NECESSARY RESOURCE

Phosphorus is one of the three nutrients required in large quantities for plant growth.²¹ Low natural levels of phosphorus in soils historically limited global food production and, thus, global population.²² However, during the Green Revolution in the 1950s, people began mining phosphate rock, a nonrenewable resource found in underground deposits, to create phosphate fertilizers.²³ When added to soils, the phosphate fertilizers increased soil yields.²⁴ Geologist Dale Allen Pfeiffer suggests that use of phosphate fertilizers during the Green Revolution directly allowed Earth to support five billion more people than its natural carrying capacity.²⁵

(showing that President Franklin D. Roosevelt was concerned about American interests in phosphates as early as 1938).

20. Jason Clay, Senior Vice President of Market Transformation, World Wildlife Fund, Address at TEDGlobal Convention: How Big Brands Can Help Save Biodiversity (July 2010), available at http://www.ted.com/talks/jason_clay_how_big_brands_can_save_biodiversity.html (explaining how CEOs can "twist the arms" of industry players in the New Governance model to promote industry sustainability).

21. Cordell, Drangert & White, *supra* note 3, at 292.

22. Esler & White, *supra* note 1.

23. *Id.*

24. *Id.*

25. DALE ALLEN PFEIFFER, EATING FOSSIL FUELS 9–10 (2006); see also Esler & White, *supra* note 1 (explaining that phosphates made it possible to increase the global population by 4.2 billion).

A. *The Global Phosphate Trade*

Phosphate reserves are found in thirty-five countries,²⁶ including Algeria, Australia, Brazil, Canada, Egypt, Israel, Russia, Senegal, and Tunisia.²⁷ However, the vast majority of phosphate reserves are found in only a few countries: Morocco, the United States, Algeria, China, Russia, Syria, South Africa, and Jordan.²⁸ Morocco alone contains an estimated 85 percent of phosphate reserves,²⁹ making the country the “Saudi Arabia of phosphorus.”³⁰

Since farmers around the world depend on phosphates, a global phosphate trade has developed around the redistribution of the resource, with about thirty million tons of phosphate moving across the world in 2010.³¹ Chief exporters include Russia and Morocco, while chief phosphate importers include Latin American countries.³²

B. *An Impending Shortage*

Since phosphate rock is a nonrenewable resource,³³ there is no known substitute that can replace phosphorus’s key role in agriculture,³⁴ and “end of pipe” phosphate-recycling programs are economically unfeasible,³⁵ the world must rely only upon existing reserves. However, the limited size of existing reserves, combined with global phosphate demand, suggests that a phosphate shortage is on the way.³⁶

From the supply side, there is debate over how long remaining phosphate reserves will last.³⁷ Estimates generally range from fifty to one hundred years,³⁸ although, in an arguably flawed study,³⁹ the

26. *Phosphorus and Food Production*, *supra* note 14, at 36.

27. USGS, *supra* note 17, at 119.

28. *Id.*

29. *Id.*; cf. David A. Vaccari, *Phosphorus Famine: The Threat to Our Food Supply*, SCI. AM., June 3, 2009, <http://www.scientificamerican.com/article.cfm?id=phosphorus-a-looming-crisis> (estimating only 40 percent of reserves are found in Morocco).

30. Vaccari, *supra* note 29.

31. *Production and Trade Statistics*, INT’L FERTILIZER INDUSTRY ASS’N, <http://www.fertilizer.org/ifa/HomePage/STATISTICS/Production-and-trade> (last updated Feb. 15, 2012).

32. *Id.*

33. J.J. SCHRODER ET AL., PLANT RESEARCH INT’L, REP. NO. 357, SUSTAINABLE USE OF PHOSPHORUS 3 (2010).

34. Keith Syers et al., *supra* note 14, at 35.

35. See SCHRODER ET AL., *supra* note 33, at 4 (reporting that “in the end only efficiencies close to 100% will make the use of phosphorus sustainable,” yet these necessary efficiencies do not seem realistic).

36. Cordell, Drangert & White, *supra* note 3, at 301 (“[A] global phosphate scarcity crisis is imminent . . .”).

37. DANA CORDELL, THE STORY OF PHOSPHORUS: SUSTAINABILITY IMPLICATIONS OF GLOBAL PHOSPHORUS SCARCITY FOR FOOD SECURITY 36 (2010).

38. *Id.*

International Fertilizer Development Center predicts reserves will last much longer.⁴⁰ Furthermore, policy constraints limit how much phosphate may be mined from a given reserve and traded on the global market. In Florida, for example, a federal court enjoined operations at one of the United States' largest phosphate mines after the Sierra Club challenged its permit to mine near wetlands.⁴¹ In China, the government levied high tariffs on its phosphate exports, effectively removing these phosphates from the global markets.⁴² On a global scale, two UN orders deter corporations and countries from importing phosphates from the Western Sahara, where Morocco exploits resources.⁴³

Furthermore, the demand for phosphates is expected to rise as the world population grows and global demands for food increase.⁴⁴ Additional demands on phosphate reserves are expected to come from the developing biofuel industry and from a wealthier average world population that consumes more meat, requiring more phosphate inputs per consumable calorie compared to a plant-based diet.⁴⁵

This Note accepts that, regardless of the exact date of depletion of phosphate reserves, phosphate is a nonrenewable resource that will run out. Something needs to be done to manage phosphate resources because phosphate is a limiting factor in the multiplication of human population⁴⁶ and a shortage will have severe consequences even at current population levels. Studies suggest that a fertilizer-free plant could not sustain the current global population.⁴⁷ In 2008,

39. Scholars have heavily criticized the International Fertilizer Development Center (IFDC) study, arguing that it may be economically infeasible to mine many of the phosphate reserves that the IFDC accounts for because of low phosphorus concentrations, increasingly difficult physical access, and impurities. Lougheed, *supra* note 19, at A213; Dana Cordell, Stuart White & Tom Lindstrom, *Peak Phosphorus: The Crunch Time for Humanity*, SUSTAINABILITY REV. (Apr. 4, 2011), <http://www.thesustainabilityreview.org/2011/04/04/peak-phosphorus-the-crunch-time-for-humanity/>.

40. *Phosphorus and "Peak Phosphate,"* INT'L FERTILIZER INDUSTRY ASS'N, <http://www.fertilizer.org/ifa/HomePage/SUSTAINABILITY/Phosphorus-peak-phosphate> (last visited Apr. 10, 2013).

41. David Guest, *Florida's Strip Mine Strong Arm*, EARTHJUSTICE, <http://earthjustice.org/features/florida-s-strip-mine-strong-arm> (last visited Apr. 10, 2013); see also Mosaic Co., Annual Report (Form 10-K) 34–35 (July 17, 2012) (discussing the risk caused by Mosaic's dependence on permits from government agencies).

42. Panel Report, *China—Measures Related to the Exportation of Various Raw Materials*, WT/DS394/R (July 5, 2011).

43. See Esler & White, *supra* note 1 (Describing the Western Sahara as "a disputed independent territory that is occupied by Morocco and the site of growing international human rights concerns").

44. *Id.*

45. Cordell, Drangert & White, *supra* note 3, at 294.

46. Lougheed, *supra* note 19, at A212.

47. See PFEIFFER, *supra* note 25, at 7–8, 46 (describing how the use of fossil-fuel-based fertilizers, among other technologies, led to the Green Revolution and

a phosphate shortage led to a rise in fertilizer prices, which contributed to higher food prices and caused food riots in forty countries.⁴⁸ Other consequences of a phosphate shortage include increased geopolitical tensions resulting from a lack of food security and increased global hunger.⁴⁹

III. TRANSNATIONAL NEW GOVERNANCE AS A REGULATORY FRAMEWORK FOR PHOSPHATES

Due to scientific uncertainty surrounding the timeline of a phosphate shortage, actors in the phosphate industry have not yet identified the inevitable phosphate shortage as a pressing concern.⁵⁰ Thus, industry actors operate with little concern for using phosphate sustainably, and international organizations, including NGOs, the United Nations, and the WTO, have been unsuccessful in regulating the phosphate industry thus far. This Part identifies the fatal flaws in current phosphate policy before suggesting a new form of governance for the industry.

A. How Current Policies Are Failing

Regulation in the phosphate industry is currently based on International Old Governance.⁵¹ International Old Governance relies on intergovernmental organizations (IGOs), such as the United Nations, which are tasked with creating regulations to govern international behavior and transposing those regulations on institutions.⁵² However, the nonbinding nature of International Old Governance regulations,⁵³ combined with a lack of concern around the impending phosphate shortage, have been ineffective in ensuring sustainable and ethical practices in the global phosphate industry. This subpart outlines the flaws in current international phosphate policy, illustrating the need for a solution outside the boundaries of International Old Governance.

availability of crops to sustain the growing population, while a reduced use of fertilizer has been shown to result in decreased crop yield).

48. Esler & White, *supra* note 1.

49. Cordell & White, *supra* note 2, at 2036.

50. *Id.* at 2029.

51. See Abbott & Snidal, *supra* note 10, at 533 (describing the features of Old Governance).

52. *Id.* at 533–34.

53. *Id.*

1. An Underlying Lack of Concern

Global food security is a widely recognized concern,⁵⁴ and there is a consensus that the world depends on phosphates for food production,⁵⁵ yet world actors have not yet identified limited phosphate reserves as a global concern.⁵⁶ As of 2009, "phosphorous scarcity ha[d] not received any explicit mention within official reports of the UN's Food and Agricultural Organization, the International Food Policy Research Institute, the Millennium Ecosystem Assessment, the Global Environmental Change and Food Systems programme, [or] the International Assessment of Agricultural Knowledge, Science and Technology for Development . . ." ⁵⁷ While a focus on more immediate problems may explain the lack of attention world actors are paying to the impending phosphate shortage,⁵⁸ other unique aspects of global phosphates reserves also contribute to this lack of recognition.⁵⁹

Uncertainty regarding the timeframe of a phosphate shortage is the primary reason key decision makers have ignored the problem.⁶⁰ The uncertainty stems from a lack of consensus on key issues surrounding the supply of phosphate reserves and the future demand for phosphate.⁶¹ The most heavily debated issue is the long-term availability of phosphate reserves.⁶² The fact that reserves are underground makes it technologically infeasible to accurately predict their size.⁶³ Even when reserves are estimated, these estimates often are unreliable because scientists responsible for collecting data are tied to a specific country's government, and thus lack both independence and accountability.⁶⁴ There is additional uncertainty surrounding parameters that will affect the future demand of phosphate, including population growth, changing dietary

54. See Cordell, Drangert & White, *supra* note 3, at 294 (discussing a global commitment to decreasing world hunger).

55. Cordell & White, *supra* note 2, at 2028.

56. Cordell, Drangert & White, *supra* note 3, at 294.

57. *Id.* at 301 (citations omitted).

58. *Id.* (explaining that decision makers are only looking five to ten years into the future).

59. See Cordell & White, *supra* note 2, at 2029, 2032–34 (walking through the uncertainties surrounding phosphates).

60. *Id.* at 2029.

61. See *id.* (explaining the nature of some of the disagreements surrounding the phosphorous industry).

62. See *id.* (noting that arguments concerning the future availability of phosphate form the core of most arguments about the future of phosphorous).

63. See *id.* at 2033–34 (noting the many difficulties that impede accurate estimates of existing phosphorous supplies, including the subterranean nature of most reserves).

64. See *id.* at 2034 (noting that countries have been known to manipulate their reserve estimates for political reasons and have discretion over whether commercial firms must disclose collected data).

preferences, increasing demand for biofuels and electric vehicle batteries, and farmland development in phosphorus-deficient regions.⁶⁵ Wide variations in predictions of these long-term trends further complicate estimates of the life of phosphate reserves.

Another reason that the looming phosphate shortage has been overlooked is phosphates' "lack of fit between ecosystems and institutions," meaning that the resource is relevant to various global sectors, but plays different roles in each one.⁶⁶ While phosphates are scarce commodities in the agricultural sector, they are a pollutant in the wastewater sector.⁶⁷ Phosphates' "lack of fit between ecosystems and institutions" makes finding a solution to the impending global shortage more difficult because it must be integrated through sectors that see the resource in different lights.⁶⁸ And since phosphate-sustainability solutions are integrated, yet peripheral, to each sector, no one sector is willing to take on the responsibility to address the issue.⁶⁹

Operating under a lack of concern for the impending phosphate shortage, the countries and private firms that control the phosphate trade seek primarily to maximize their own economic welfare in the short-term. Behavioral economics predicts that firms value the present more than the future, and studies confirm that phosphate producers are only looking five to ten years into the future.⁷⁰ Under the hyperbolic discounting theory, firms are more likely to choose a smaller-sooner reward than a larger-later reward because they excessively discount future rewards.⁷¹ Applied to the phosphate industry, the theory predicts that firms are unlikely to adopt sustainability measures because doing so would be costly in the short-term, and only beneficial in the long-term.

65. See *id.* at 2033 (listing some of the factors that contribute to phosphorus demand).

66. See Cordell, Drangert & White, *supra* note 3, at 301 (quoting Int'l Human Dimensions Programme on Global Env'tl. Change [IHDP], *The Problem of Fit Between Ecosystems and Institutions* (IHDP Working Paper No. 2, 2002)) (internal quotation marks omitted) (noting the lack of phosphorous-related communication among the different ecosystems in which phosphorous plays a role, and arguing that this lack of communication hinders attempts to recognize and address the problem).

67. See *id.* (noting the differing roles phosphorous plays in the agricultural and sanitation worlds).

68. See *id.* at 301-02 (quoting IHDP, *The Problem of Fit Between Ecosystems and Institutions* (IHDP Working Paper No. 2, 2002)) (internal quotation marks omitted) (explaining why coordinating industries with different viewpoints is both a necessary and a difficult part of addressing the phosphorous issue).

69. See *id.* (noting the lack of incentives faced by individual sectors to address the phosphorous problem).

70. See *id.* at 301 (indicating that those charged with making decisions in this area tend to look no further ahead than the next decade).

71. See Laibson, *supra* note 7, at 445-46 (explaining the basic notion of a hyperbolic discount function).

Phosphate-exporting countries, most of which are part of the developing world,⁷² are focused on producing more exports at a lower cost.⁷³ Less expensive exports attract private firms to invest in operations, boosting the economies of these developing countries.⁷⁴ Because environmental regulations and sustainability measures are costly to implement, they work against developing countries' short-term economic goals.⁷⁵ Accordingly, phosphate-exporting countries are not willing to implement sustainability measures and have strongly resisted manufacturing regulations, fearing the regulations will strip them of any comparative cost advantage.⁷⁶ In Morocco, for example, the government agency that controls phosphates, the Office Cherifen des Phosphates (OCP), states in its comprehensive plan that it looks to double 2008 levels of phosphate production by 2015 through development of four new mines in areas with high-grade phosphate reserves and to decrease costs through construction of a new slurry pipeline.⁷⁷ OCP's comprehensive plan contains no specific strategies to improve sustainability or longevity of the resource.⁷⁸

Phosphate-importing countries also do not naturally demand that phosphate-exporting countries mine sustainably.⁷⁹ An importing country benefits from the lower prices of unsustainably mined phosphates.⁸⁰ Furthermore, importing countries do not incur the negative externalities of the lax environmental regulations⁸¹ because, in the case of phosphates, the negative environmental effects of mining are limited to the exporting countries.⁸² And while,

72. See USGS, *supra* note 17, at 119 (listing data from phosphorous-producing countries).

73. See Stewart, *supra* note 8, at 2044 (noting that producers generally desire increased production and lower production costs).

74. See *id.* at 2044–45 (discussing the interplay between nations with strict product standards and those with lax standards).

75. See *id.* (discussing the effects of stringent regulations in countries within the various development stages).

76. See Katherine Van Wezel Stone, *To the Yukon and Beyond: Local Laborers in a Global Labor Market*, 3 J. SMALL & EMERGING BUS. L. 93, 105–06 (1999) (explaining developing countries' resistance to a WTO proposal that would have protected labor rights in the world trade regime).

77. See 1 INT'L BUS. PUBL'NS, USA, MOROCCO MINING LAWS AND REGULATIONS HANDBOOK 43 (2011) (describing the objective to "increase production capacity of phosphates and derivatives through major investment programs of the OCP and securing business opportunities through developing partnerships and commercial contracts of long duration").

78. See *id.* (lacking any mention of specific sustainability practices).

79. See Stewart, *supra* note 8, at 2055 (describing the tragedy of the commons as applied to natural resources).

80. See *id.* (discussing the costs of adopting more stringent environmental standards, thereby implying the benefits of laxer standards).

81. See *id.* (discussing how countries that implement stringent standards tend to bear all the costs of those standards).

82. See Syers et al., *supra* note 14, at 41 (demonstrating that phosphate mining can damage the environment around the mine itself).

collectively, phosphate-importing nations should be interested in conserving the resource through sustainable mining practices, a classic collective-action problem known as the tragedy of the commons predicts that a single nation will not demand sustainability.⁸³ The tragedy of the commons scenario explains that a phosphate-importing country is deterred from demanding sustainable phosphate imports because it would bear the costs of the regulation while all nations would reap the benefits of longer lasting phosphate reserves.⁸⁴

Finally, private firms on both the phosphate-importing and phosphate-exporting sides are unlikely to implement or demand sustainability measures in the phosphate industry. Phosphate-importing firms are discouraged from imposing sustainability restrictions on exporting firms because they directly benefit from a lack of restrictions, which leads to lower prices and higher production levels, at least in the short-term.⁸⁵ Furthermore, a phosphate-exporting company is unlikely to internalize the environmental costs of its business on its own accord⁸⁶ because of pressure from poor citizens in developing countries.⁸⁷ The citizens view environmental quality as an unnecessary luxury⁸⁸ and demand that economic activity continue regardless of negative environmental externalities.⁸⁹

Thus, an effective solution to the impending phosphate shortage must (1) account for the uncertainty surrounding the timeline of a phosphate shortage and (2) overcome the phosphate industry's natural incentive to resist sustainability measures. Proposed solutions from IGOs and NGOs do neither. Their solutions urge firms to implement sustainability measures without giving the firms any incentive or reason to change their current, unsustainable practices.⁹⁰

83. See Stewart, *supra* note 8, at 2055 (explaining the tragedy of the commons as applied to environmental regulations).

84. See *id.* (explaining that nations that take action to protect common resources bear the costs of that action without being able to capture much of the benefit).

85. See Michael P. Vandenbergh, *The New Wal-Mart Effect: The Role of Private Contracting in Global Governance*, 54 UCLA L. REV. 913, 963 (2007) (discussing an environment in which companies do not impose restrictions on the companies with which they do business).

86. See *id.* at 919 (listing reasons a resource exporter might not bear the environmental costs of its operations).

87. See Stewart, *supra* note 8, at 2052–53 (explaining that a society's tendency to demand environmental protections tends to increase as the society becomes wealthier).

88. See *id.* (explaining that societies tend to treat environmental protections as luxuries rather than basic necessities).

89. See Vandenbergh, *supra* note 85, at 919 (noting that a country's citizens might prioritize economic activity over environmental protections).

90. The *UN Yearbook*, for example, vaguely concluded that the next step towards a solution is "more detailed research" and "an integrated set of policy options." Syers et al., *supra* note 14, at 44.

Predictably, the firms have not adopted the recommended sustainability measures.

i. Limitations of the Current Governance Model

The uneven distribution of a scarce global commodity should demand the attention of the international community.⁹¹ However, international organizations are only beginning to show concern for an impending phosphate shortage and have failed to implement sustainability policies.⁹² IGOs, such as the WTO and the United Nations, have only stepped in to control phosphate trade in instances of fair trade and human rights violations. But because the IGOs do not have enforcement authority, countries have resisted and ignored their regulations.

The WTO may only assert control over the phosphate trade when such regulation is necessary to ensure fair-trade rights. In 2009, the United States, Mexico, and the European Union brought suit against China in a WTO forum.⁹³ The countries claimed that China had restrained exports of phosphates, among other raw materials, through export duties, export quotas, export licensing, and minimum export-price requirements.⁹⁴ The WTO judgment stated that China is prohibited from hoarding resources that the entire world is dependent on because China had not properly demonstrated that it imposed the trade restraints for the sole purpose of conserving raw materials.⁹⁵ However, China continued to impose high tariffs on phosphate exports, effectively removing its phosphates from the global market, while it appealed the decision.⁹⁶

The UN Human Rights Commission's Norms on the Responsibilities of Transnational Corporations and Other Business Enterprises with Regard to Human Rights' requirement that corporations "not engage in nor benefit from . . . violations

91. See Cordell, Drangert & White, *supra* note 3, at 301 (discussing the need to direct international attention towards the phosphorous problem).

92. In 2011, the international community finally brought attention to an impending phosphate shortage when the United Nations published an article outlining the issues surrounding phosphates in its annual *Yearbook*. However, the *Yearbook* vaguely concluded that the next step towards a solution is "more detailed research" and "an integrated set of policy options." Syers et al., *supra* note 14, at 44.

93. Panel Report, *supra* note 42, at 1.

94. *Id.* at 3.

95. See generally *id.* (evaluating China's export restrictions in light of applicable requirements).

96. See *China—Measures Related to the Exportation of Various Raw Materials*, WORLD TRADE ORG., http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds394_e.htm (last visited Apr. 19, 2013) (explaining that in August 2011, China announced its decision to appeal legal interpretations in the panel report rather than comply with the WTO order).

of . . . human rights”⁹⁷ also affects the phosphate trade.⁹⁸ In 1975, the Moroccan government seized control of the Bou Craa phosphate mine⁹⁹ in the Western Sahara, a territory in Western Africa with an unsettled status.¹⁰⁰ Morocco now uses the world’s longest conveyor belt to transport over three million tons of “stolen” phosphates back to Morocco annually.¹⁰¹ While Morocco earns over one billion dollars in phosphate exports from the Western Sahara each year, Western Saharans live in refugee camps and depend on foreign aid for survival.¹⁰² And while the United Nations’ Norms condemn the Western Sahara phosphate exploitation,¹⁰³ the Norms have had little authoritative basis in international law and are not followed.¹⁰⁴

The United Nations has also confronted the human rights issue in the Western Sahara by restricting exportation of phosphates mined in the Western Sahara.¹⁰⁵ However, the UN order is again not legally binding, and shipping companies in China and Turkey, as well as phosphate-fertilizer firms in Columbia, Australia, and the United States, among others, have disregarded the order and continue to import Western Saharan phosphates.¹⁰⁶

Thus, the critical problem with the current system of transnational governance is that no IGO has binding legal authority at the international level.¹⁰⁷ The IGOs’ lack of binding authority will likely not change, as states are unwilling to give up their

97. Comm’n on Human Rights, Sub-Comm. on the Promotion and Protection of Human Rights, 55th Sess., *Norms on the Responsibilities of Transnational Corporations and Other Business Enterprises with Regard to Human Rights*, ¶ 3, U.N. Doc. E/CN.4/Sub.2/2003/12/Rev.2 (Aug. 26, 2003).

98. See *The Phosphate Exports*, W. SAHARA RESOURCE WATCH (July 29, 2011, 2:23 PM), <http://www.wsrw.org/a117x521> (noting the applicability of UN resolutions to Western Saharan phosphate mining).

99. See *id.* (explaining that Morocco invaded the Western Sahara in 1975 and has taken control of the Bou Craa mine).

100. See *The World Factbook: Africa: Western Sahara*, CENT. INTELLIGENCE AGENCY, <https://www.cia.gov/library/publications/the-world-factbook/geos/wi.html> (last visited Apr. 10, 2013) (“A UN-organized referendum on the territory’s final status has been repeatedly postponed.”). This Note does not take into account the possibility that the Western Sahara may become part of Morocco, in which case Morocco’s mining will become completely ethical. Rather, this Note criticizes Morocco’s past and current mining in the Western Sahara, as the territory’s status is unsettled.

101. See *The Phosphate Exports*, *supra* note 98 (discussing Morocco’s mining activities in the Western Sahara).

102. *Id.*

103. *Id.*

104. See Peter Spiro, *John Ruggie and “The Norms,”* OPINIO JURIS (July 28, 2006, 2:04 PM), <http://lists.powerblogs.com/pipermail/opiniojuris/2006-July/000573.html> (discussing the status of the UN Human Rights Commission’s Norms).

105. Esler & White, *supra* note 1.

106. *Id.*; see also W. SAHARA RESOURCE WATCH, <http://www.wsrw.org> (last visited Apr. 10, 2013) (view The “Companies” menu) (listing, by country, every firm that has engaged in illegal phosphate imports from the Western Sahara).

107. See Abbott & Snidal, *supra* note 10, at 534 (discussing the powerlessness of international organizations).

sovereignty.¹⁰⁸ And, as demonstrated in the examples of China's trade order from the WTO and the Western Saharan phosphate-import bans, as long as the IGO regulations are not legally binding, countries will simply ignore them.¹⁰⁹

With no legal authority at the international level, the current system of governance leaves power in the hands of individual governments, which are unlikely to act in the interest of phosphate sustainability.¹¹⁰ However, even if awareness of phosphate scarcity grows and a phosphate-controlling country makes a choice to produce or demand sustainable phosphates, its action probably would be futile. Weak central governments in phosphate-exporting developing countries lack the power to adequately enforce regulations on industry.¹¹¹ And in phosphate-importing countries, demand for sustainable products on a country-by-country basis is probably barred by a WTO regulation that limits the degree to which a country can impose process standards on imports.¹¹² Furthermore, developed countries' unilateral international policy choices that affect developing countries have been characterized as "arrogant, patronizing, paternalistic, and racist."¹¹³

B. *Transnational New Governance as a Solution*

A solution to the phosphate shortage cannot rely on the current system of Old Governance, with its ineffective IGOs and incapable individual governments. Existing proposals have failed to find a different framework for the solution and, therefore, cannot be successful. Thus, this Note looks outside of the framework of International Old Governance and suggests that the phosphate industry turn to the system of Transnational New Governance.

108. See *id.* at 534–35 (elaborating on the role international organizations play).

109. See *id.* at 538 (discussing the incentives developing countries face to not impose or enforce stringent regulation).

110. See *supra* notes 70–84 and accompanying text (explaining the unregulated actions of phosphate-importing and phosphate-exporting governments).

111. See Vandenberg, *supra* note 85, at 919 (discussing various reasons firms in exporting countries might be effectively unregulated).

112. See *id.* at 921 (citing Steve Charnovitz, *The Law of Environmental "PPMs" in the WTO: Debunking the Myth of Illegality*, 27 YALE J. INT'L L. 59 (2002)) (explaining the limitations the WTO places on importers).

113. Abbott & Snidal, *supra* note 10, at 541 (quoting PARLIAMENTARY JOINT STATUTORY COMM. ON CORP. & SEC., REPORT ON THE CORPORATE CODE OF CONDUCT BILL 2000, at 16 (2001) (Austl.), available at http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Committees?url=corporations_ctte/completed_inquiries/1999-02/corp_code/report/report.pdf).

1. An Introduction to Transnational New Governance

Transnational New Governance is a form of private governance that has surfaced as the response to insufficient public regulation of exporting firms' practices.¹¹⁴ It does not depend on the traditional regulatory role of the state.¹¹⁵ Instead, the scheme is administered in a decentralized way, relying on a variety of industry groups and NGOs that work collectively to adopt and enforce business norms.¹¹⁶

The process typically begins when NGOs harness consumer demands and present an industry with a credible threat of either a boycott or a public campaign against firms acting in an undesirable way.¹¹⁷ Alternatively, a private firm may self-impose supply-chain requirements because of pressure from investors or customers, as a preemptive measure to avoid liability or governmental regulation, or out of a desire to secure raw materials in the long run.¹¹⁸ In the late 1980s, for example, media attention on dolphins killed during tuna fishing led to consumer demand for "dolphin-safe" labels on canned tuna.¹¹⁹

Under the Transnational New Governance model, a concerned industry actor next takes the lead to initiate a roundtable that gathers together industry players at all level of the supply chain, as well as peripherally interested parties such as NGOs, banks, and investors.¹²⁰ At the roundtable, participants go through the process of collective standard setting,¹²¹ agreeing upon internal standards to regulate activities.¹²² The collective standards are translated into an industry-wide certification program.¹²³ NGOs independently review the practices of individual industry firms and grant certification to

114. See Vandenberg, *supra* note 85, at 921 (explaining the impetus behind private forms of governance).

115. See Abbott & Snidal, *supra* note 10, at 505–06 (discussing the role the state plays in private governance).

116. See *id.* (discussing the structure of private-governance schemes).

117. Vandenberg, *supra* note 85, at 917 (citing Edward L. Rubin, *Passing Through the Door: Social Movement Literature and Legal Scholarship*, 150 U. PA. L. REV. 1, 5–8 (2001)).

118. See *id.* (listing various reasons a firm might impose standards on its supply chain).

119. See Mario F. Teisl, Brian Roe & Robert L. Hicks, *Can Eco-Labels Tune a Market? Evidence from Dolphin-Safe Labeling*, 43 J. ENVTL. ECON. & MGMT. 339, 355–57 (2002) (summarizing research surrounding the dolphin/tuna controversy).

120. See Abbott & Snidal, *supra* note 10, at 505–07 (discussing the roles played by various actors in the private regulatory process).

121. Collective standard setting is also known as "regulatory standard-setting" and is defined as "the promulgation and implementation of nonbinding, voluntary standards of business conduct in situations that reflect 'prisoner's dilemma' externality incentives . . . rather than coordination network externality incentives." *Id.* at 506–07.

122. Vandenberg, *supra* note 85, at 922.

123. *Id.* at 922–23.

firms that have adopted the standards.¹²⁴ Once certified, an industry member is strongly encouraged to deal only with other certified members across the supply chain; this is the only way to guarantee a sustainable final product for consumers.¹²⁵ Thus, even in the absence of functional public regulation, growing demand for certified goods across the supply chain induces other industry actors to seek certification.¹²⁶

One criticism of the Transnational New Governance scheme is that, because it requires many different actors to play a part, it is difficult to get every party to fulfill its individual role. However, the coexisting systems of firms' reliance on other firms across the supply chain and NGO credibility checks should not just pressure, but also incentivize, all participants to carry out their responsibilities. Furthermore, all parties will do their share if they believe in the Transnational New Governance model.

i. How Transnational New Governance Can Raise and Harness Concerns in the Phosphate Industry

While there is widespread ignorance of an impending phosphate shortage among the phosphate-controlling parties, peripheral and less influential actors have found cause for concern in the phosphate industry. Two NGOs, the International Plant Nutrition Institute¹²⁷ and the Global Phosphorus Network,¹²⁸ are advocates for world-hunger alleviation through sustainable phosphate mining. Other organizations, such as the Western Sahara Research Watch (WSRW),

124. This requirement is based off a similar requirement of the Roundtable on Sustainable Palm Oil (RSPO). See *How To Be RSPO Certified*, *supra* note 12 ("The third party will be a RSPO approved independent certification body. Growers will be assessed for certification once every five years, and if certified, will be annually assessed for continued compliance.").

125. See *id.* ("The principal objective of RSPO is 'to promote the growth and use of sustainable palm oil through co-operation within the supply chain and open dialogue between its stakeholders'").

126. See David Graham & Ngaire Woods, *Making Corporate Self-Regulation Effective in Developing Countries*, 35 *WORLD DEV.* 868, 870 (2006) (citing M. Finnemore & K. Sikkink, *International Norm Dynamics and Political Change*, 52 *INT'L ORG.* 887 (1998)) (describing a "threshold" or "tipping point" at which sufficient numbers of firms have adopted a norm for that norm to be seen "to specify appropriate behavior"); see also *Why Become a Member of RSPO*, *ROUNDTABLE ON SUSTAINABLE PALM OIL*, http://www.rspo.org/en/why_become_a_member_of_rspo (last visited Apr. 10, 2013) (explaining the benefits of certification).

127. *About IPNI*, *INT'L PLANT NUTRITION INST.*, <http://www.ipni.net/about> ("The International Plant Nutrition Institute (IPNI) is . . . dedicated to the responsible management of plant nutrition for the benefit of the human family. . . . Membership . . . is composed of companies that are basic producers of one or more of the major plant nutrients (nitrogen, phosphate, potash, and sulfur) for agricultural purposes.").

128. *GLOBAL PHOSPHORUS NETWORK*, <http://globalpnetwork.net> (last visited Apr. 10, 2013) (proclaiming that "without phosphorus, we cannot produce food").

seek to end exploitation of Western Saharan phosphates.¹²⁹ Environmental groups, including the Sierra Club, are focused on lessening phosphate mining's negative effects on ecosystems.¹³⁰ A few private firms, such as the Indian Farmers Fertiliser Cooperative Limited (IFFCO), have shown concern for small-scale farmers as the phosphate shortage nears and phosphate prices increase.¹³¹ And individual farmers struggling to purchase phosphate fertilizer at current prices are deeply concerned about rising prices.¹³² Individually, these peripheral and relatively powerless actors have little ability to influence change in the phosphate industry.¹³³ However, under the Transnational New Governance model, these actors can come together and harness the various concerns surrounding phosphates to induce industry to adopt more sustainable and ethical business practices.

Transnational New Governance's simple strategy for channeling the dispersed concerns around an industry is a roundtable meeting.¹³⁴ The roundtable meeting brings together all interested parties, thus circumventing a key hindrance to finding a solution to the various phosphate concerns—the fact that any one actor or sector is unwilling to take on responsibility to address a shared issue.¹³⁵ The roundtable meeting's eventual solution can be integrated through all

129. See *The Phosphate Exports*, *supra* note 98 (“Numerous U.N. resolutions supports [sic] the conclusion that extracting and trading with phosphates from Western Sahara are contrary to international law.”).

130. See Guest, *supra* note 41 (discussing a lawsuit filed by Earthjustice against a mining firm and a county mining commission on behalf of, among others, the Sierra Club).

131. See Press Release, Legend Int'l Holdings Inc., IFFCO Strengthens Its Global Cap (May 5, 2008), available at <http://www.iffco.nic.in/ifc/web.nsf/d1bfbfe25add5f736525778a001e943b/b9f9a5344ab9e016652577c700289a7e?OpenDocument> (discussing favorably a deal between IFFCO and an Australian mining firm under which the Australian firm provides IFFCO with three million tons of phosphate per year).

132. See Hannah Hislop, *How Phosphorus Shortages Could Increase Global Food Prices*, ECOLOGIST, Oct. 28, 2011, http://www.theecologist.org/blogs_and_comments/commentators/other_comments/1110016/how_phosphorus_shortages_could_increase_global_food_prices.html (“Even at today's prices, farmers in developing countries cannot afford phosphate fertilisers, and so under-apply, despite low soil fertility.”).

133. See Vandenberg, *supra* note 85, at 920 (discussing the difficulty that citizens face in effecting policy changes in other countries).

134. See Clay, *supra* note 20 (explaining the roundtable concept); *History*, ROUNDTABLE ON SUSTAINABLE PALM OIL, <http://www.rspo.org/en/history> (last visited Apr. 10, 2013) (explaining how the Transnational New Governance's application to the palm oil industry began with a roundtable).

135. See Cordell, Drangert & White, *supra* note 3, at 301–02 (discussing “the divide between the agricultural sector, where phosphorus is perceived as a fertilizer commodity, and the water and sanitation sector, where phosphorus is perceived as a pollutant in wastewater”).

sectors represented at the meeting.¹³⁶ And media coverage of the phosphate roundtable should raise public awareness of the impending phosphate crisis, strengthening pressure on industry actors.

One criticism of the model is that the collective-action problem will deter any individual NGO, firm, or farmer from initiating the roundtable.¹³⁷ However, the Transnational New Governance movement brings supporters with it to fulfill the role of initiator. For example, the WWF, although traditionally known for its work in biodiversity initiatives, is a strong supporter of the Transnational New Governance model through its Direct Market Transformation Initiative and has previously initiated roundtables in the timber, palm oil, and sugarcane industries.¹³⁸

ii. Advantages over the Current Governance Model

The primary advantage of Transnational New Governance is that it escapes the current, unsuccessful transnational governance system by relying on private actors rather than ineffective IGOs and incapable individual governments.¹³⁹ The dependence on private actors is beneficial foremost because, unlike importing countries, importing firms can easily demand imports with heightened environmental standards.¹⁴⁰ Other advantages of the Transnational New Governance system's reliance on private actors include increased expertise and decentralized regulatory authority.¹⁴¹

The current model of transnational governance leaves the complexity of regulatory problems¹⁴² in the hands of a few professional regulators, who often are disconnected from the industry

136. See *id.* at 302 (discussing opportunities for interdisciplinary approaches to solving the issue of phosphate shortage).

137. Vandenberg, *supra* note 85, at 920 ("Citizens of importing countries who hold preferences for reducing environmental harms in exporting countries face collective action problems in inducing their governments to act.")

138. van Hoeven, *supra* note 11.

139. See Vandenberg, *supra* note 85, at 920–21 (discussing the unavailability and inadequacy of multilateral agreements and unilateral state action).

140. See *id.* at 921–22 (discussing the greater power that private actors exercise over transnational practices through private-market behavior compared to government regulation).

141. See Abbott & Snidal, *supra* note 10, at 524–25 (discussing the decentralized approach of New Governance and how this approach allows regulators to rely on knowledgeable firms and NGOs).

142. Because of the complexity of regulatory problems, multiple areas of expertise are relevant: technical, regarding social or environmental problems and regulatory solutions; normative, regarding social values and the normative context; economic, regarding the operations of target firms; and social, regarding the effects of regulation on intended beneficiaries and the public.

Id. at 528 (emphasis omitted).

or do not have the necessary expertise to set proper regulatory levels.¹⁴³ Transnational New Governance, on the other hand, employs a variety of interested stakeholders from different backgrounds that have direct knowledge of both industry and societal needs.¹⁴⁴ The scheme benefits from this expertise not only in setting regulations, but also in enforcing regulation, since knowledgeable actors can perform inspections more effectively.¹⁴⁵

Transnational New Governance also benefits from decentralizing regulatory authority, leaving it in the hands of private actors rather than in the hands of the government.¹⁴⁶ Taking regulatory authority out of the hands of states is beneficial in an era when government resources are constrained.¹⁴⁷ Furthermore, decentralization leads to more flexibility.¹⁴⁸ While, in the current system, IGOs force uniform rules on private actors with varied needs and local conditions, Transnational New Governance allows for custom regulations.¹⁴⁹ And the Transnational New Governance system as a whole is allowed to tailor regulations and make adjustments as regulators see necessary, allowing for continued innovation.¹⁵⁰

IV. CAN THE TRANSNATIONAL NEW GOVERNANCE FRAMEWORK APPLY TO THE PHOSPHATE INDUSTRY?

Although Transnational New Governance appears to be capable of regulating the phosphate industry more effectively than the current governance system, skeptics may believe that unique aspects of the phosphate industry will render it unable to successfully implement the new governance system. This Part examines other applications of the Transnational New Governance model to determine whether the phosphate industry has the requisite elements, explores unique challenges in the phosphate industry, and

143. See *id.* at 528–29 (comparing the New Governance recognition of dispersed expertise to the Old Governance strategy of relying on bureaucratic expertise).

144. *Id.*

145. See *id.* at 524–25 (“Decentralized regulation draws on the often greater resources and capacities of private actors—for example, inspections of suppliers may be more effective when performed by knowledgeable firms or NGOs than by public inspectors.”).

146. See *id.* (discussing the decentralized approach of New Governance).

147. *Id.* at 525 (“Decentralization . . . reduces demands on the state, a significant advantage in an era when many states and agencies face both shrinking resources and growing demands for action.”).

148. See *id.* at 526 (“New Governance allows the state to work with regulatory targets and other actors to tailor policies to their specific needs and local conditions, rather than forcing uniform rules on disparate circumstances.”).

149. *Id.*

150. See *id.* (discussing the advantages derived from the flexibility of New Governance).

ultimately paints a picture of what the Transnational New Governance model would look like for the phosphate industry.

A. Drawing upon Existing Applications of the Model

The Transnational New Governance model already has been applied to other limited-resource supply chains, including the palm oil¹⁵¹ and fishing¹⁵² industries. The adoption of the Transnational New Governance scheme in these commercial sectors has positively increased sustainability throughout the supply chains. Analyzing the palm oil and fishing industries prior to the adoption of the Transnational New Governance model reveals that there are three elements critical to a successful application of the model: (1) a multiple-step supply chain, (2) public concern surrounding the industry, and (3) industry sensitivity to reputational threats. Because the current phosphate-fertilizer industry contains all three elements, the Transnational New Governance model is an appropriate model to apply to the industry.

Because the Transnational New Governance model utilizes demand for sustainability at one level of the supply chain to influence practices at all other levels, the model can only succeed in industries that involve various actors engaged in a series of steps.¹⁵³ For example, the Transnational New Governance scheme's application to the palm oil industry, known as the Roundtable on Sustainable Palm Oil, has been successful because of the participation of seven distinct sectors of the palm oil industry: oil palm growers, palm oil processors or traders, consumer-goods manufacturers, retailers, banks and investors, environmental or nature conservation NGOs, and social or developmental NGOs.¹⁵⁴ The phosphate industry meets the first requirement for application of the Transnational New Governance model because it contains various actors engaged in a series of steps,

151. In 2004, RSPO was established to "to promote the growth and use of sustainable palm oil through co-operation within the supply chain and open dialogue between its stakeholders." Press Release, Roundtable on Sustainable Palm Oil, New Global Initiative To Promote Sustainable Palm Oil (May 8, 2004).

152. The Marine Stewardship Council (MSC) "seek[s] to increase the availability of certified sustainable seafood" and promote sustainable fishing practices. *What We Do*, MARINE STEWARDSHIP COUNCIL, <http://www.msc.org/about-us/what-we-do> (last visited Apr. 10, 2013).

153. See Vandenberg, *supra* note 85, at 921–22 (describing different types of action, including civic behavior, consumer preferences, and collective action by firms and NGOs).

154. See *Who Is RSPO?*, ROUNDTABLE ON SUSTAINABLE PALM OIL, http://www.rspo.org/en/who_is_rspo (last visited Apr. 10 2013) (identifying the seven categories of participants in the RSPO).

including phosphate-mining firms, phosphate shippers, and phosphate-fertilizer producers.¹⁵⁵

The implementation of the Transnational New Governance model also depends on public concerns about an industry, which are necessary to pressure firms to participate in the initial roundtable meeting.¹⁵⁶ In the case of the phosphate industry, there is a growing concern not only for scarcity of the resource,¹⁵⁷ as there was in the fishing industry,¹⁵⁸ but also for the environments in which the resource is mined,¹⁵⁹ as there was in the palm oil industry.¹⁶⁰ Additionally, the phosphate industry is connected to wastewater pollution concerns, human rights issues, and world-hunger concerns.¹⁶¹ The number and variety of concerns revolving around the industry increases the number of interested NGOs that will actively pressure private actors to participate in a roundtable.

Finally, for NGOs to successfully apply the Transnational New Governance scheme to an industry, that industry's members must be sensitive to threats to their public reputation. NGOs and the public can only be successful in pressuring industry actors to participate in a roundtable and, later, to seek certification if the firms care about their reputations. Firms in the phosphate industry have shown such concerns, as demonstrated by their responsiveness to prior NGO threats to their public image.¹⁶² The WSRW tracks Morocco's shipments of phosphates from the Western Sahara and identifies firms that import what the WSRW considers to be exploited phosphates.¹⁶³ By sending notices to the firms and making the public aware of the practices, the WSRW successfully pressured large phosphate firms to discontinue imports from the Bou Craa mine.¹⁶⁴ Phosphate-industry actors' concern for their public reputation suggests that NGOs, aware of unsustainable practices in the

155. See Syers et al., *supra* note 14, at 36 fig.1 (showing the various stages of the phosphorous cycle).

156. Vandenbergh, *supra* note 85, at 917.

157. See Cordell, Drangert & White, *supra* note 3, at 294–95 (discussing the growing demand for fertilizers and the decreasing world supply of phosphate rock).

158. See *MSC in Numbers*, MARINE STEWARDSHIP COUNCIL (Feb. 6, 2013), <http://www.msc.org/business-support/key-facts-about-msc> (explaining that MSC was created in a reaction to overfishing).

159. See *The Phosphate Exports*, *supra* note 98 (discussing the human rights implications of the Western Sahara phosphate-mining industry).

160. See *Why Palm Oil Matters in Your Everyday Life*, ROUNDTABLE ON SUSTAINABLE PALM OIL (Jan. 2013), http://www.rspo.org/file/250113_designfactsheet_H+K.pdf (expressing concern for the ecosensitive forests where palm oil is cultivated).

161. See *supra* notes 127–138 and accompanying text (describing the various concerns revolving around the industry).

162. See *No More Mosaic*, *supra* note 16 (giving one example of a firm that changed its illegal practices after it was recognized by the WSRW).

163. *The Phosphate Exports*, *supra* note 98.

164. See *No More Mosaic*, *supra* note 16 (discussing the Mosaic Company's practice of no longer importing phosphates from the Western Sahara).

phosphate industry, and consumers, hoping for fertilizer price stability, should be able to pressure firms into more sustainable practices.

B. Challenges Specific to the Phosphate Industry

While three specific characteristics of the phosphate industry suggest that the industry would fit well into the Transnational New Governance model, the industry also comes with unique problems that are unparalleled by the palm oil and fishing industries. Phosphate reserves and the demand for phosphate fertilizer are distributed in such a way that two countries, the United States and China, do not export any of the phosphates that they mine¹⁶⁵ and one country, Morocco, has a near monopoly on exported phosphates.¹⁶⁶ This unique distribution of phosphate reserves could result in China, Morocco, and the United States excluding themselves from the Transnational New Governance model.

One key problem in applying the Transnational New Governance model to the global phosphate trade is that the United States and China use all of the phosphates that they mine domestically.¹⁶⁷ Because China and the United States are self-dependent on the phosphates they mine, their phosphate industry firms have no interaction with other supply-chain levels in the global phosphate trade. The Transnational New Governance model, however, utilizes demand for sustainability at one level of the supply chain to influence practices at other levels,¹⁶⁸ and without such a relationship cannot function properly. In other words, the lack of interaction between importers and Chinese and American firms means that the importers cannot pressure phosphate-industry firms in China and the United States to join a roundtable or get certified under the Transnational New Governance scheme. However, even without pressure from international phosphate importers, firms in the Chinese and American phosphate industry may still choose to participate in the Transnational New Governance model.

Reputational and financial risks alone may be enough to pressure Chinese and American phosphate firms into joining the Transnational New Governance scheme. In 2005, Yara, a large firm in the Norwegian phosphate industry, proved that it is sensitive to reputational threats when it halted its phosphate imports from the

165. David Gabel, *The Coming Crisis in Phosphate Supplies*, ENVTL. NEWS NETWORK (July 20, 2011), <http://oilprice.com/Metals/Commodities/The-Coming-Crisis-in-Phosphate-Supplies.html>.

166. See Vaccari, *supra* note 29 (referring to Morocco as the "Saudi Arabia of phosphorous").

167. Gabel, *supra* note 165.

168. See Vandenberg, *supra* note 85, at 921–22.

Bou Craa mine because of pressure from the WSRW.¹⁶⁹ Yara later announced that it would refrain from purchasing Western Saharan phosphates, adding that Yara hopes that the country “will be liberated one day, and then the inhabitants will benefit if we can receive their phosphate quickly.”¹⁷⁰ Firms across the United States and China probably will react similarly and alter undesirable behaviors if NGOs begin identifying their unsustainable practices. In addition to reputational pressure, financial pressure from investors, who are increasingly screening firms for ethical and environmental liabilities,¹⁷¹ should work to encourage phosphate firms in China and the United States to participate in a roundtable meeting and to seek sustainability certification.¹⁷²

Furthermore, the self-dependence of China and the United States on their own, limited supplies of phosphates, while working against their participation in the Transnational New Governance scheme in one regard, may actually work to encourage their participation in another regard, as it should cause them to be self-interested in sustainability measures.¹⁷³ As President Franklin D. Roosevelt said to Congress in 1938, “The disposition of our phosphate deposits should be regarded as a national concern.”¹⁷⁴ At current rates of mining and consumption, the United States’ most productive mine will be depleted within twenty years.¹⁷⁵ But by self-imposing sustainable practices, the United States can delay the depletion, reducing its future dependence on foreign nations for phosphates. Based on its efforts to prevent export of phosphates, China already recognizes the importance of prolonging reserves of its phosphates.¹⁷⁶ Adopting sustainable practices should further help China achieve its goal of resource preservation.

Another challenge in applying the Transnational New Governance model to the phosphate industry comes from Morocco’s

169. See *About Western Sahara Research Watch (WSRW)*, W. SAHARA RESOURCE WATCH (Sept. 11, 2007, 6:22 PM), <http://www.wsrw.org/a114x515> (last visited Apr. 19, 2013) (listing Yara as one of the companies that halted phosphate exports from the Western Sahara due to pressure from the WSRW).

170. *Fertilizer Company “Hopes for Liberation of Western Sahara,”* W. SAHARA RESOURCE WATCH (Feb. 15, 2009, 5:15 PM), <http://www.wsrw.org/a141x1067> (last visited Apr. 19, 2013).

171. See Graham & Woods, *supra* note 126, at 871–72 (describing pressure investors apply to firms to encourage the firms’ compliance with social and environmental norms).

172. See *id.* (discussing the financial benefits to following strict voluntary social and environmental codes and the success that shareholder advocates have had in inducing social and environmental reforms within firms).

173. See *id.* at 870 (discussing the theory that in order to succeed, self-regulation must be in a firm’s self-interest).

174. Lougheed, *supra* note 19, at A209.

175. Esler & White, *supra* note 1.

176. See *id.* (discussing the 135-percent tariff that China levied on phosphate exports in 2008).

near monopoly in global phosphate exports.¹⁷⁷ And, to make matters worse, there is a monopoly within a monopoly, since OCP, a Moroccan government agency that will soon be converted into a limited company,¹⁷⁸ has full control of Morocco's phosphates.¹⁷⁹ When, or if, the world depends primarily on Morocco's phosphates, phosphate importers will have no leverage to demand sustainable and ethical practices from OCP. However, exploring the current global phosphate trade and calculating remaining reserves in other countries reveals that there is sufficient time to prevent an OCP monopoly. During this time, and because of the importance of Moroccan phosphates to both the global phosphate market and to the Moroccan economy, international phosphate firms should be able to pressure OCP into joining the Transnational New Governance scheme and adopting sustainable and ethical practices.

Presently, Morocco only produces 15 percent of the world's phosphates.¹⁸⁰ Based on the lifetimes of other countries' reserves, there is still time before OCP has a monopoly on phosphates.¹⁸¹ Furthermore, many phosphate importers have recently focused on exploiting phosphates from countries with smaller reserves. For example, a Chinese firm recently completed a mining project in Saudi Arabia;¹⁸² the European Union imports most of its phosphates from Russia;¹⁸³ India recently incorporated a joint-venture company for phosphate mining in Jordan,¹⁸⁴ and Vale, a Brazil-based mining firm, is currently operating mines in Peru and Mozambique.¹⁸⁵ Thus, the current global phosphate trade is not highly dependent on OCP's phosphates and allows for importers to circumvent Moroccan phosphate imports to put pressure on OCP to adopt sustainable and ethical practices.

Of equal importance, OCP is an integral part of the global phosphate trade. The United States imports approximately 10

177. Vaccari, *supra* note 29.

178. MOROCCO MINING LAWS AND REGULATIONS HANDBOOK, *supra* note 77, at 43.

179. *Id.* at 38.

180. Gabel, *supra* note 165.

181. The United States' most productive phosphate reserve, for example, has an expected lifetime of twenty more years. Esler & White, *supra* note 1.

182. *Wengfu Group*, LEGEND INT'L HOLDINGS INC., <http://lgdi.net/wengfu/> (last visited Apr. 10, 2013).

183. See, e.g., EUROCHEM, RESILIENCE GROWTH STABILITY: ANNUAL REPORT AND ACCOUNTS 2010, at 10, 19 (2010) (describing Russia as EuroChem's "core" and "target" market).

184. Press Release, Indian Farmers Fertiliser Coop. Ltd. [IFFCO], IFFCO's JV "Jordan India Fertilizer Company" To Assure Phosphate Input in India (Oct. 4, 2009), available at <http://www.iffco.nic.in/applications/iffcowebr5.nsf/0/DA7513C5B83325A16525764A00389347?OpenDocument>.

185. *Vale Across the World*, VALE, <http://www.vale.com/en/aboutvale/across-world/pages/default.aspx> (last visited Apr. 10, 2013).

percent of its phosphate needs from Morocco.¹⁸⁶ Brazil relies heavily on Moroccan phosphates.¹⁸⁷ New Zealand, Colombia, Australia, Mexico, Spain, and Turkey also receive phosphate imports from Morocco.¹⁸⁸ Because Morocco depends on phosphate demand from many countries, changes in consumer or firm preferences in any one of these countries can help influence OCP practices.

Finally, because Morocco's phosphate reserves are critical to its economy, Morocco will be especially sensitive to consumer and firm demands. Morocco's mining industry employs approximately sixty thousand people, represents almost one-third of export earnings, and contributes 3 percent of the nation's gross domestic product.¹⁸⁹ A decrease in demand for phosphates could have a critical effect on the Moroccan people and economy, so the Moroccan government is likely to respond to demands for sustainability.

Thus, the unique positions of the United States, China, and Morocco in the global phosphate trade should not present an insurmountable threat to successful implementation of the Transnational New Governance model. While the countries have the opportunity to exclude themselves from the sustainability scheme, they may nonetheless participate because of reputational and financial pressures, their economic interests in implementing sustainability regulations, and, in the case of Morocco, pressure from consumers.

a. What the Model Would Look Like for the Phosphate Industry

Experts in the field have stressed that the future of phosphates depends on eliminating losses at all stages between "farm and fork."¹⁹⁰ Thus, under the Transnational New Governance model, traditional actors in the phosphate cycle, including mining firms, fertilizer producers, retailers, and farmers, as well other interested parties, including banks, investors, and NGOs,¹⁹¹ would come together to implement sustainability measures during phosphate-rock mining, fertilizer production, and fertilizer application.¹⁹²

Like other Transnational New Governance models, the scheme for the phosphate industry would rely on a system of sustainability

186. Esler & White, *supra* note 1, at 2.

187. Gabel, *supra* note 165.

188. See W. SAHARA RESOURCE WATCH, *supra* note 106 (view The "Companies" menu) (listing specific firms that have imported phosphate from the Western Sahara).

189. 1 INT'L BUS. PUBL'NS, *supra* note 77, at 43.

190. See Cordell, Drangert & White, *supra* note 3, at 296 (suggesting that "approximately 55% of all phosphorus in food is lost between 'farm and fork'").

191. The proposed members of the phosphate roundtable parallel those present in the RSPO model. See *Who Is RSPO?*, *supra* note 154 (discussing RSPO).

192. See Syers et al., *supra* note 14, at 42-44 (discussing means of minimizing phosphorus losses).

certification for all processes in the supply chain. Interested NGOs should meet with phosphate industry firms at a roundtable and collectively agree on a set of sustainability standards required for a phosphate-mining firm, a fertilizer-manufacturing firm, or a farmer seeking "sustainable phosphate" certification. Sustainability certification for phosphate-mining firms should require the firm to recover phosphates from the waste stream, implement practices to minimize soil erosion, and recycle processing water.¹⁹³ Fertilizer manufacturers seeking certification should be required to capture and reuse waste heat, reclaim waste byproducts, and efficiently ship their products. Finally, for farmers, sustainability certification should require runoff treatment or recycling, as well as regular testing of soil nutrient levels to avoid fertilizer overapplication.¹⁹⁴ The certification standards should be flexible, yielding to the needs of individual parties, so as not to exclude members with special needs, such as small-scale farmers in developing countries.¹⁹⁵

The strength of the Transnational New Governance program for the phosphate industry would come from an understanding that certified members deal *only* with other certified members across the supply chain, thus guaranteeing a sustainable end product for consumers. The arrangement would also serve to make sustainable-phosphate certification a demanded status in the industry, as certified members would pressure their suppliers and consumers to become certified. To allow for transparency and greater credibility in the certification program, NGOs would serve as inspectors.¹⁹⁶ The NGOs would verify that a firm meets certification requirements and should periodically inspect certified firms to ensure that they are continuing to implement sustainability measures and that they are only dealing with other certified members across the supply chain.¹⁹⁷ As a final step towards increased credibility, NGOs would publish inspection results and decertify members that are in noncompliance with the terms of certification.¹⁹⁸

193. See Syers et al., *supra* note 14, at 42–44 (noting that "major gains can be made through improving plant nutrient management and recycling phosphorus from waste streams").

194. Hannah Hislop & Julie Hill, *Reinventing the Wheel: A Circular Economy for Resource Scarcity*, GREEN ALLIANCE, Oct. 2011, at 32.

195. See *Smallholder Task Force*, ROUNDTABLE ON SUSTAINABLE PALM OIL, http://www.rspo.org/en/smallholders_task_force (last visited Apr. 10, 2013) (explaining a parallel requirement in the RSPO).

196. This requirement is based off a similar requirement in the RSPO. See *How To Be RSPO Certified*, *supra* note 12 (presenting the process for RSPO certification).

197. *Cf. id.* (demonstrating procedural similarities).

198. See *Supply Chain Certification (Expired)*, ROUNDTABLE ON SUSTAINABLE PALM OIL, http://www.rspo.org/en/supply_chain_certification&op=hidden (last updated Mar. 4, 2013) (providing an example of publishing certified members.)

V. IMPLEMENTING THE TRANSNATIONAL NEW GOVERNANCE FRAMEWORK IN THE PHOSPHATE INDUSTRY

To further illustrate that the Transnational New Governance model is appropriate for the phosphate industry, this Part walks through each step in the phosphate industry's adoption of the model.

A. Initiating Collective Standard Setting

Under the Transnational New Governance framework, the first step towards achieving sustainability in the global phosphate trade is a roundtable at which key players in the phosphate industry, including NGOs and firms from each level of the supply chain, participate in collective standard setting.¹⁹⁹ Because the WWF is a strong supporter of the Transnational New Governance model through its Direct Market Transformation Initiative,²⁰⁰ the NGO should organize the roundtable and invite industry participants and interested parties to attend. However, firms will only attend the roundtable and participate in collective standard setting if they have a vested interest in regulations or an incentive to regulate.²⁰¹ Thus, phosphate firm attendance at the roundtable and participation in the Transnational New Governance scheme is largely dependent upon NGOs threatening the firms' reputations and consumers pressuring the firms into participation.²⁰²

Two NGOs that may fulfill the role of forcing firms into roundtable participation are the WSRW and WWF.²⁰³ In the wake of increased global access to information, firms worry more about missteps because having a negative reputation may deter both investors and consumers, leading to significant economic loss.²⁰⁴ Large companies, which are commonplace in the phosphate industry and which often have a well-known "brand," are most susceptible to reputational threats.²⁰⁵ In the phosphate industry, these firms have already demonstrated that they will react to reputational threats.²⁰⁶

199. See Abbott & Snidal, *supra* note 10, at 506–07 (addressing the roles of different actors in the regulatory process).

200. See van Hove, *supra* note 11, at 1 (discussing the WWF's support for "multi-stakeholder engagements, such as roundtables, market standards and certification").

201. See Graham & Woods, *supra* note 126, at 870 ("Corporations are economic, not normative actors who will . . . only undertake actions that are in their self-interest").

202. See *id.* at 870–73 (discussing means to coerce corporations).

203. *Id.* at 870.

204. *Id.*

205. Clay, *supra* note 20.

206. *The Phosphate Exports*, *supra* note 98. For specific examples of firms that have stopped importing from the Western Sahara, see *No More Mosaic*, *supra* note 16 and *Fertilizer Company "Hopes for Liberation of Western Sahara," supra* note 170.

Therefore, if NGOs begin to publicly identify and criticize phosphate firms that act unsustainably, the NGOs could pressure firms to protect their reputations by participating in a sustainability roundtable.

Consumer demand, however, should provide an even stronger incentive to phosphate-firm participation in a roundtable.²⁰⁷ Producers' main concern is having business and, thus, being able to supply a product that the buyer wants.²⁰⁸ Therefore, when a consumer demands that a product is produced in a sustainable way, a supplier will no longer view sustainability measures as an unnecessary expense, but will conform to sustainable production standards for the purpose of staying in business.²⁰⁹

In the phosphate industry, the majority of consumers are local farmers in developing countries who live on the verge of bankruptcy and cannot overcome rising fertilizer prices.²¹⁰ These farmers have a strong incentive to demand sustainability in the phosphate industry because they have been victims of the current, unsustainable practices in the phosphate industry.²¹¹ For example, phosphate-fertilizer prices rose over 350 percent from 2003 to 2008.²¹² And an 800 percent spike in phosphate prices in 2008²¹³ prevented farmers in forty countries from purchasing fertilizers and practicing their livelihood.²¹⁴ Moving forward, industry experts expect phosphate prices only to increase because unsustainable phosphate mining depends on moving into lower quality reserves that require more intense mining efforts.²¹⁵ Thus, all farmers, and not just those that are extremely affected by price fluctuations, have an incentive to demand sustainability from phosphate firms and secure affordable phosphates in the long-term.

One problem with relying on farmers to demand sustainability of a supply chain is that the farmers themselves may be resistant to any program in which they too have to implement costly sustainability measures to become certified and, thus, to import certified fertilizer. However, most small-scale farmers are already implementing sustainable solutions at their level of the phosphate supply chain. Farmers are trained to apply phosphates at time, rate, and place.²¹⁶ And farmers in the United Kingdom, United States, and Japan,

207. Clay, *supra* note 20.

208. *Id.*

209. Vandenberg, *supra* note 85, at 922.

210. Esler & White, *supra* note 1, at 2.

211. *See id.* at 3 (discussing the possible repercussions of phosphate depletion).

212. *Id.* at 2.

213. Hislop & Hill, *supra* note 194, at 28.

214. Esler & White, *supra* note 1, at 2.

215. Syers et al., *supra* note 14, at 37.

216. *See* MOSAIC, 2011 SUSTAINABILITY REPORT 16 (2011), available at <http://mosaicossustainability.com/pdfBuilder/11111111/2011-Sustainability-Report.pdf> (describing Mosaic's FieldInsite program).

among other countries, recycle natural phosphorus sources, including sewage sludge and manure.²¹⁷ These practices should be sufficient for farmers to obtain sustainability certification, so farmers should bear no additional costs in joining the Transnational New Governance scheme. Thus, farmers should not hesitate to pressure their phosphate-fertilizer suppliers into attending the roundtable.

Another barrier to relying on farmer demand is that an individual farmer does not have enough power to shift the practices of the industry, yet a group of farmers faces a collective-action problem in organizing itself to present a credible demand to the industry. However, the farmers' governments, which also have a vested interest in stabilizing phosphate-fertilizer prices, could overcome the collective-action problem by organizing and giving credibility to farmers' demands. In the recent past, food riots—the result of increased phosphate-fertilizer prices—forced these governments to spend money to feed their citizens. Since these governments may not be able to afford, or may not wish to provide, continued food support as phosphate prices rise, it is in their best interest to assist their farmers in demanding phosphate-industry sustainability.

Two governments already displayed interest in securing sustainability in the phosphate industry. First, India created IFFCO to organize its farmers' interests. IFFCO has explicitly expressed concern about the increasing price of phosphate fertilizers and the effects of a future phosphate shortage on India.²¹⁸ To secure phosphate reserves for the Indian people, IFFCO incorporated a new joint-venture company for phosphate mining in Jordan.²¹⁹ Second, the European Union has expressed a desire to increase sustainability in the phosphate industry and has already organized its farmers to implement "end of pipe" phosphate-recycling programs.²²⁰ Because farmers in India and the European Union already have demanded sustainability, mining companies in Russia and Jordan that supply India and the European Union's phosphate fertilizers are likely to succumb to consumer demand and participate in the initial roundtable.

217. Hislop & Hill, *supra* note 194, at 31.

218. See Press Release, IFFCO, *supra* note 184 (announcing a joint venture between Indian and Jordanian phosphate producers).

219. *Id.*

220. Schroder et al., *supra* note 33, at 4.

Mining firms that operate in countries with small reserves and fertilizer manufacturers that depend on phosphates from small reserves are also likely to participate in the roundtable. These mining firms and fertilizer manufacturers should recognize that adopting sustainability measures is beneficial because the measures will increase the lifetime of their phosphate reserves, allowing the firms to remain in business in the long-term.²²¹ Thus, firms that operate in countries with smaller reserves, including those in Australia, Canada, Egypt, Israel, Senegal, Togo, and Tunisia,²²² will likely attend the roundtable and participate in collective standard setting.

In summary, if WWF were to host a sustainable-phosphate roundtable and invite firms to collectively set sustainability standards in the phosphate industry, a variety and multitude of firms would likely attend the event. While NGOs can pressure all phosphate firms to participate in the roundtable by publicly condemning their unsustainable practices, large firms with well-known "brands," such as Mosaic and PotashCorp, are the most likely to succumb to the NGO pressure and attend the roundtable. Firms that operate in Russia and Jordan, including EuroChem and the Jordan Phosphate Mining Company (JPMC), and that are being pressured by organized farmers' sustainability demands in the European Union and India, are also likely to attend the roundtable. Finally, firms that operate in countries with small phosphate reserves, such as Vale in Peru and Arafura in Australia, are likely to participate in the roundtable due to self-interest in sustainability.

B. *Hitting the Threshold Number of Private Actors*

For the global phosphate industry to truly operate sustainably, virtually all industry actors must adopt sustainable practices. However, under the Transnational New Governance model, not all industry actors need to participate in the initial roundtable and become certified immediately. Previous applications of the model suggest instead that once a threshold number of industry members are certified, certification becomes necessary for survival in the industry, and firms across the industry universally demand the status.²²³ In previous applications of the model, the threshold level has been somewhere between 40 and 80 percent of all the firms in the industry.²²⁴ Given that the number of phosphate-industry members that participate in the roundtable and in early sustainability

221. It should be noted, however, that adopting sustainable practices may cause costs to increase in the short term.

222. See USGS, *supra* note 17, at 118 (displaying phosphate-mine production and reserves by country).

223. Clay, *supra* note 20.

224. *Id.*

certification is likely to fall short of this threshold, meeting the threshold and achieving universal industry sustainability depends on demand for certification spreading beyond the roundtable participants. Under the Transnational New Governance model, demand for certification should spread both through the phosphate-fertilizer supply chain and through other industry pressures.²²⁵

Even after only a few firms in the phosphate industry have sustainable-phosphate certification, the demand for certification should naturally spread throughout the global phosphate industry because most industry actors have supply agreements with multiple firms in a variety of countries. The complex web of phosphate firms and consumers around the world should force a significant number of industry actors to adopt sustainability certification because of two requirements: (1) sustainable-phosphate-certified mining companies, fertilizer manufacturers, and farmers may *only* contract with other certified industry members, both up and down the supply chain; and (2) a phosphate-mining firm or phosphate-fertilizer manufacturer must verify that *all* of its phosphate products, not just the products that are shipped to a particular consumer, are sustainably produced. Thus, if a significant portion of a phosphate-fertilizer manufacturer's consumer base demands that it become sustainable-phosphate certified, the fertilizer manufacturer can influence behavior on both sides of the supply chain. The firm would necessarily demand sustainable phosphate certification from (1) each of the mining firms that supply its phosphate and (2) each of the consumers that purchase its fertilizer. The certification demand would then spread even further, as the sustainable-phosphate-certified consumers would demand that their other fertilizer suppliers seek certification, and sustainable-phosphate-certified mining firms would demand certification of the other fertilizer manufacturers they export to, and so on. To illustrate how certification demand may spread throughout the phosphate industry, this Note assumes that the actors identified as likely roundtable participants in the previous subpart will be among the first certified members.

In one potential route for the spread of certification demand in the phosphate industry, EU pressures on European phosphate suppliers should force EuroChem, a combined phosphate-mining and fertilizer-manufacturing operation in Russia,²²⁶ to achieve certification because EuroChem is highly dependent on its phosphate sales in Europe, which make up approximately 20 percent of its total sales.²²⁷ EuroChem's sustainability certification could stimulate farmer certification in each of the places where it sells phosphate fertilizers, including Russia, Asia, Latin America, North America,

225. *Id.*

226. EUROCHEM, *supra* note 183, at 22.

227. *Id.* at 32.

and Africa.²²⁸ Once these farmers become certified, they could demand sustainability of all their other fertilizer suppliers, who could continue the spread of demand for certification across the supply chain.

In another potential route for the spread of certification demand, IFFCO's pressures on its phosphate suppliers should first affect JPMC, which has a supply agreement and a joint-venture company with IFFCO.²²⁹ If JPMC becomes sustainable-phosphate certified, it could then demand that Israel Chemicals (ICL), a major producer of fertilizers in the Middle East,²³⁰ become certified. ICL next could demand certification of its other phosphate suppliers in the Middle East and its consumer farmers in the Americas, Western Europe, and South Asia.²³¹ These farmers and mining firms could then continue the spread of certification demand back up and down the supply chain.

In a final example, Incitec Pivot Limited (IPL), an Australian phosphate-mining firm,²³² is likely to be self-interested in certification because it depends on a small phosphate reserve. IPL's certification should pressure its consumer farmers in Australia, North America, South America, and China to become certified.²³³ IPL's Australian farmers alone could demand certification from Union Resources Limited, an Australian firm that has a joint venture with Minemakers Limited and Tungeni Investments in Namibia,²³⁴ and Phosphate Australia Limited, an emerging phosphate-mining firm in Australia.²³⁵ In turn, these firms could continue the onward spread of certification demand.

While it appears that the phosphate supply chain alone should effectively spread demand for certification, one final effort to achieve widespread certification in the phosphate industry could be through the CEOs of sustainable-phosphate-certified companies.²³⁶ The CEOs could "twist the arms" of noncertified industry players.²³⁷ Encouragement from industry peers has been particularly effective in

228. *Id.*

229. Press Release, IFFCO, *supra* note 184.

230. Sebastien Chu Ti, *World Phosphate Rock Production Grew Steadily and Volumes Recovered in 2010—So Who's Making Money?*, INTEGER (June 10, 2011), <http://www.integer-research.com/2011/fertilizers-chemicals/news/world-phosphate-rock-production-grown-steadily/>.

231. *Id.*

232. *Incitec Pivot Limited*—ASX: *IPL*, AUSTRALIAN SHARES, <http://www.australian-shares.com/mining/IPL> (last updated Aug. 10, 2011).

233. *Id.*

234. *UCL Resources Limited*—ASX: *UCL*, AUSTRALIAN SHARES, <http://www.australian-shares.com/mining/UCL> (last updated Dec. 21, 2011).

235. *Phosphate Australia Limited*—ASX: *POZ*, AUSTRALIAN SHARES, <http://www.australian-shares.com/mining/POZ> (last updated Feb. 28, 2011).

236. Clay, *supra* note 20.

237. *Id.*

past applications of the Transnational New Governance model because it eliminates the most common excuse that industry members have for not seeking sustainability certification: they are concerned about working with NGOs since they have not worked with them before and have no idea what to expect.²³⁸

Thus, even if few firms in the phosphate-fertilizer industry become certified right away, these firms and their CEOs can spread demand for certification throughout the industry so that, eventually, the threshold level of actors is certified and the industry achieves true sustainability. Tracking three presumed starting points for certification demand—the European Union, India, and Australia—illustrates that a single certified firm could force a variety of industry actors around the world to seek certification. Because a multitude of firms will likely seek sustainable-phosphate certification shortly after the roundtable,²³⁹ the certification should rapidly and extensively spread across the global phosphate industry, quickly achieving the end goal of sustainability in the phosphate industry.

C. Ensuring Proper Levels of Compliance

For the Transnational New Governance scheme to achieve sustainability, it cannot allow firms to greenwash, or claim that they are acting sustainably while they are, in fact, only concealing their unsustainable practices.²⁴⁰ In the phosphate industry, there is a high risk of greenwashing among mining corporations because phosphate mines are located far from not only the importers and consumers that demand sustainability, but typically also from population centers.²⁴¹ In order to prevent greenwashing and ensure that sustainability practices are being carried out, there must be both a strong demand for credible information²⁴² and a system of credibility within the certification program.²⁴³

Current technology alone may be enough to prevent firms from greenwashing.²⁴⁴ Increased global access to information²⁴⁵ makes the threat of being exposed a serious risk for a corporation, which would

238. *Id.*

239. *See supra* Part V.A.

240. Vandenberg, *supra* note 85, at 949.

241. For example, the Bou Craa mine is only connected to civilization through the world's longest conveyor belt. *The Phosphate Exports*, *supra* note 98.

242. *See* Graham & Woods, *supra* note 126, at 874 (noting the need for increased corporate disclosures).

243. In RSPO, this system exists through NGO credibility checks. *How To Be RSPO Certified*, *supra* note 12.

244. *See* Graham & Woods, *supra* note 126, at 874 (discussing the global-reporting initiative's potential to encourage firms to self-report and incentivize green practices).

245. *Id.* at 870.

jeopardize losing business to the benefit of its competitors.²⁴⁶ And WSRW has proven to the phosphate industry that even the most remote of industry activity, mining in the middle of the Sahara Desert, can be tracked and exposed.²⁴⁷ Aware both that they are being watched and that the consequences of being exposed are severe, phosphate firms are less likely to act in bad faith.

Furthermore, under the sustainable-phosphate-certification model, NGOs would regularly inspect the mines, manufacturing facilities, and farms of certified members to ensure that the members meet and maintain sustainability requirements.²⁴⁸ NGOs would publish inspection results and decertify members that are not complying with the terms of certification.²⁴⁹ The system of transparency and credibility within the Transnational New Governance model for the phosphate industry would ensure that no greenwashing is permitted.

VI. CONCLUSION

Although world actors have begun to recognize the severity and urgency of the looming phosphate shortage, their proposed solutions thus far have failed because they have not recognized and accounted for the powerlessness of IGOs and the natural incentives of phosphate controllers to resist regulations. This Note argues that Transnational New Governance is the only feasible solution to the phosphate shortage because it is the only one that escapes the traditional regulatory framework and relies on concerned actors to change the incentive structure within the industry so that phosphate-controlling firms will want to adopt sustainability measures. While some characteristics of the phosphate industry should facilitate the industry's adoption of the Transnational New Governance scheme, the unique distribution of global phosphate reserves also presents challenges that NGOs must overcome to successfully implement the model. But if NGOs can leap these hurdles, the result will be (1) a WWF-hosted roundtable at which NGOs and industry actors come together to collectively set sustainability standards for the phosphate industry; (2) a certification program that allows firms that adopt the agreed-upon sustainability standard to produce sustainable-certified phosphates, a product that is demanded by consumers around the

246. *Id.*

247. *See The Phosphate Exports, supra* note 98 (discussing efforts by WSRW to observe unethical activities in the Western Sahara).

248. In RSPO, "growers will be assessed for certification once every five years, and if certified, will be annually assessed for continued compliance." *How To Be RSPO Certified, supra* note 12.

249. *See id.* (proscribing how, in RSPO, NGOs are held to standards of accountability).

world; and (3) the spread of certification throughout the industry until all firms are acting sustainably and the threat of a phosphate shortage is a thing of the past.

*Chelsae Rose Johansen**

* Candidate for Doctor of Jurisprudence 2013, Vanderbilt University Law School; B.A. 2010, Northwestern University. Many thanks to the professors at Vanderbilt University Law School, the editorial staff of the *Vanderbilt Journal of Transnational Law*, and my family and friends for their support.