UNDERSTANDING UNDERVALUATION: A LAW AND PSYCHOLOGY ANALYSIS OF THE WTO ENVIRONMENTAL GOODS AGREEMENT

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ABSTRACT

Recent research in environmental law and psychology has revealed a pernicious problem: psychological phenomena often lead people to underperceive and undervalue environmental harms. These insights have yet to be applied to the transnational realm. This article employs a psychological approach to explore the evaluation of environmental concerns in the context of the World Trade Organization's Environmental Goods Agreement ("EGA"). Although the EGA purports to be a "win-win" agreement that simultaneously promotes economic development and environmental protection, it has failed to reach meaningful agreement. The present research argues that a psychological perspective on environmental law may supplementally explain the failure in EGA negotiation by demonstrating how states inadvertently undervalue the transboundary environmental impacts of environmental goods. This insight also fills the void left by rational choice theory in regard to the valuation process.

KEYWORDS

Environmental Goods Agreement, Law and Psychology, Psychology of International Environmental Law, Transboundary Harm, Environmental Impact.

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INTRODUCTION

By any classic interest-based account of international law, the Environmental Goods Agreement (EGA) seemed to have everything going for it in 2016.[1] The goal of the EGA is to facilitate the exchange of environmental-friendly goods among nations by reducing trade barriers, such as tariffs. Members hailed it enthusiastically as a mutually beneficial agreement that addressed economic development and environmental protection at the same time.[2] These dual goals were built into the structure of the agreement itself[3] via the creation of special trade incentives for so-called "environmental goods" that improve or remedy environmental problems.[4] So long as stakeholders valued both economic and environmental achievement, the agreement should have been a slam dunk.

And yet, as of the writing of this paper, negotiations have stalled, and progress on the EGA has effectively ground to a halt inside the World Trade Organization (WTO). Parties have failed to reach agreement on the most basic of environmental goods: even bicycles—widely recognized and praised as carbon-saving vehicles[5]—have been formally withdrawn from the commodities list.[6] Undervaluing environmental improvements and anticipating increased competition from imported Chinese bicycles, the European Union (EU) removed bicycles from the list of environmental goods. The potential for China gaining a considerable market advantage on bicycles in the EU seems to have been the motivation behind this move. As a direct result, the withdrawal was considered a rationale for failure in the negotiations.[7]

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1. WTO, *Progress Made on Environmental Goods Agreement, Setting Stage for Further Talks* (December 4, 2016), https://www.wto.org/english/news_e/news16_e/ega_04dec16_e.htm. [https://perma.cc/GL8E-CSDV].

2. *See* Global Affairs Canada, *WTO Environmental Goods Agreement (EGA)*, CANADA (Date Modified: July 14, 2022), https://www.international.gc.ca/trade-agreements-accords-commerciaux/topics-domaines/env/plurilateral.aspx?lang=eng. [https://perma.cc/F9S9-TEKL].

3. WTO, *Eliminating Trade Barriers on Environmental Goods and Services* (2024), https://www.wto.org/English/tratop_e/envir_e/envir_neg_serv_e.htm. [https://perma.cc/8MF8-JUDG] (last visited Oct. 28, 2024).

4. Carlos Kuriyama, *A Review of the APEC List of Environmental Goods*, at 1, 41 APEC POLICY BRIEF (2021); ORG. FOR ECON. CO-OPERATION AND DEV. (OECD), STATISTICAL OFFICE OF THE EUROPEAN COMMUNITIES, *The Environmental Goods and Services Industry Manual for Data Collection and Analysis*, Ch. 2 art. 1 (1999), https://unstats.un.org/unsd/envaccounting/ceea/archive/EPEA/EnvIndustry_Manual_for_data_collection.PDF (defining environmental goods as goods that "measure, prevent, limit, minimize, or correct environmental damage to water, air, and soil, as well as problems related to waste, noise and eco-systems. This includes cleaner technologies, products, and services that reduce environmental risk and minimize pollution and resource use").

5. Christian Brand et al., *The Climate Change Mitigation Impacts of Active Travel: Evidence from a Longitudinal Panel Study in Seven European Cities*, 67 GLOB. ENV'T. CHANGE 19 (2021).

6. William A. Reinsch et al., *Environmental Goods Agreement: A New Frontier or an Old Stalemate?* at 10, CSIS (2021).

7. *Id.*

Rational choice theory provides some explanation for this impasse. According to traditional rational choice theory, the maximization of self-interest is the primary motivation for state action.[8] Therefore, the current deadlock reflects the inability of the states involved to secure what they consider to be sufficient maximizations of interests. In this narrative, the green economy or green growth equilibrium of the EGA cannot practically satisfy achievement of sustainable long-term environmental goals for the whole while also providing enough immediate market benefits for individual states.[9]

Nevertheless, it is important to note that factors such as information, preference, and bias are also relevant to the valuation process of interest. For example, contingent valuation ("CV") incorporates rational value as well as affective preference and bias.[10] Such considerations can be seen in the way individuals react differently based on the information available to them,[11] and in the way studies of bidding games show how an initial proposal affects later responses.[12] Consequently, factors other than rational choice theory may have an impact on valuation.[13] Similarly, states do not always act rationally or in their own self-interest.[14] In the context of environmental products, rational choice theory may provide an interest-based discussion, but it does not disclose the holistic valuation process. Other critics contend that rational choice theory does not provide a consistent presumption for when a state will pursue a normative objective, nor does it provide a comprehensive evaluation procedure in decision-making.[15] Hence, rational choice theory does not encompass all the contours of valuation, and the scholarly void has not yet been addressed.

Psychological research could help fill the academic gap by offering empirical data on factors that influence valuation decisions. Psychological research could provide pivotal information to states regarding certain emotional preferences and biases in play when valuing environmental goods.[16] Furthermore, such research highlights the undervaluation factor and condition. This research argues that recent psychological studies may help us comprehend

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8. *See* JACK GOLDSMITH & ERIC POSNER, THE LIMITS OF INTERNATIONAL LAW at *7* (2005).

9. Joachim Monkelbaan, *Using Trade for Achieving the SDGs: The Example of the Environmental Goods Agreement*, 51 J. WORLD TRADE 575 (2017).

10. Charles Harris et al., *Improving the Contingent Valuation Method*, 17 J. ENV'T ECON. & MGMT. 213, 215 (1989).

11. John T. Daubert & Robert A. Young, *Recreational Demands for Maintaining Instream Flows: A Contingent Valuation Approach*, 63(4) AM. J. AGRIC. ECON. 666 (1981).

12. R. D. Rowe et al., *An Experiment on The Economic Value of Visibility*, 7 J. ENV'T ECON. & MGMT. 1 (1980).

13. Richard Bishop et al., *Contingent Valuation of Environmental Assets: Comparison with a Stimulated Market*, 23 NAT. RES. J. 619 (1983).

14. Kristen Renwick Monroe & Kristen Hill Maher, *Psychology and Rational Actor Theory*, 16 POL. PSYCH. 1 (1995); Edward Rubin, *Rational States?*, 83 VA. L. REV. 1433 (1997).

15. Elinor Ostrom, *A Behavioral Approach to the Rational Choice Theory of Collective Action: Presidential Address, American Political Science Association, 1997*, 92 AMER. POL. SCI. REV. 1, 2 (1998).

16. Anne van Aaken, *Behavioral Aspects of The International Law of Global Public Goods and Common Pool Resources*, 112 AMER. JOURNAL OF INT'L. LAW 67, 69–70 (2018).

why a prospective agreement failed for reasons other than interest. By exploring the ways in which undervaluation interacts with EGA negotiations, psychology provides an important and supplemental perspective on how, when, and why countries may undervalue environmental concerns.

This paper proceeds as follows: Part I opens with a brief history of the Asia-Pacific Economic Cooperation (APEC) and the Organization for Economic Co-operation and Development (OECD) before focusing on the current WTO forum. This research then introduces the WTO EGA negotiation along with the potential rationale for its failure. Part II explains how psychological preference and bias interact with international environmental law (IEL), exploring how psychological factors affect perceptions of transboundary harm. The psychology of IEL should be understood to incorporate both the psychology of international law and transboundary harm. Particularly, individuals tend to respond in a biased manner when faced with transboundary harm. Part III applies the psychological method to the WTO EGA negotiation as a case study. In addition, this research claims that the failure of WTO EGA negotiations could be the result of the psychological reaction to transboundary harm, which is mirrored in EGA negotiations.

1. THE ENVIRONMENTAL GOODS MECHANISM UNDER INTERNATIONAL LAW

The environmental goods mechanism is beneficial to environmental protection and economic development. Promoting environmental goods is practically helpful for sustaining the natural environment.[17] At the same time, tariff concessions and the removal of non-tariff barriers could increase market access and accelerate trade liberalization.[18] The international community thus considered this mechanism to be a "win-win" proposition and expected several positive developments.[19]

The notion of providing environmental goods or products that benefit environmental protection was described by the OECD in 1999.[20] As commonly understood, environmental goods are those that "*measure, prevent, limit, minimize, or correct environmental damage to water, air, and soil, as well as problems related to waste, noise and eco-systems. This includes cleaner technologies, products, and services that reduce environmental risk and*

17. Muhlis Can et al., *The Role of Trading Environment-Friendly Goods in Environmental Sustainability: Does Green Openness Matter for OECD Countries?,* 295 JOURNAL OF ENV'T MGMT. 1 (2021).

18. *See* Kuriyama, *supra* note 4.

19. UNITED NATIONS ENV'T PROGRAMME, *Trade in Environmental Goods* (2024), https://www.unep.org/explore-topics/green-economy/what-we-do/environment-and-trade-hub/trade-environmental-goods [https://perma.cc/4R92-PLAP].

20. ORGANIZATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD) STATISTICAL OFFICE OF THE EUROPEAN COMMUNITIES, *The Environmental Goods and Services Industry Manual for Data Collection and Analysis* (1999), https://www.oecd.org/env/industry/31685501.pdf. [https://perma.cc/3L95-9VFB].

minimize pollution and resource use."[21] The OECD includes a broad definition of environmental products; any product that fits these criteria qualifies as an environmental good.

In 2012, the APEC adopted 54 products in the environmental goods list for the annex C of its Leader's Declaration, a joint announcement made by all participants after the conference.[22] As APEC explained at the time, environmental goods are thought to be helpful both to green growth and to environmental protection.[23] Reducing tariffs on products that contribute to environmental protection lowers the cost, increases trade liberalization, and accelerates the usage of environmentally friendly products. This "win-win" strategy was deemed an efficient way to improve the global environmental while also incentivizing international trade.

Since the adoption of the first list of environmental goods by APEC in 2012, the amount of environmental goods traded has risen annually.[24] Recent inclusion of the environmental goods mechanism in the Comprehensive and Progressive Agreement for Trans-Pacific Partnership ("CPTPP") provides a forum for bilateral or multilateral arrangements among contracting parties.[25] Inclusion of a list of environmental goods in such arrangements is encouraged. Future development concerning environmental goods is therefore anticipated among contracting parties. The importance of environmental commodities has also drawn the attention of the WTO, whose member states have urged the establishment of a more globalized agreement encompassing environmental goods.

1.1 WTO Environmental Goods Agreement Negotiations

In recognition of the growing importance and opportunities offered by environmental goods, the WTO began negotiations to reach an EGA in 2014. Expectations were promising, and it was believed that the EGA could further expand to all WTO members via the most-favored-nation treatment and become a global treaty. The lowering of taxes could save up to 485 million dollars per

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21. *Id.* at 9.

22. ASIA-PACIFIC ECONOMIC COOPERATION (APEC), *2012 Leader's Declaration,* https://www.apec.org/Meeting-Papers/Leaders-Declarations/2012/2012_aelm [https://perma.cc/9FC3-42WU] (last visited Oct. 28, 2024); ASIA-PACIFIC ECONOMIC COOPERATION (APEC), *APEC List of Environmental Goods*, https://www.apec.org/meeting-papers/leaders-declarations/2012/2012_aelm/2012_aelm_annexc [https://perma.cc/2C6U-VWZD] (last visited Oct. 28, 2024).

23. *See* Kuriyama , *supra note* 4; R. Wan et al., *Trade Liberalization in Environmental Goods*, 51 RESOURCE AND ENERGY ECONOMICS at 44–66 (2018).

24. UNITED NATIONS ENVIRONMENT PROGRAMME, *Trade in Environmental Goods at a Glance*, https://www.dropbox.com/sh/fcfdsms0qjj4t09/AAA3lD7dpAfmOu_YMzPoS9U-a?dl=0 [https://perma.cc/XVA5-K4GE]. The table of this report shows that the total export value of environmental goods from 2001 to 2001 has grown by more than 100%.

25. *See Comprehensive and Progressive Agreement for Trans-Pacific Partnership* (consolidated text) (Mar. 8, 2018), https://investmentpolicy.unctad.org/international-investment-agreements/treaties/treaties-with-investment-provisions/3808/comprehensive-and-progressive-agreement-for-trans-pacific-partnership-cptpp-2018- [https://perma.cc/2SEW-TDYV].

year.[26] In addition, the EGA could take over existing international environmental treaty measures, for example, the Montreal Ozone Layer Protocol.[27] This 1987 measure to phase out the ozone depletion products has been extended several times, and the EGA could supplement its mission.[28]

Nonetheless, from 2014 to 2016, nineteen parties engaged in multiple rounds of negotiations on the WTO EGA framework.[29] Twelve years have since passed, and the agreement remains unfinished. The last negotiation took place in 2016 with a similarly unsuccessful outcome. Scholarly studies have discussed various aspects of the failed talks.[30] Notably, developing countries showed little enthusiasm for engaging in the discussions. Only China, Costa Rica, and Turkey participated in the WTO negotiation. Debates over this have arisen, and some have argued that the lack of engagement from developing countries led to a lack of representation in the negotiation.[31]

Still, supporters contend that developing countries do have interests at stake.[32] Further investigation cites four reasons for the failure. First, China's environmental list surprised and disappointed negotiators, and therefore, consensus over the list was never reached.[33] Second, China and the U.S. disagreed on the free-rider clause baseline.[34] Third, parties agreed on the phasing out of tariffs but not on the timeline or quantity. Fourth, the EU opposed including bicycles on the environmental products deal, and China's anti-dumping concerns blocked the EU from designating bicycles as environmental goods.[35] In the end, these explanations demonstrated how countries disregarded the mutually beneficial foundation of the EGA and instead prioritized their own interests.

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26. Kornel Mahlstein & Christine McDaniel, *The Environmental Goods Agreement: How Would US Households Fare?*, ICTSD POLICY BRIEF (2017).

27. *The Montreal Protocol on Substances that Deplete the Ozone Layer*, Sept. 16, 1987, 1522 U.N.T.S 3.

28. Jaime de Melo & Jean-Marc Solleder, *The Role of an Environmental Goods Agreement in the Quest to Improve the Regime Complex for Climate Change*, EUROPEAN UNIVERSITY INSTITUTE WORKING PAPER (2019).

29. WTO, *Environmental Goods Agreement (EGA)*, https://www.wto.org/english/tratop_e/envir_e/ega_e.htm (last visited Nov. 4, 2024).

30. *See, e.g.*, Mark Wu, *Why Developing Countries Won't Negotiate: The Case of the WTO Environmental Goods Agreement*, 6(1) TRADE L. & DEV. 93 (2014).

31. *Id.*

32. *See* Robert Hamwey, *Environmental Goods: Where Do the Dynamic Trade Opportunities for Developing Countries Lie?*, INT'L CTR. for TRADE & Sustainable DEV. at 4, 5 & 8 (Dec. 2005); Veena Jha, *Environmental Priorities and Trade Policy for Environmental Goods: A Reality Check*, INT'L CTR. FOR TRADE & SUSTAINABLE DEV. at 41 (Sep. 2008).

33. *See* Mahlstein & McDaniel, *supra* note 26.

34. *See generally* William J. Baumol, *Welfare Economics and the Theory of the State*, *in* THE ENCYCLOPEDIA OF PUBLIC CHOICE 943 (Charles K. Rowley & Friedrich Schneider eds., Springer 2004) (suggesting that free riders benefit from resources, public goods, and shared pool resources without having to pay for them. Free riders waste common pool resources by failing to pay fees, tolls, or taxes. Typically, free-rider clauses are included in public goods governance to prevent public commodities from depleting).

35. *See* de Melo & Solleder, *supra* note 28, at 4–5.

1.2 Puzzle from Current Scholarly Discussion on EGA Failure

Current scholarship has not exhausted useful explorations as to why the EGA negotiation proved unsuccessful. Proponents of rational choice theory claim that countries act to maximize their own economic interests.[36] This economic point of view suggests that the agreement's benefits are minimal for developing countries. Some claim that the lack of advantage for developing countries leads to low engagement, and is thus a contributing factor to the negotiation impasse.[37] However, others argue that the terms of the EGA contain sufficient inducements for the participation of developing countries,[38] suggesting that forces other than economic benefit may be at play. However, these discussions omit the fact that the evaluation process also involves individual preferences and biases. Economic interests may certainly influence a state's motivation, but such interests do not fully explain the assessment procedure. States that consented to the dual normative objective in the EGA negotiation agreed to incorporate environmental factors as well as economic ones into the evaluation process. The green growth foundation of the EGA demonstrates that states support the idea of a dual normative objective in a single treaty, but current discussions have largely neglected non-economic interests. This diversity of theories advances the case for considering motivation and undervaluation as key elements for understanding the situation.

Rational choice theory may provide an effective and accessible method for comprehending state acts; however, countries have unique psychological responses to transboundary harm. This point is not covered by the present argument for rational choice. The hypothesis of interest concentration cannot explain unconscious or subconscious behaviors. Also, rational choice theory does not account for the nature of transboundary harm, which tends to make leaders of nations neglect the full value of environmental benefits and prioritize other interests. These discussion gaps raise several questions, such as, “Which will a state prioritize: economic or environmental benefits?”, “How is interest defined under rational choice theory?”, and “Are decision-makers rational?”. Rational choice theory does not provide all the answers, presenting an opportunity for future explanations from other disciplines. To address a gap in the current literature, this research suggests that a psychological approach may offer insights into the failure of the WTO EGA negotiations.

36. *See generally* GOLDSMITH & POSNER, *supra* note 8.
37. *See* Wu, *supra* note 30, at 96.
38. *See generally* Hamwey, *supra* note 32; *see generally* Jha, *supra* note 32.

2. THE PSYCHOLOGICAL PREFERENCE UNDER TRANSBOUNDARY ENVIRONMENTAL HARM GOVERNANCE

The use of psychology in the legal realm is not unprecedented. Numerous research studies apply psychology to law with fruitful results.[39] Psychology aims to shed light on the inner functioning of the human mind and aids in explaining, evaluating, and predicting behavior in relation to external environments. Law regulates human conduct and represents the demands of the majority of individuals. The application of psychology to laws may improve the anticipation of practical implications and the development of policies that are more productive in directing human behavior toward desired objectives.[40]

Similarities can be seen in the intersection of psychology and environmental governance. Current research argues that the nature of environmental harm, which impacts the valuation process, is an obstacle for individuals dealing with environmental management. Rowell and Bilz argued that environmental impact is diffused, complex, and interacts with non-human objects. These characteristics can trigger specific psychological phenomena, which in turn can influence environmental law.

Reactions to transboundary environmental harm share similar psychological characteristics in that humans respond differently when confronted with it.[41] As opposed to domestic environmental harm, transboundary harm refers to damages caused in the territory or jurisdiction of a state other than the one of origin.[42] Due to the possibly greater extent and severity of transboundary harm, the perspectives of individuals could be influenced.[43] Consider the way in which climate anxiety is positively related to pro-environmental actions.[44] A sense of responsibility for climate change also relates to a pro-environmentalism stance, according to an international study.[45] Psychological considerations, in turn, affect the compliance of IEL and, therefore, impact environmental decision-making.[46]

Psychological theories applicable to the sphere of international law help shed light on the continued conundrum of valuation. States are the legal entities

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39. For example, Janice Nadler, *Flouting the Law*, 83 TEX. L. REV.1399, 1439 (2005), argues that the perceived unjust of one legislation or legal decision can influence individuals' compliance with unrelated law.

40. Arden Rowell & Kenworthey Bilz, *The Psychology of Environmental Law* 219 (2021).

41. *Id.*

42. INT'L L. COMM'N, *Draft Articles on Prevention of Transboundary Harm from Hazardous Activities, with Commentarie*s, U.N. Doc. A/56/10, at 151, art. 2(c) (2001).

43. *See* Rowell & Bilz, *supra* note 40, at 244.

44. *See generally* Charles A. Ogunbode et al., *Climate Anxiety, Wellbeing and Pro-Environmental Action: Correlates of Negative Emotional Responses to Climate Change in 32 Countries*, 84 J. ENV'T PSYCH. 101887 (2022).

45. *See* Stylianos Syropoulos & Ezra M. Markowitz, *Perceived Responsibility to Address Climate Change Consistently Relates to Increased Pro-Environmental Attitudes, Behaviors and Policy Support: Evidence Across 23 Countries*, 83 J. ENV'T PSYCH. 101868 (2022).

46. *See generally* Peter H. Huang, *International Environmental Law and Emotional Rational Choice*, 31 J. LEGAL STUD., S273 (2022).

that act on behalf of citizens, but key individuals such as ministers and representatives are still the decision-makers. The actions of state leaders shape the formation, compliance, and enforcement of international law.[47] Therefore, applying a psychological approach in international environmental law ("IEL") could provide useful observations for international law reference. Related psychological studies might supply a wealth of information about environmental omissions in transboundary harm, highlighting the cognitive hurdles to reaching desired standard objectives. The following section spells out the psychological approach in IEL.

The psychology of IEL incorporates the psychology of international law[48] and transboundary harm, illustrating the psychological interaction between individuals and IEL. The following section continues the discussion on the general psychology of environmental law[49] and international law of which IEL is a subfield. By delving further into the psychology of transboundary harms, the present study suggests that a psychological perspective could contribute to an alternate and improved comprehension of the valuation processes undertaken by states.

2.1 The General Psychology of International Law

The psychology of international law—at the intersection of law and psychology and international law—has also only recently emerged as an important area of scholarly inquiry. This approach may resolve many puzzles of international law, such as how a state leader perceives a dispute or how to conclude a treaty that binds contracting parties. Scholars such as Anne van Aaken, Tomer Broude, Jean Galbraith, and Rose McDermott ask how psychological and behavioral research on individuals applies to states. [50] [51] [52] [53] States are abstract entities that are led by individuals,[54] so an open question is how and to what extent the motivations, emotions, and cognition of individuals can be applied to "state" decision-making and judgment? The psychology of international law helps answer these questions and explain deviations from

47. *See* GOLDSMITH & POSNER, *supra* note 8, at 4.

48. *See generally* Anne van Aaken & Tomer Broude, *The Psychology of International Law: An Introduction*, 30 EUR. J. INT'L L. 1225 (2019).

49. *Id.*

50. *Id.*; *see also* Anne van Aaken, *Behavioral International Law and Economics*, 55 HARV. INT'L L. J., 421 (2014).

51. Tomer Broude, *Behavioral International Law*, 163 UNIV. OF PA. L. REV., 1099 (2015).

52. Jean Galbraith, *Treaty Options: Towards a Behavioral Understanding of Treaty Design*, 53 VA. J. INT'L L., 309 (2013), https://doi.org/10.3998/mpub.10847 [https://perma.cc/9JQL-HRQE].

53. ROSE MCDERMOTT, POLITICAL PSYCHOLOGY IN INTERNATIONAL RELATIONS 119, 215 (Univ. of Mich. Press 2004).

54. Andrew Moravcsik, *Taking Preferences Seriously: A Liberal Theory of International Politics*, 51 INT'L ORG., 513, 518 (1997).

rational choice assumptions by using empirical evidence to provide a closer look into how policymakers actually behave.[55]

The key finding in the psychology of international law is that states are not always rational.[56] The economic approach in international law claims that states are rational actors seeking to maximize their interests.[57] Accordingly, the decision-making process of states relies solely on interest valuation without involving the preferences and biases of individuals. However, state leaders are also individuals who have preferences and perceptions that could be potential factors in their decision-making.[58] Received information and heuristic reactions alter an individual's state of mind, resulting in a person who is not always entirely rational.[59] Taken together, the acts of individuals result in the behavior of states,[60] and research tells us that preference and bias may have an impact on individuals. Hence, understanding the psychology of individuals may illuminate the drafting, interpretation, application, and enforcement of international law.

Some scholars have explored how psychology influences the legal dimensions of international relations. Tomer Broude and Inbar Levy discuss decision-making in international humanitarian law contexts, such as targeting and other operational decisions.[61] As a result, they focus on the individual decision-making level (e.g., a military commander or legal counselor) and its interactions with international law.[62] Focusing on international "nudges" or low-cost, choice-preserving remedies to regulatory challenges, Doron Teichman and Eyal Zamir apply the principles of behavioral legal theory to the international arena.[63] Using existing research, they explore the repercussions of individuals failing to opt out of or into international treaties.[64] Teichman and Zamir describe the effectiveness of "nudge" strategies such as deadlines, rankings, and goal setting regarding international law and relations.[65] The potential for psychological biases in international adjudication and the implementation of international rules is of particular concern to Sergio Puig. Puig's research concentrates on international economic law and shows how a cognitive bias in favor of the appointing party—what Puig refers to as "affiliation effects"—can

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55. van Aaken & Broude, *supra* note 48, at 1227; *see also* van Aaken, *supra* note 50.

56. Alex Mintz et al., *Beyond Rationality: Behavioral Political Science in the 21st Century*, 45–64 (2022).

57. GOLDSMITH & POSNER, *supra* note 8, at 5.

58. Robert Jervis, *How Statesmen Think: The Psychology of International Politics*, 15–39 (2017).

59. MINTZ ET AL., *supra* note 56, at 45–64.

60. GOLDSMITH & POSNER, *supra* note 8, at 4.

61. Tomer Broude & Inbar Levy, *Outcome Bias and Expertise in Investigations under International Humanitarian Law*, 30 EUR. J. INT'L. L. 1303, 1304 (2019).

62. *Id.*

63. *See generally* EYAL ZAMIR & DORON TEICHMAN, BEHAVIORAL LAW AND ECONOMICS 423–25 (2018).

64. *Id.*

65. *See generally* Doron Teichman & Eyal Zamir, *Nudge Goes International*, 30 EUR. J. INT'L. L. 1263 (2019).

influence the decisions of arbitrators in international investment law.[66] Puig suggests that "blinding" appointments can be used to combat the cognitive bias favoring the appointing party.[67]

Nevertheless, the research above does not address the transboundary environmental issue. IEL is peculiar as it exists at the crossroads of decentralized community and transnational harm. Yet, international law psychology does not include the psychology of transboundary harm, which might influence the perspective of states. In addition, the psychology of environmental law does not reflect the cross-border characteristics of transboundary harm. Therefore, this research suggests that the psychology of IEL should be introduced to fill the void.

2.2 The Psychology of Transboundary Harm

Environmental harm is diffused in time and space, has complexity in its constitution and causation, and interacts with non-human objects, such as plants, animals, and insects.[68] Transboundary harm shares these three features and expands beyond political borders. Geographically, the diffusion of transboundary harm spread across national borders by its nature. The lawful usage of soil in the United States may bring harm to neighboring Canada.[69] The causation of environmental impact under a cross-border context could be even more complicated. The building of a dam upstream could imperil the ecosystem downstream.[70] The distance involved with transboundary harm makes it harder for individuals to perceive the importance of endangered species worldwide.

Human psychology interacts with several aspects of transboundary harm.[71]Various sources of pollution, for example, may elicit markedly different psychological responses in humans.[72] When quantitative harm from numerous forms of pollution is familiar or natural, contaminants may prompt less anxiety than novel or manmade pollutants.[73] Such psychological insights can have descriptive, prescriptive, and normative consequences for the legal control of environmental damage. Psychology describes human cognition, motivation, and emotion, enabling environmental law to comprehend why, when, and how people engage in harmful behavior. Prescriptively, psychology can help environmental legislation achieve policy objectives more effectively. Moreover,

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66. Sergio Puig, *Debiasing International Economic Law*, 30 EUR. J. INT'L. L. 1339, 1348–49 (2019).

67. *Id.*

68. Richard J. Lazarus, *Restoring What's Environmental about Environmental Law in the Supreme Court*, 47 U.C.L.A. L. REV. 703, 747 (2000).

69. Trail Smelter Arbitration (U.S. v. Can.), 3 R.I.A.A. 1907 (1941).

70. Gabčikovo-Nagymaros Project (Hung. v. Slovk), Judgment, 1997 I.C.J. REP. 7, 75 (Sept. 25).

71. *See, e.g.*, Jeffrey J. Rachlinski, *The Psychology of Global Climate Change*, 2000 UNIV. ILL L. REV. 299 (2000).

72. *Id.*

73. Rowell & Bilz, *supra* note 40, at 159.

psychology is non-normative in that it seeks to comprehend human behavior without a predetermined goal. Therefore, psychology could be utilized in any environmental governance effort.[74] The study highlights three elements in the psychology of transboundary harm that affect the perception of valuation among people involved in cases of environmental damage. The following discussion focuses on these three features—diffusion, complexity and political borders.

First, the ***diffusion*** of transboundary harm in time and space results in particular psychological interactions that contribute to the undervaluation of the environment. Carcinogenic pollutants could last for decades and endanger subsequent generations.[75] Air pollutants from China contribute to the air pollution in South Korea.[76] These geographical and temporal characteristics often cause people to disregard the environmental impact. Studies into cognitive limitation offer abundant research about this phenomenon. Availability heuristic refers to the phenomenon of people considering items that are simple to recall being abundant.[77] The less obvious, less urgent, and less vivid a risk or event is, the more likely it is for people to underestimate its severity according to availability heuristic research.[78] Transboundary harm shares similarities with these psychological effects. Cross-border pollution is almost always considered less urgent to address and more difficult to identify. Consider ozone depletion in 1970s; it was not until 1985 that the international community became aware of this issue and drafted a global treaty to regulate chlorofluorocarbons. Temporal diffusion also results in the challenge of perception. It could take decades for humanity to recognize the destructive effects of dumping plastic waste into the oceans. Individuals cannot easily comprehend the huge amount of damage to marine ecology brought about by such pollution due to the temporal dimension. Therefore, the diffusion associated with transboundary harm results in the undervaluation of environmental concern under IEL.

The possibility of global climate change provides opportunity for an availability cascade to develop.[79] A cascade of availability involves an expanding cycle of acceptance around certain ideas. For instance, a novel concept or insight that clarifies a complex environmental process may rapidly gain popularity due to its apparent clarity and ease of application. As a result of

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74. Rowell & Bilz, *supra* note 40, at 15, 18, 19.

75. Richard L. Revesz, *Environmental Regulation, Cost-Benefit Analysis, and the Discounting of Human Lives*, 99 COLUM. L. REV. 941, 985 (1999).

76. Moon J. Kim, *The Effects of Transboundary Air Pollution from China on Ambient Air Quality in South Korea*, 5 HELIYON 1, 2 (2019).

77. *See, e.g.*, Amos Tversky & Daniel Kahneman, *Availability: A Heuristic for Judging Frequency and Probability*, 5 COGNITIVE PSYCHOL. 207 (1973); Paul Slovic et al., *The Affect Heuristic*, 177 EURO. J. OPERATIONAL RSCH. 1333 (2007).

78. Daniel Kahneman & Amos Tversky, *Judgment under Uncertainty: Heuristics and Biases*, 185 SCIENCE 1124 (1982); Timur Kuran & Cass Sunstein, *Availability Cascades and Risk Regulation*, 51 STAN. L. REV. 683 (1999); Elke U. Weber, *Experience-based and Description-based Perceptions of Long-term Risk: Why Global Warming Does Not Scare Us (yet)*, 77 CLIMATE CHANGE 103 (2006); Jonathan B. Wiener, *The Tragedy of the Uncommons: On the Politics of Apocalypse*, 7 GLOBAL POLICY 67 (2016).

79. Kuran & Sunstein, *supra* note 78, at 683.

the increasing acclaim, a chain reaction occurs in social networks, and individuals adopt the novel and apparently credible viewpoint because others have done so.[80]

In the context of climate change, it is difficult to monitor and comprehend the climate, but isolated climate-related phenomena are easy to identify. Media attention is drawn to the frequency of tornadoes, hurricanes, heat waves, and floods. Whether a specific climatic event was caused by climate change, the persistent coverage of related phenomena in local or worldwide news helps people recall weather events and exaggerate the rate of severe climate change. This biased assimilation may lead to a misinterpretation of climate change and have repercussions on the policymaking process.[81]

Hedonic forecasting is another cognitive phenomenon caused by diffusion that exemplifies the way individuals undervalue environmental impact. This type of behavior demonstrates that people can be poor futurists because they tend to concentrate on the present and are unable to anticipate future mitigation or adaptation.[82] In the case of transboundary harm, temporal diffusion could lead to omission or undervaluation regarding pollution. Consider the impact of long-term nuclear radiation; people did not understand how harmful it was until later precedents demonstrated the case. [83] [84] Present bias also show long-term effects can sway the perceptions of individuals about environmental damage. People tend to focus on imminent satisfaction.[85] In other words, people work hard to avoid imminent harm, and such behavior could further influence the valuation of environmental impact. Transboundary harm may be diluted by its temporal diffusion, leading to underestimation of the precise effect and failure to control such impact.

Second, the ***complex*** constitution of transboundary harm could lead to a simplified heuristic reaction, that is, a tendency for individuals to estimate probabilities by referring to what is readily available in their minds,[86] resulting in a lower estimation of environmental harm. Put another way, the longer people wait, the easier it is for them to undervalue the impact of damage.[87] The environment is a typical complex system[88] in which the constitution of the

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80. *Id.*

81. Rachlinski, *supra* note 71, at 304–07.

82. T. D. Wilson et al., *Focalism: A Source of Durability Bias in Affective Forecasting*, 78 J. PERSONALITY AND SOC. PSYCH. 821 (2000).

83. *Id*.

84. Dan Listwa, *Hiroshima and Nagasaki: The Long Term Health Effects*, COLUMBIA CENTER FOR NUCLEAR STUDIES (Aug. 9, 2012), https://k1project.columbia.edu/news/hiroshima-and-nagasaki [https://perma.cc/W9L5-QCGU].

85. Ted O'Donoghue & Matthew Rabin, *Doing It Now or Later*, 89 AM. ECON. REV. 103 (1999).

86. Tversky & Kahneman, *supra* note 77, at 207.

87. Richard H. Thaler, *Some Empirical Evidence on Dynamic Inconsistency*, 8 ECON. LETTERS 201, 205 (1981).

88. Simon A. Levin, *Ecosystems and the Biosphere as Complex Adaptive Systems*, 1 ECOSYSTEMS 431 (1998).

environment is a nesting hierarchy that spreads from smaller units to the entire ecosystem.[89] The ecosystem contributes to the climate and vice versa. This interacting dynamic plays an important role in the constitution of the environment. The system becomes even more complicated if we factor human behavior into it. Consider the example of sunscreen having a deadly impact on marine coral. A regulator may wish to ban the use of sunscreen.[90] However, the substances endangering coral could be numerous, and sunscreen is just one of them.[91] Therefore, it is challenging for a policymaker to predict the environmental impact with a high degree of precision.

The investigation of the origins of an environmental impact is a complex and multifaceted endeavor that encompasses a variety of sophisticated factors. One causation could be influenced by another causation, and one may be nested in the other. This complexity distorts individual psychological perceptions as to cause and effect.[92] Individuals may have difficulties understanding the environmental complexity due to cognitive limitations. This challenge leads to the short-cut heuristic, that is, a heuristic preference for the most readily accessible information, when individuals process certain information. Put another way, individuals care more about one or two salient factors when an environmental impact may have several.[93] Hence, causation could be wrongfully simplified as a linear relation, obscuring the reality of the situation.

In addition, individuals are more inclined to assign negative consequences to reasons they already consider harmful or immoral, and they are unwilling to believe that what they enjoy or subjectively view as good could result in a negative outcome. Furthermore, some individualists may doubt the truth of climate change science because they fear the implications of global acceptance. In such circles, anything that might provide a legal justification for the state to govern an industry will be viewed as suspect. In contrast, liberalists and communitarians may accept the science of climate change not because they are more educated, but because the conventional top-down method of regulation is consistent with their ideas of government.[94]

Another psychological interaction when faced with a complex environmental impact is pattern detection and simplifying heuristics. Pattern detection allows for the reduction of complexity. It enables us to reduce a situation's primary characteristics to its most crucial elements. This ability helps us navigate and control our circumstances, as well as make sense of otherwise

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89. J. B. Ruhl, *Thinking of Environmental Law as a Complex Adaptive System: How to Clean up the Environment by Making a Mess of Environmental Law*, 34 HOUS. L. REV. 933 (1997).

90. Robert B. Raffa et al., *Sunscreen Bans: Coral Reefs and Skin Cancer*, 44 J. CLINICAL PHARMACY AND THERAPEUTICS 134 (2019).

91. *Id.* at 138.

92. Rowell & Bilz, *supra* note 40, at 68–75.

93. Shelley E. Taylor & Susan T. Fiske, *Salience, Attention, and Attribution: Top of the Head Phenomena*, 11 ADVANCES IN EXPERIMENTAL SOC. PSYCHOL. 249 (L. Berkowitz ed., 1978).

94. Dan M. Kahan et al., *They Saw a Protest: Cognitive Illiberalism and the Speech-conduct Distinction*, 64 STAN. L. REV. 851, 860 (2012).

incomprehensible concepts, such as the environment.[95] The evolved human brain is endowed with superior template-processing intelligence.[96] The cognitive process of discovering templates enables people to condense complex things into basic templates. When this procedure is effective, discovering templates enables us to categorize a few fundamental qualities and reduce them to their most essential components. This skill allows us to regulate our environment as well as explain complex events. However, this kind of simplification templating could also have some drawbacks. For example, industrial carbon emissions are considered harmful to climate change, therefore certain regulations are expected and demanded. In the US, the Clean Air Act exempts carbon emissions from wildfires. Nonetheless, wildfires contribute 112 million metric tons of CO2, which amounts to over 75% of carbon emissions in California.[97] The templating behavior or the availability heuristic bias could result in further misperceptions of environmental risk, thereby impairing the efficacy of environmental regulations.

Additionally, there is a psychological barrier to reducing the danger of global climate change because of the unknown effects of using fossil fuels.[98] The human tendency to interpret new knowledge in light of preexisting belief systems makes those belief systems highly robust and resistant to change. The unintentional and sometimes unexpected results of this tendency are referred to as biased assimilation. Biased assimilation is the tendency to accept information that supports one's ideas while rejecting data that contradicts those beliefs.[99] One result of biased assimilation is that the presentation of conflicting data tends to harden rather than soften people's ideas on a subject about which they feel passionately. In terms of climate change, scientific data demonstrates that human activity influences the global climate,[100] but belief in climate change still varies. Some experts thought the data showed the severity of climate change, but others disagreed.[101] This debate may culminate in the adoption of preventive measures in global climate change policy.

Third, the transboundary environmental harm involves environmental harm that goes beyond ***political borders***, which could trigger certain psychological reactions. The psychology of political borders offers helpful observation

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95. Mark P. Mattson, *Superior pattern processing is the essence of the evolved human brain*, 8 FRONTIERS IN NEUROSCIENCE 1, 13 (2014), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4141622/pdf/fnins-08-00265.pdf [https://perma.cc/Y3CU-KR7Z].

96. *Id.*

97. *Fire is Part of the Earth's "Natural" Carbon Cycle; Combustion of Fossil Fuels is not*, CALIFORNIA AIR RESOURCES BOARD, https://ww2.arb.ca.gov/resources/documents/frequently-asked-questions-wildfire-emissions [https://perma.cc/5ZJ5-WGJJ] (last visited Oct. 28, 2024).

98. Rachlinski, *supra* note 71, at 299.

99. Charles G. Lord et al., *Biased Assimilation and Attitude Polarization: The Effects of Prior Theories on Subsequently Considered Evidence*, 37 J. PERS. & SOC. PSYCH. 2098, 2099 (1979).

100. Robert K. Kaufmann & David I. Stern, *Evidence for Human Influence on Climate from Hemispheric Temperature Relations*, 388 NATURE 39 (1997).

101. Aaron M. McCright & Reley E. Dunlap, *Cool Dudes: The Denial of Climate Change Among Conservative White Males in the United States*, 21 GLOB. ENV'T'L CHANGE 1163 (2011).

concerning the phenomena that pertains to the cross-border feature. Transboundary environmental harm pertains to environmental degradation that extends beyond the boundaries of individual nations. Environmental harm that spans two or multiple countries may be considered transboundary environmental harm. This research initiates the discussion regarding the psychological impacts of political borders through the contention that they have the potential to cultivate a feeling of identity, thus prompting an individual psychological reaction.

The establishment of borders by humans creates divides in society and helps shape beliefs that impact people's sense of identity.[102] International borders serve as an excellent illustration of how these distinctions impact identity. The self-identity created by political borders could also impact the valuation in environmental transboundary environmental harm. Consider how people regard foreign environmental harm and live, the psychological impact from political borders could influence their valuation process. For one, the internal perception within a group could accelerate the climate change action. Results from an empirical study showed that individuals who were highly committed to a group, indicating satisfaction with the group, were more likely to follow climate-related norms within the group compared to those with lower commitment levels.[103] The feeling of belonging contributes to the group satisfaction.[104] The border identification facilitates the intra-psychological recognition and facilitates the pro-climate change action.

The other example concerning the psychology of borders is relevant to the subjective perception of risks. People tend to perceive the disaster outside a political border less seriously.[105] Environmental undervaluation may result from the state border, according to the study. Individuals frequently fail to recognize the gravity of a catastrophe originating from a different nation-state due to their perception of state boundaries as mere physical barriers. Nonetheless, they fail to underestimate the gravity of an equally remote catastrophe that emanates from within their own state. This study identified, based on the findings of three empirical studies, that such a border bias occurs when individuals classify states as distinct superordinate categories whose events are less likely to happen together compared to those of locations within a state. Political borders are commonly perceived as tangible obstacles that aid in containing the transmission of environmental impacts.[106]

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102. Chiara Brambilla, *Borders and Identities/Border Identities: The Angola-Namibia Border and the Plurivocality of the Kwanyama Identity*, 22 J. BORDERLANDS STUDY 21, 25 (2007).

103. Torsten Masson & Immo Fritsche, *Adherence to Climate Change-Related Ingroup Norms: Do Dimensions of Group Identification Matter?*, 44 EUR. J. SOC. PSYCH. 455 (2014).

104. John Hunter et al., *Subjective Belonging and In-Group Favoritism*, 73 J. EXPERIMENTAL SOC. PSYCH. 136 (2017).

105. Arul Mishra & Himanshu Mishra, *Border Bias: The Belief that State Borders can Protect against Disasters*, 21 PSYCH. SCI. 1582 (2010).

106. *Id.* at 1585.

Another study examines how national and local identification processes impact perceptions of a local environmental concern, specifically the contamination of British beaches in conformity with EU environmental standards. According to geographic identification and social identity theories, English people have a positive bias when judging domestic and international beaches, and their opinions on beach pollution are influenced by ingroup preferences. The study involved administering questionnaires to 347 English secondary school students from six coastal areas. According to EU standards, three are "polluted" beaches while the remaining three are "unpolluted" beaches. Regardless of the physical evidence of contamination or the EU classification, both local and national identities were expected to predict the diversity in perceived pollution levels. Overall, the findings supported the main hypothesis: those with higher levels of civic or national attachment believed beaches in their communities and across the country were less contaminated. Traditional environmental evaluation indicators, such as socio-demographic variables, environmental concern, and environmental use, were found to be ineffective predictors of beach contamination perceptions. Denial of physical pollution evaluations was considered as a means of combating the threat to place identity posed by a powerful outsider (the EU) who branded local beaches.[107]

The psychology of political borders also impacts how individuals regard external perspective on how to value lives outside the political border. The identifiable victim effect plays an important role here fleshing out the situation. An empirical study observed the immigration issue in Europe and tested the identifiable victim effect, concluded that the political sentiment increased when the victim is recognizable. Many immigrants died on their trip to Europe during the migration crisis of the 2010s. In 2015 alone, over 3,800 immigrants and refugees died while attempting to cross the Mediterranean Sea on board large vessels or small floating boats. Among such dreadful tragedies, two specific occurrences are investigated in the study: over a week in April 2015, almost 1,200 individuals drowned in two consecutive events after their boats capsized in the Mediterranean Sea. Later that year, on September 2nd, Alan Kurdi, a three-year-old Syrian toddler, drowned. This study used these two occurrences to explore the "identifiable victim effect" on public attitude toward immigrants in Portugal, utilizing a natural experiment design and the date of the European Social Survey. In contrast to the drowning of over a thousand statistical victims, the results demonstrated that the tragic drowning of a recognized child can cause a shift in public perception.[108]

Under transboundary environmental harm context, the identifiable victim effect could impact the perception and valuation of a cross-border

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107. Marino Bonaiuto et al., *Identity Processes and Environmental Threat: The Effects of Nationalism and Local Identity Upon Perception of Beach Pollution*, 6 JOURNAL OF COMMUNITY & APPLIED SOCIAL PSYCHOLOGY 157 (1996).

108. Odelia Heizler & Osnat Israeli, *The Identifiable Victim Effect and Public Opinion Toward Immigration: A Natural Experiment Study*, 93 J. OF BEHAV. & EXPERIMENTAL ECON. 101713 (2021).

environmental injury especially when the victim is not identifiable. Environmental harm beyond the national border could somehow be hard to identify, the cause, the consequence, and the injuries could be too distant to understand and comprehend. Under certain situation, psychologically, people tend to underestimate or even neglect the transboundary environmental harm that happened outside their political border.

The psychology of IEL shows the dynamic between individuals and transboundary harm and could offer further psychological insights for the reference of IEL. Psychological undervaluation or negligence of transboundary harm mirrors the systematic environmental negligence that has repeatedly occurred in the forum of international law. The psychology of transboundary harm exposes the skews caused by diffusion, complexity, and political borders under international law. Using the psychology of IEL, systematic contortions of environmental concerns may be efficiently identified and corrected. Although individual rationality continues to be expected in decision-making processes governing international law, misperceptions and undervaluations associated with transboundary harm continue to have a definite impact on the perceptions of individuals making decisions. The most recent WTO EGA negotiating procedure follows a familiar pattern, as described in the next section.

3. THE ENVIRONMENTAL GOODS AGREEMENT AS A PSYCHOLOGICAL CASE STUDY

This research takes a psychological approach as an auxiliary approach explaining the environmental undervaluation and utilizes the EGA negotiation as a case study. The EGA seeks to integrate environmental-friendly items, but the effort to pass the agreement encounters all the psychological difficulties derived from transboundary harm, making it an ideal example for applying psychology to IEL. By employing psychological techniques to examine the WTO EGA negotiation process, this study concludes that environmental undervaluation was a supplemental element leading to failure in the discussions. The WTO EGA attempted to fulfill both economic and environmental goals; nevertheless, the skew toward state economic interests throughout the talks seems to indicate that environmental interests were undervalued and viewed consistently as the lower priority. Combined with empirical study, a psychological approach may shed light on this prevalent yet debatable economic bias. In this section, this research utilizes the psychology of IEL to explain environmental undervaluation in negotiations, arguing that this undervaluation could reinforce states' tendency to prioritize economic interests.

3.1 Environmental Undervaluation in the EGA Negotiation

This section argues that the psychology of IEL could offer a supplemental viewpoint on the failure of EGA negotiation, suggesting that economic interest

may have prevailed as a result of environmental undervaluation.[109] International negotiations over trade often lead to a conflict of interest because countries tend to overlook environmental concerns at these forums. In the case of the EGA, the agreement is expected to promote economic growth and environmental protection simultaneously. The failure of negotiations over this agreement at the WTO reiterates economic prioritization.[110] Countries set their self-interest as the top concern instead of balancing economic interests and environmental protections. This lopsided outcome begs the question: why do countries prioritize economic interests in the context of agreements about environmental goods? In other words, why do the decision makers for countries have divergent perspectives when presented with an agreement that protects the shared natural environment?[111] Rational choice theory does not adequately explain the valuation process in such cases because it fails to account for the nature of transboundary harm.

Traditionally, an economic approach to valuation uses CV, a survey-based technique that allocates monetary values to non-marketable environmental assets and services.[112] Comprehensive surveys would be conducted using a combination of in-person interviews, telephone interviews, and postal surveys. Monetary valuation methodologies appraise environmental products and services based on the monetary worth people attribute to receiving or avoiding them. However, this method does not require that a product be sold. It merely involves predicting how much buying power individuals would give up to receive the product or service (or be compensated to give up).[113] Nonetheless, CV has its drawbacks. The willing-to-pay survey questions may introduce bias into the valuation process. Furthermore, a discrepancy frequently exists between what people say they would do and what they actually report doing.[114] Accordingly, the valuation process could be a subjective procedure in which psychological perception and estimation influence decisions in some way, but current legal scholarship does not cover this discussion. Goldsmith and Posner outline rational choice theory under international law;[115] however, the psychological preferences and biases of a state in transboundary harm have not been the subject of legal scholarship. This paper therefore attempts to fill the academic gap. The following four reasons serve as examples of the various psychological responses of countries in relation to valuation in negotiation outcomes of the EGA.

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109. de Melo & Solleder, *supra* note 28, at 130.

110. *Id.*

111. ANDREA BIANCHI, INTERNATIONAL LAW THEORIES: AN INQUIRY INTO DIFFERENT WAY OF THINKING 3 (2016).

112. Sarwar U. Ahmed & Keinosuke Gotoh, *Cost-Benefit Analysis of Environmental Goods by Applying the Contingent Valuation Method: Some Japanese Case Studies* 12 (2006).

113. *Id*. at 7.

114. *Id.*

115. *See* GOLDSMITH & POSNER, *supra* note 8.

First, disagreement over the list of environmental goods revealed a clear preference for economic self-interest. In the latest round of negotiations, China submitted a new environmental list that surprised the other parties. Gas turbines, electric motors, gas controls, and polysilicon solar panels had all been removed from the list, and these omissions contributed to the failure of negotiations because the changes did not fall within expectations.[116] During the negotiations, only seven products overlapped in four submitted lists.[117] The different lists demonstrate a higher priority for self-interest and a lower priority for the environment. Solar panels are regarded as eco-friendly because they mitigate climate change and supply adequate energy for human use. The amount of solar energy that reaches the Earth's surface is approximately 86,000 TW (terawatts), and worldwide energy demand is approximately 17.5 TW.[118] Another research study suggests that solar energy could provide 30% to 50% of the world's electricity supply.[119] These studies emphasize the significance of solar panels in the global climate change battle. Nonetheless, leaders of countries regularly underperceive these international benefits and prioritize national economic interests.

Diffusion associated with transboundary harm could lead to environmental under-perception. People have availability heuristic and therefore consider familiar items to be abundant when determining frequency.[120] According to studies, environmental threats and occurrences that are viewed as less obvious, immediate, and vivid are more likely to be underestimated in likelihood and severity.[121] Transboundary harm could increase the availability heuristic due to the perception difficulties of diffusion in time and space. Hence, China may undervalue the advantages of solar panels in respect to its own economic interests.

Second, parties in the negotiation have prioritized economic interests in the issue of the free-rider clause; specifically, China and the US cannot reach agreement on the free-rider baseline.[122] This issue has been characterized as a market failure since non-contributors receive the same benefits as contributors via specific mechanisms.[123] To avoid future failures over such mechanisms, intervention actions are required. In the negotiations, the baseline for preventing the free rider has swayed between 70% and 90% of the global trade amount from participants. China is concerned that non-participants may benefit from EGA

116. Reinsch et al., *supra* note 6, at 9.

117. de Melo & Solleder, *supra* note 28, at 4–5.

118. Aixue Hu et al., *Impact of Solar Panels on Global Climate*, 6 NATURE CLIMATE CHANGE 290 (2015).

119. Felix Creutzig et al., *The Underestimated Potential of Solar Energy to Mitigate Climate Change*, 2 NATURE ENERGY 17140 (2017).

120. Tversky & Kahneman, *supra* note 77; *see also* Slovic et al., *supra* note 77.

121. Kahneman & Tversky *supra* note 78; Kuran & Sunstein, *supra* note 78; Weber, *supra* note 78; Wiener, *supra* note 78.

122. Reinsch et al., *supra* note 6.

123. James E. Krier, *The Tragedy of the Commons, Part Two*, 15 HARV. J. L. & PUB. POL'Y, 325, 340 (1992).

tariff concessions. Once a critical mass is reached, tariff reductions would be applied to all 162 WTO members. China has suggested an EGA snapback provision that would trigger a withdrawal mechanism if 70% (any threshold) of global commerce is covered by the agreement or if a large non-participant, e.g., India, reaches 3%.[124] When the snapback mechanism is engaged, any EGA partner may rescind tariff reductions.[125] However, parties cannot agree on a particular number to satisfy everyone.

Preventing situations like the free-rider contention is important for the common good. Moreover, a withdrawal of extensive tariff concessions acts against the stated goals of the EGA to safeguard both economic and environmental interests. When such a withdrawal is initiated, neither economic nor environmental benefits are taken into account. Participating nations cannot enjoy tariff concessions on environmental goods, economic development decreases, and the cost of environmental goods increases. None of the shared objectives are strengthened by the proposed withdrawal mechanism.[126] Yet, China's proposal with its focus on tariff concessions illustrated economic prioritization over environmental protection.

Templating behavior and availability heuristic bias might result in further misunderstandings of transboundary environmental harm, thereby impairing the legitimacy of an environmental policy. [127] The cognitive process of discovery templating aids humans in processing incoming information by reducing complicated items to simple templates. When this method is successful, locating templates helps us to immediately reflect or categorize a few core characteristics and reduce them to their most fundamental elements.[128] In the case of the EGA, attributing environmental protections to tariff concessions may result in the oversimplification of transboundary impact to tariffs alone. Consequently, individuals may misinterpret evaluations of tariffs and environmental protections, that is, they may focus primarily on tariff concessions and disregard environmental concerns.

Third, parties agreed on a tariff phaseout measure but not on the time limitation and goods quantity.[129] Diffusion of transboundary harm could be what obscures the perception and valuation of countries when dealing with environmental protection. Overlooking the severity of transboundary harm may lead countries to postpone approval of the EGA. For instance, representativeness heuristics can lead to cognitive errors because observers may believe that one or two shared features of something mean that many additional

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124. Hu et al., *supra* note 118.

125. B. Baschuk, *Trade Negotiators Pan Chinese EGA Snapback Proposal*, BLOOMBERG LAW (Mar. 9, 2016), https://news.bloomberglaw.com/environment-and-energy/trade-negotiators-pan-chinese-ega-snapback-proposal [https://perma.cc/SHN7-G9TF].

126. Baumol, *supra* note 34.

127. Mattson, *supra* note 95.

128. *Id*.

129. Reinsch et al., *supra* note 6.

features are also shared.[130] One of the most prevalent phenomena is "base rate neglect," which occurs when people fail to account for underlying distribution when evaluating its current likelihood. The more distant the baseline probability, the more distorted the representativeness heuristic. Environmental issues are frequently characterized by literal "diffusion" rather than remoteness; pollutants are frequently small or diluted, yet they are nevertheless dangerous. Due to the dispersed and unseen nature of such pollutants, people prefer to dismiss their effect or importance in favor of more immediately evident occurrences. Following this pattern, people in leadership positions ignored transboundary harm during the EGA negotiations and failed to make urgent moves to improve the status quo.

Fourth, the EU prioritized economic market access to environmental concern could be the subtle impact from endowment effect. A psychological phenomenon known as the endowment effect occurs when people esteem possessions more highly simply because they own them. This effect suggests that people place a higher value on possessions than they would if they were unknown.[131] Asset values, negotiating stances, and buying and selling patterns are all subject to this bias. For instance, people may be reluctant to sell an item they own, even if the asking price is more than what they originally paid, due to their emotional attachment to and sense of value in it.[132] In the context of EU bicycle market, EU may desire to protect the current bicycle industry from Chinese bicycle products and neglect the environmental contribution of bicycles in the carbon-deduction. The global environmental impact is diffused and complex, posing challenges to individual perception and attention. In the context of the EU bicycle market, there may be a desire to safeguard the existing bicycle industry against competition from Chinese bicycle products. This protectionist stance might be motivated by a variety of factors including; the need to protect domestic employment, retain market share for local manufacturers, maintain the quality standards associated with bicycles made in the EU, or psychologically, emphasize much attention on the current economic interest. However, by focusing primarily on maintaining the local industry, there may be a propensity to overlook or dismiss the larger environmental advantages linked with bicycles. Bicycles are widely acknowledged as a sustainable means of transportation that considerably reduces carbon emissions and promotes environmental conservation. They contribute to lower greenhouse gas emissions, less traffic congestion, and better lifestyles by increasing physical exercise. Nonetheless, these facts are covered by the endowment puzzle.

Additionally, the cross political borders feature of transboundary environmental harm also triggers environmental undervaluation. Individuals

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130. Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision under Risk*, 47 ECONOMETRICA, 263 (Mar. 1979).

131. Carey Morewedge & Colleen Giblin, *Explanation of the Endowment Effect: An Integrative Review*, 19 TRENDS IN COGNITIVE SCI. 339 (2015).

132. Keith Marzilli Ericson & Andreas Fuster, *The Endowment Effect*, 6 ANN. REV. ECON. 555 (2014).

tend to underestimate the seriousness of the environmental impact's located outside the political border.[133] This undervaluation could result in the neglect of transboundary harm. In the context of IEL, state leaders might consequently allocate fewer resources to managing transboundary harm. The EGA negotiations may reflect a similar situation, where negotiating parties view global transboundary environmental harm as less significant and are unwilling to compromise their economic development to address or mitigate environmental impact. The EU's disagreement over including bicycles in the environmental goods list to prevent China's dumping exemplifies this outcome. The environmental value of bicycles is undervalued.

Finally, the EU took issue with the inclusion of bicycles in the environmental goods agreement.[134] Going against EGA environmental objectives, the EU excluded bicycles from the list of environmental goods. Likewise, the lists of environmental goods submitted by other countries reflected their economic interests for the foreseeable future. The CV approach may be useful in explaining disparities in environmental valuation, but it is incapable of addressing the systematic disregard for environmental issues. This methodical neglect may be the result of misperceptions about transboundary harm. Examining the degree to which countries disregard environmental concerns could explain the phenomenon further.

The present study proposes that the psychology of IEL could provide a supplementary explanation for a long-debated puzzle of the environmental valuation process. The EU was unwilling to list bicycles as environmental goods not only because of the anti-dumping dispute with China, but also because the nature of transboundary harm resulted in the omission of environmental interest. On the one hand, the EU imposed a 30.6% anti-dumping tax against China starting in 1993 and increased the tax to 48.5% in 2015 to protect the EU bicycle industry. Therefore, listing bicycles as environmental goods in the EGA will lead to a cancellation of the anti-dumping duty. On the other hand, the EU did not include environmental considerations in this matter. Empirical studies have shown that if people replaced one driving trip with one cycling trip for two hundred days each year, it would reduce mobility-related CO2 emissions by approximately 0.5 tonnes per year. This figure represents a significant portion of the average per capita CO2 emissions from transportation.[135] Depending on the mode of transportation replaced by bicycles, wider bicycle use could amount to between 12% and 26% of the transportation sector's 2050 reduction target in Europe.[136] Yet, the character of transboundary harm leads to the EU's exclusion of bicycles from the EGA list as part of an emphasis on economic results and the ensuing negotiation impasse. The spatial and temporal diffusion of climate

133. Mishra & Mishra, *supra* note 105.

134. *Id.*

135. Brand, *supra* note 5.

136. European Cyclists' Federation, *Cycle More Often 2 Cool Down the Planet! Quantifying CO2 Savings of Cycling* (Dec. 2011), https://ecf.com/files/wp-content/uploads/ECF_BROCHURE_EN_planche.pdf [https://perma.cc/A2FL-8AQV].

change diminishes the value placed on environmental benefits of bicycles, and the complexity of global warming leads to an oversimplification of decision-making valuations. It is yet another example of how negotiating countries have minimized environmental interests and placed economic concerns above all else.

This research utilizes a psychological perspective of IEL to examine potential justifications for the prioritization of economic interests by governments, namely the undervaluation of transboundary harm. Due to diffusion, complexity, and responses to non-human variables, individuals are more likely to disregard transboundary harm, which increases the likelihood of misperceptions. These types of psychological missteps among decision makers are particularly detrimental when attempting to achieve a balance between conflicting interests as was the case with the EGA. The parties attempted to find a compromise between economic interests and environmental concerns, but the nature of transboundary harm led to a serious underestimation of important factors. By emphasizing their own economic self-interests, the participating countries created a shift in the trade-interest balance.

The distortion caused by transboundary damage alters the value placed on environmental preservation and disrupts the "win-win" structure of the EGA, but employing a psychological strategy can offer an alternate explanation for the behavior of states in this context. The biases of states could potentially sway the outcome of the EGA negotiation. Even when countries intend to prioritize environmental protection, misconceptions associated with transboundary harm influence how the environment is valued and managed. This study explores a previously obscure topic, and its introduction of the unique psychological response to transboundary harm could serve as a useful reference.

CONCLUSION

Psychological research facilitates better comprehension of the EGA's failure to date. This article contends that the character of transboundary harm leads to environmental neglect on the part of individuals and an economic imbalance in the EGA. The unique nature of transboundary harm influences individual psychological perceptions and evaluations. How a state perceives transboundary damage is influenced by its diffusion, complexity, and non-human interaction. However, current research does not account for this altered perspective. An approach based in psychology provides assistance in explaining, comprehending, and predicting the perceptions of states. This study aims to bridge the divide between extant academic discussions that include the perception and evaluation process and those that do not. Understanding psychological biases in IEL, particularly in EGA negotiations, could result in

improvements to the drafting, application, and compliance processes.[137] To prevent the undervaluing of the environment, for instance, negotiators could highlight environmental benefits during the negotiations to make these benefits transparent and accessible to participants. Also, a behavioral approach such as framing, a method of influencing language to make it more applicable and compliant, could be employed to counteract the effects of preference and bias. These findings may be helpful to the international community when formulating agreements or initiating negotiations in the future.

137. For example, a behavioral approach, framing, can be helpful in international negotiation and drafting. *See* Anne van Aaken & Jan-Philip Elm, *Framing in and through International Law*, 38 ILE WORKING PAPER SERIES UNIVERSITY OF HAMBURG 1 (2020).