AN UNINVITED COMMODITY: SYNERGIZING INTERNATIONAL TRADE AND ENVIRONMENTAL AGREEMENTS TO COMBAT THE SPREAD OF INVASIVE SPECIES

Olivia Kreft*

Abstract

In recent decades, fast-paced globalization and increased levels of international trade have made countries more intertwined than ever before. While a robust system of international trade can undoubtedly spur global economic growth, it can also be the catalyst for unintended environmental harm. In particular, the growth of international trade has exacerbated the spread of invasive alien species (IAS) across borders, causing widespread threats to ecosystems, food sources, economic sectors, and public health. While IAS are most commonly known for their harm to global biodiversity, they also threaten the achievement of 10 of the 17 United Nations Sustainable Development Goals. Today, IAS and international trade have become so intertwined that a country's level of imports is now the strongest predictor of the number of IAS within their borders. However, the current international trade regime fails to adequately recognize and address the problem of IAS within multilateral trade agreements and instruments. While this leaves all nations vulnerable to threats from IAS, it is particularly concerning for developing nations who often face heightened risks to their economies and food systems due to IAS invasions.

This Note aims to shed light on the potential for synergy between multilateral environmental agreements and international trade agreements, particularly the United Nations Convention on Biological Diversity (CBD) and the World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement). Through either merging key definitions related to IAS within existing agreements or expanding the SPS Agreement's standard-setting bodies to include the CBD, this Note highlights opportunities to bring the prevention of IAS to the forefront of the international trade law framework. Further, while legal changes are key, this Note finds that they are just

* Olivia Kreft. Georgetown University Law Center, J.D. 2024; Michigan State University, B.A. 2019. The author would like to sincerely thank her advisor on this paper, Professor Katrin Kuhlmann, for reviewing drafts, providing feedback, and supporting her exploration of this unique topic. She would also like to thank her father, John Kreft, whose passion for ecosystem and wildlife conservation inspired her lifelong interest in international environmental law and policy. Lastly, she would like to thank the GJIL staff who helped improve this Note at every stage of the editing process.

one piece of the puzzle in supporting governments, particularly those of developing nations, in effectively responding to the threat of IAS brought on by increased levels of trade. In this vein, the Note emphasizes the need for increased capacity building for developing nations to effectively take advantage of these potential legal solutions, focusing on increasing the flexibility of the SPS Agreement's risk assessment and scientific finding requirement as well as utilizing preexisting risk assessment mechanisms through smart collaborating with external sectors.

I. Introduction

By its very nature, international trade introduces foreign commodities to new environments by facilitating their movement across borders. While this movement undoubtedly has expansive economic benefits, it often facilitates the movement of invasive alien species (IAS), threatening the health and well-being of domestic species, human populations, and entire ecosystems. Developments in trade technologies and modern global market demands have increased the volume, breadth, and speed of international trade, exposing IAS to an increasing array of potentially hospitable foreign habitats. However, the current international trade law regime is largely silent on the role that trade agreements can play in mitigating this threat. Meanwhile, while several multilateral environmental agreements (MEAs) mention IAS, they often lack the power to adequately influence the international trade regime. Ultimately, this Note examines opportunities for synergy between MEAs and trade agreements that could allow the two fields to collaborate on solving this pervasive ecological, economic, and social threat.

Part II of this Note introduces the threats IAS pose and provides an overview of how international trade fuels the spread of species far beyond their original habitats. It first considers in Sections II.A and II.B how IAS threaten biodiversity worldwide and hamper the achievement of 10 of the 17 United Nations Sustainable Development Goals (SDGs), particularly among developing nations dependent on agricultural sectors. Section II.C then addresses how globalization and advances in international trade have exacerbated the threat of IAS and outlines challenges arising at two stages of the IAS invasion process: the transportation of IAS and the establishment of IAS at the border.

Part III proceeds by looking at the current legal landscape surrounding IAS prevention. The trade agreements considered in Section III.A are the General Agreement on Tariffs and Trade (GATT), and the World Trade Organization (WTO) Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement). Section III.A also considers the standard-setting bodies of the SPS Agreement: the International Plant Protection Convention (IPPC) and the World Organization for Animal Health (OIE). The environmental agreements examined in Section III.B

are the United Nations Convention on Biological Diversity (CBD) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Finally, Part IV of this Note discusses opportunities and challenges to implement IAS prevention measures effectively through trade agreements. First, Section IV.A identifies gaps, challenges, and opportunities for synergy and harmonization between trade and environmental agreements, particularly between the SPS Agreement, IPPC, OIE, and the CBD. Second, Section IV.B considers the unique challenges that developing nations face in utilizing the aforementioned legal opportunities and recommends increasing the flexibility of the SPS Agreement's risk assessment and scientific finding requirement, as well as highlights opportunities to utilize preexisting risk assessment mechanisms.

Ultimately, Part V concludes by emphasizing that while the spread of IAS is one of the most serious ecological and social problems of our time, it has the potential to be mitigated through international trade agreements.

II. Introduction to International Trade and the Threat of Invasive Species

Since humans began trading and traveling across borders, IAS have hitchhiked alongside us on our journeys and wreaked havoc in the process. From the spread of the black rat throughout medieval Europe via Roman trading routes, to the explosion of invasive zebra mussels in the Great Lakes in the twentieth century via ballast water systems, IAS have tagged along with traveling humans throughout the millennium.[1] However, fast-paced globalization has resulted in unprecedented levels of trade, transport, travel, and tourism across borders, facilitating an introduction and spread of invasive species unlike ever before.[2] In fact, invasive species and international trade have become so intertwined that a country's level of international trade imports is now the strongest predictor of the number of invasive species within their borders.[3] Yet, while trade inherently relates to both the intentional and accidental

1. *See, e.g.*, *New Research Reveals How the Black Rat Colonised Europe in the Roman and Medieval Periods*, U. of York (May 3, 2022), https://www.york.ac.uk/news-and-events/news/2022/research/black-rat-europe/; Heather A. Triezenberg & James Roche, *Invasive Species and Global Trade: Finding the Connections*, Mich. State U. (Sept. 1, 2015), https://www.canr.msu.edu/news/invasive_species_and_global_trade_triezen15.

2. *See, e.g.*, Philip E. Hulme, *Unwelcome Exchange: International Trade as a Direct and Indirect Driver of Biological Invasions Worldwide*, 4 One Earth 666, 670 (2021).

3. *See* Michael I. Westphal et al., *The Link Between International Trade and the Global Distribution of Invasive Alien Species*, 10 Biological Invasions 391, 391 (2008).

introduction of IAS in ecosystems outside of their natural range, the WTO instruments do not address IAS directly. Therefore, this Note aims to address how governments can harmonize concepts in international trade agreements and MEAs to create powerful legal tools to help countries, particularly those still developing, confront this growing crisis.

A. *IAS Threatening Biodiversity*

IAS are defined by the International Union for Conservation of Nature (IUCN) as "animals, plants or other organisms that are introduced by humans, either intentionally or accidentally, into places outside of their natural range."[4] While IAS have become an intersectional threat—affecting agriculture, economies, and human health—they are particularly known for their negative impacts on biodiversity.[5] IAS have negatively affected native biodiversity in almost every ecosystem type on Earth and have contributed to nearly forty percent of all animal extinctions of known cause since the seventeenth century.[6] According to the IUCN Red List of Threatened Species, IAS are the second most common threat to the extinction of a species and the most common cause of extinction for amphibians, reptiles, and mammals.[7] Predation, competition, parasitism, and disease emerging from animal IAS often reduce native animal species' populations.[8] Plant species can also become invasive, and are characterized by their ability to change the biodiversity, community structure, and ecosystem of a region.[9] Plant varieties of IAS often exhibit rapid growth, short life cycles, prolific seed production, and efficient dispersal abilities, meaning they can completely alter landscapes in relatively short growth cycles.[10]

4. *See Invasive Alien Species*, IUCN.ORG (2023), https://www.iucn.org/our-work/topic/invasive-alien-species.

5. *See What Are Invasive Alien Species?*, CONVENTION ON BIOLOGICAL DIVERSITY (May 19, 2021), https://www.cbd.int/idb/2009/about/what/.

6. *See id.*

7. *See* CABI, INVASIVE SPECIES: THE HIDDEN THREAT TO SUSTAINABLE DEVELOPMENT 8 (2019), https://www.invasive-species.org/wp-content/uploads/sites/2/2019/02/Invasive-Species-The-hidden-threat-to-sustainable-development.pdf.

8. *See* Reuben P. Keller & Charles Perrings, *International Policy Options for Reducing the Environmental Impacts of Invasive Species*, 61 BIOSCIENCE 1005, 1005 (2011).

9. *See* CABI, *supra* note 7, at 8.

10. *See id.*

B. *IAS Threatening United Nations Sustainable Development Goals*

Not only are IAS one of the largest drivers of biodiversity loss and species extinction worldwide, but they also pose immense risks to sustainable development.[11] The U.N. Sustainable Development Goal (SDG) 15 (Life on Land) reflects the growing concern over the threat of IAS through Target 15.8, which set a goal to introduce measures to prevent the introduction and reduce the impact of IAS on land and water ecosystems.[12] While other SDGs do not mention IAS directly, the IUCN has estimated that the spread of IAS threatens the attainment of ten of the U.N.'s 17 SDGs, including: SDGs 1 (No poverty), 2 (Zero hunger), 3 (Good health and well-being), 6 (Clean water), 8 (Decent work and economic growth), 9 (Industry, innovation, and infrastructure), 10 (Reduced inequalities), 13 (Climate action), 14 (Life below water), and as mentioned, 15 (Life on land).[13]

A particularly salient concern is the effect of IAS on agricultural production and food security, particularly in less developed nations, implicating SDG 2 (Zero hunger). While there is not yet an evaluation of the total global cost to agricultural crop production from IAS, in the United States, crop and forest production losses from invasive insects and pathogens cost an estimated USD 40 billion per year.[14] However in terms of relative impact, countries in Sub-Saharan Africa are some of the most vulnerable to impacts from IAS in their agricultural sectors.[15] Many of these countries either fall under the U.N. Least Developed Country (LDC) identification or are generally considered less developed.[16] They tend to lack diverse economic industries and have citizens who are inherently more dependent on natural resources, healthy ecosystems, tourism, and of course, agriculture for their livelihoods.[17]

In terms of food security, over half of the world's food comes from just three crops—rice, wheat, and maize—and these three crops alone

11. *See* Hulme, *supra* note 2, at 666.

12. *See Goal 15*, U.N. DEP'T OF ECON. & SOC. AFFAIRS, https://sdgs.un.org/goals/goal15 (last visited Oct. 12, 2024); *Target 15.8*, U.N. SUSTAINABLE DEV. SOLS. NETWORK, https://indicators.report/targets/15-8/ (last visited Oct. 12, 2024).

13. *See Invasive Alien Species and Sustainable Development*, IUCN ISSUES BRIEF (July 2018) [hereinafter Invasive Alien Species and Sustainable Development], https://www.iucn.org/resources/issues-brief/invasive-alien-species-and-sustainable-development; *The 17 Goals*, U.N. DEP'T OF ECON. & SOC. AFFAIRS, https://sdgs.un.org/goals (last visited Oct. 12, 2024).

14. *See* Dean R. Paini et al., *Global Threat to Agriculture from Invasive Species*, 113 PROCS. NAT'L ACAD. SCI. U.S. 7575, 7575 (2016).

15. *Id.*

16. *Id.* at 7577.

17. *Id.*

tend to suffer annual yield losses of up to sixteen percent just due to IAS.[18] Research by the Center for Agriculture and Biosciences International (CABI) found that just five invasive species cause up to USD 1.1 billion in losses among smallholder farmers every year across just six countries in East Africa—Ethiopia, Kenya, Malawi, Rwanda, Tanzania, and Uganda.[19] One of these five species is the fall armyworm, a moth indigenous to the Americas that has spread rapidly across the African continent and infested forty-four countries since its initial invasion in 2016.[20] Already known as one of the most damaging agricultural pests in the Americas, the fall armyworm has the potential to cause a loss of fifty-three percent of annual maize production in Africa's twelve top maize producing countries.[21] This raises huge concerns for food security in the region as maize accounts for almost half the calories and protein consumed in eastern and southern Africa with over 300 million people heavily dependent on the crop.[22]

When higher production costs and reduced crop yields affect agricultural systems, general economic prosperity and poverty levels are also impacted, implicating SDG 1 (No poverty) and SDG 8 (Decent work and economic growth). From a macro perspective, IAS cost the global economy a minimum of USD 1.288 trillion between 1970 and 2017.[23] Across the African continent, the aforementioned fall armyworm has the potential to cause maize yield losses estimated between USD 2.5 billion and 6.2 billion per year.[24] Other economic burdens include the cost of herbicides and pesticides to control the spread of IAS and the costs of cleaning industrial facilities and infrastructure that become overrun by certain species, implicating SDG 8 (Decent work and economic growth) and SDG 9 (Industry, innovation and infrastructure).[25] Explosions of IAS have blocked irrigation canals and hydroelectric projects, and hindered transportation across aquatic ecosystems.[26]

One example is the invasion of the water hyacinth in Lake Victoria, the world's second-largest freshwater lake that lies between the borders

18. *See* CABI, *supra* note 7, at 4.

19. *See id.* at 8.

20. *See id.*

21. *See id.*

22. *See* Ulrike Grote et al., *Food Security and the Dynamics of Wheat and Maize Value Chains in Africa and Asia*, 4 FRONTIERS SUSTAINABLE FOOD SYS. 1, 3 (2021).

23. Christophe Diagne et al., *High and Rising Economic Costs of Biological Invasions Worldwide*, 592 NATURE 571, 571 (2021).

24. *See* CABI, *supra* note 7, at 6.

25. *See* Keller & Perrings, *supra* note 8.

26. *See* CABI, *supra* note 7, at 7.

of Kenya, Tanzania, and Uganda.[27] The lake provides essential food sources, employment in fisheries, and transportation, tourism, and recreation opportunities in the region, and is the main source of hydroelectric energy for Uganda.[28] Native to South America, the invasive water hyacinth first appeared in Lake Victoria in 1988 and rapidly took over waterways and irrigation channels.[29] In Lake Victoria, water hyacinth blooms now cover 12,000 hectares and have blocked shipping pathways and access to ports, as well as halted fishing activities in many areas. Ultimately, these impacts affect forty million people.[30]

The spread of IAS also has serious implications for SDG 3 (Human health) as disease-transmitting IAS spread across borders. While native to Southeast Asia, the Asian-tiger mosquito has spread pervasively around the world, particularly in the Americas.[31] This species of mosquito is a common vector of several human diseases, such as dengue fever and West Nile virus, heightening the risk for infection around the world.[32] Also, many aquatic invasive plant species, like the water hyacinth, provide for increased standing water, making them prime habitats for mosquitos.[33]

Finally, socially and culturally, women and children are disproportionately affected by IAS because many invasive plants are varieties of weeds, the removal of which is still done by hand in many countries by women and children.[34] This leads to increased time spent in the fields, thus leaving less time for children to attend school or for women to participate more substantially in economic or political activities.[35] Further, IAS can even damage farmland to the extent that it can cause communities to abandon their agricultural land, a particularly damaging impact on indigenous communities who have traditional and cultural connections to the land itself.[36] Ultimately, sustainable development challenges

27. *See* Eseza Kateregga & Thomas Sterner, *Indicators for an Invasive Species: Water Hyacinths in Lake Victoria*, 7 ECOLOGICAL INDICATORS 362, 362 (2007).

28. *See id.* at 363.

29. *Id.* at 364.

30. *See* Invasive Alien Species and Sustainable Development, *supra* note 13.

31. *See* Mark Q. Benedict et al., *Spread of the Tiger: Global Risk of Invasion by the Mosquito Aedes Albopictus*, 7 VECTOR BORNE ZOONOTIC DISEASES 76, 77, 79, 83, 84 (2007).

32. *See* Invasive Alien Species and Sustainable Development, *supra* note 13.

33. *See* CABI, *supra* note 7, at 6–7.

34. *See id.* at 6.

35. *See id.*

36. *See* Keller & Perrings, *supra* note 8.

such as these will only be exacerbated by climate change as climatic zones shift and potential ranges for IAS expand.[37]

C. *How International Trade Spreads IAS Around the Globe*

For IAS to become successful biological invaders, the species must cross a series of spatial, environmental, and biological barriers.[38] This is ultimately a three-stage process that includes (1) the transportation of the species across borders; (2) the establishment of the species in the new environment; and (3) the spread of the species throughout and beyond the initially invaded ecosystem.[39] Once a species reaches stage three, the full eradication of the species can be difficult to achieve and can entail long-term and resource-intensive campaigns.[40] Thus, it is important to evaluate means of bolstering prevention methods for the first two stages and to determine what drives the initial transporting of IAS and their lack of detection at the establishment stage.

1. Stage One: Transportation of IAS

While the transportation of IAS can be a result of tourism or intentional transportation of a species, the most pervasive method of transporting IAS across borders is *unintentionally*, as a byproduct of international trade.[41] The spread via trade could occur in various ways, including parasitic IAS being transported on the bodies of traded livestock, IAS hiding as stowaways in cargo containers, or even IAS clinging directly on and in transport vessels, like soil on the exterior of cargo containers or aquatic species in the ballast water tanks of ships.[42] As global trade has become more wide-reaching and fast-paced, the distance in which species can travel has increased, providing a growing number of potential new host-ecosystems in which an IAS can thrive.[43]

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37. *See* Glynn Maynard & David Nowell, *Biosecurity and Quarantine for Preventing Invasive Species*, *in* INVASIVE SPECIES MANAGEMENT: A HANDBOOK OF PRINCIPLES AND TECHNIQUES 1, 2 (Mick N. Clout & Peter A. Williams, eds., 2009).

38. *See id.* at 4.

39. *See id.* at 9.

40. *See id.* at 2.

41. *See* Charles Perrings et al., *International Cooperation in the Solution to Trade-Related Invasive Species Risks*, 1195 ANN. N.Y. ACAD. SCI. 198, 200 (2010).

42. *See* Hulme, *supra* note 2, at 666.

43. *See* Bern Convention on the Conservation of European Wildlife and Natural Habitats, Overview of Existing International/Regional Mechanisms to Ban or Restrict Trade in Potentially Invasive Alien Species 1, 5 (Oct. 20, 2006) [hereinafter Bern Convention], https://rm.coe.int/168074683e.

Several major trade and globalization developments have accelerated the spread of IAS in recent decades, including "the increased speed of transport by sea, new trade routes, changes to ballast technology, the use of refrigeration, containerization, air transport, and the development of global communication technologies."[44] The decrease in transit times for globally traded goods—often tied to the growth of intermodal shipping containers that can be transported seamlessly between ships, trucks, and trains—has also vastly improved IAS's chance of survival while in transit.[45] Further, market demand for faster shipping times, particularly with e-commerce, has resulted in essential phytosanitary measures and checkpoints being skirted to meet deadlines.[46] Notable increases in the trading of fresh produce in refrigerated containers are particularly harmful in the spread of invasive insect species as IAS larvae can survive for several months in regulated temperatures.[47] Ultimately, the faster journey times by air and sea, which have enabled transportation of greater volumes and diversity of products from an increasing number of countries, have led to a significant rise in the introduction of IAS around the world.

2. Stage Two: Establishment of IAS

The second challenge that emerges from the vast increase in globally traded goods is the inability of governments to properly inspect imports at the border, allowing IAS to reach the second stage: the entry and establishment of the species. Given their ability to wreak havoc on various economic sectors, the resources needed to prevent the spread of IAS are generally lower than the resources needed for eradication, containment, and long-term control.[48] Therefore, early detection through effective risk assessments is key to stopping their spread.[49] Increased capacity-building to implement on-the-ground actions at border control, such as quarantine measures and emergency plans, is also essential.[50]

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44. *See* Hulme, *supra* note 2, at 667.

45. *See* Bern Convention, *supra* note 43, at 6.

46. *See* Hulme, *supra* note 2, at 669–70.

47. *See id.* at 668.

48. *See* Maynard & Nowell, *supra* note 37, at 2.

49. *See* STANDARDS & TRADE DEV. FACILITY, INTERNATIONAL TRADE AND INVASIVE ALIEN SPECIES 9 (2013) [hereinafter STDF], https://standardsfacility.org/sites/default/files/STDF_IAS_EN_0.pdf.

50. *See* Tracy Holcombe & Thomas J. Stohlgren, *Detection and Early Warning of Invasive Species*, *in* INVASIVE SPECIES MANAGEMENT: A HANDBOOK OF PRINCIPLES AND TECHNIQUES 36, 38–9 (Mick N. Clout & Peter A. Williams eds., 2009).

However, given the overburdened state of global trade hubs, early detention can be one of the biggest challenges for governments.

While the spread of IAS is an intersectional problem that is fueled by multiple sources, including climate change and intentional introduction by humans, the growth of international trade is by far the largest and most pervasive source.[51] With the potential to negatively affect the achievement of SDGs in every nation, but with particular concern for developing nations, the problem of IAS calls for international cooperation and coordination through multilateral legal instruments.[52]

III. The Current Legal Landscape: International Trade and International Environmental Law Agreements Related to IAS Prevention

Just as IAS themselves cross over countless national and ecological borders, the current landscape of international law regarding IAS crosses over a wide array of disciplines. From wildlife conservation to public health and infectious disease prevention, responsible tourism measures, and even ballast water management laws, a mosaic of over fifty internationally agreed legal instruments relate either directly or indirectly to IAS.[53] This mix of agreements, some binding and some non-binding, creates immense challenges for coordinated action against the spread of IAS. However, it also represents an exciting opportunity to harness the power of preexisting legal agreements to incorporate the concept of IAS prevention more concretely into the international trade legal regime.

A. *Trade Law Mechanisms for Preventing the Spread of IAS*

Even though international trade is widely regarded as the leading spreader of IAS around the globe, there is no explicit mention of IAS in any of the major international trade agreements. However, there are promising legal frameworks within international trade law that could be bolstered and effectively applied by government agencies and other rapid responders to stop the spread of IAS. While many international and regional trade agreements are relevant to IAS management, this Note focuses on the WTO agreements most fit to deal with IAS and that present the most potential for synergy with MEAs regarding this topic:

51. *See* Hulme, *supra* note 2, at 676.

52. *See* Perrings, *supra* note 41, at 198.

53. *See* Maj De Poorter, *International Legal Instruments and Frameworks for Invasive Species*, *in* Invasive Species Management: A Handbook of Principles and Techniques 108, 111 (Mick N. Clout & Peter A. Williams eds., 2009).

the General Agreement on Tariffs and Trade (GATT) and the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement). In looking at these agreements, this section highlights how the WTO legal framework determines how countries can currently regulate IAS without creating unfair barriers to trade.[54]

While the WTO and the international trade regime's main goal is to facilitate free trade, there is a grounding focus, as outlined in the Preamble to the Marrakesh Agreement, on balancing the expansion of trade with sustainable development and efforts to protect and preserve the environment.[55] Most activities that lead to the introduction of IAS, like global trade, have legitimate economic and social exceptions, and, thus, legal instruments aimed at combating IAS must strike a balance between preserving socio-economic goals and creating effective safeguards for the environment and public health.[56] This balance is key for crafting legal mechanisms that can work effectively to combat the spread of IAS, survive legal challenges, and help provide for long-term economic growth and development, particularly in less developed countries.

1. The General Agreement on Tariffs and Trade

Signed in 1947 and incorporated into the newly created WTO in 1994 at the conclusion of the Uruguay Round of Agreements, the GATT sets out binding rules to ensure that governments extend non-discriminatory market access to each other's goods.[57] While certain non-discrimination provisions of the GATT seem to work against the development of environmental protections that would facilitate the creation of policies to prevent the spread of IAS, the general exceptions in Article XX provide a window for justifying these types of protections if certain conditions are met.[58] Particularly, Article XX(b) establishes an exception for measures that are "necessary to protect human, animal or plant life or health" and Article XX(g) allows for measures "relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption."[59] While these exceptions are broad enough to

54. *See* Bern Convention, *supra* note 43, at 8.

55. *See* Marrakesh Agreement Establishing the World Trade Organization, pmbl. ¶ 1, Apr. 15, 1994, 1867 U.N.T.S. 154.

56. *See* De Poorter, *supra* note 53, at 110.

57. *See* General Agreement on Tariffs and Trade, pmbl., Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 194 [hereinafter GATT].

58. *See id.* art. XX(b).

59. *See id.* art. XX(b), (g).

support IAS import restrictions, the measures must not be designed and applied in a way that would violate the *chapeau* of Article XX.[60] The IAS prevention policies must not be "a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail" nor "a disguised restriction on international trade" to avoid violating the GATT.[61]

Inherent in the conditioned exception on human, animal, and plant life or health is the word "necessary," which requires that the importing nation must show that the trade-limiting policy is a key aspect in fulfilling their stated purpose of protecting human, animal, or plant life.[62] To determine what is "necessary" to protect human, animal, or plant life or health, the WTO's Appellate Body has instituted a balancing process in which various factors are weighed, including the contribution made by the environmental measure to the policy objective, the importance of the common interests or values protected by the measure, and the impact of the measure on international trade.[63] The measure must then be compared against less trade-restrictive alternatives to confirm that there are no other means of achieving the same outcome for human, animal, or plant life or health.[64] While the Appellate Body has never applied this test in the context of invasive species, many scholars argue that the necessity for countries to protect themselves from the ecological and public health risks that IAS pose would easily fall within the Article XX exceptions, provided that they are "consistent with the '*chapeau*'."[65]

2. WTO Agreement on the Application of Sanitary and Phytosanitary Measures

Arguably, the most promising international trade agreement for preventing the spread of IAS is the SPS Agreement. Enacted in 1995, the SPS Agreement "provides the international framework for national measures to protect human, animal, or plant health and life from risks arising from the entry, establishment or spread of pests, diseases, or disease-causing organisms where these may directly or indirectly affect

60. *See id.* art. XX, the 'chapeau.'

61. *Id.*

62. *See* Michael Margolis & Jason F. Shogren, *Disguised Protectionism, Global Trade Rules and Alien Invasive Species*, 51 ENV'T AND RES. ECON. 105, 105 (2012).

63. *See WTO Rules and Environmental Policies: GATT Exceptions*, WTO, https://www.wto.org/english/tratop_e/envir_e/envt_rules_exceptions_e.htm (last visited Oct. 12, 2024).

64. *See id.*

65. *See* Goemeone Mogomotsi et al., *WTO Law and Jurisprudence on Invasive Alien Species in the Global South*, 6 CHINESE J. ENV'T L. 63, 71 (2022).

international trade."[66] Ultimately the SPS Agreement creates a balance between trade liberalization and the inherent sovereign rights of nations to enact measures for protecting human, animal, and plant life, as well as public health.[67] As with the *chapeau* of Article XX, there are backstops in the SPS Agreement to protect the free-trade foundation of the agreement while ensuring that certain levels of environmental protection can be enforced. For example, SPS measures must not be exercised arbitrarily or for a purely protectionist purpose and their adoption must be based on scientific findings and risk assessments.[68]

While the SPS Agreement does not explicitly mention IAS, the spread of IAS likely falls under the definition of SPS measures. Annex A of the SPS Agreement defines "SPS measures" as including "any measure applied to prevent or limit other damage within the territory of the Member from the entry, establishment or spread of pests," in addition to measures taken to protect human, animal, and plant life or health from risks arising, *inter alia*, from "pests."[69] The SPS Agreement provides nations with the power to impose measures that could result in a higher level of SPS protection than normally achievable through international standards, as long as the proposed national policies are based on available science and a risk assessment that is tailored to the specific case.[70] If leveraged properly, SPS can be a powerful tool because there is no limit to the level of protection that a state can seek as long as it is supported by "scientific" evidence and risk assessments.[71] The goal of "zero risk" is acceptable, and states may even adopt measures provisionally while they wait for a risk assessment to be carried out.[72] In the context of IAS, the relevant risk would be the evaluation of the likelihood of entry, establishment, or spread of a disease or pest; the likelihood that the same disease or pest would be established in the importing country in the *absence* of the measure; and a finding that the probability is reduced in the presence of the prevention measure.[73]

66. *See* Bern Convention, *supra* note 43, at 8.

67. *See* Boris Rigod, *The Purpose of the WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS)*, 24 EUR. J. INT'L L. 503, 504 (2013).

68. *See* Mogomotsi et al., *supra* note 65, at 73.

69. The World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures, Annex A, Definitions, 1(a)–(d), Jan. 1, 1995, 1867 U.N.T.S. 493 [hereinafter SPS Agreement].

70. *See* Mogomotsi et al., *supra* note 65, at 73.

71. *See id.*

72. *See* Margolis & Shrogen, *supra* note 62, at 106 n.1.

73. *See id.*

3. SPS Standard-Setting Bodies

The SPS Agreement encourages parties to use international standards, guidelines, and recommendations when developing SPS measures.[74] In formalizing this approach, the SPS Agreement recognizes three international key organizations for setting standards: the International Plant Protection Convention (IPPC), the World Organization for Animal Health (OIE),[75] and the Codex Alimentarius Commission, a group that sets food safety standards.[76] For the purpose of analyzing IAS prevention, both the IPPC and the OIE are relevant and can be leveraged and potentially synergized with MEAs.[77]

a. The International Plant Protection Convention

The IPPC aims to prevent the spread of plants and plant products deemed to be "pests" between countries.[78] Parties to the Convention must establish domestic legal measures that aim to control the spread of such "pests," including import and export regulations and surveillance mechanisms.[79] The governing body of the IPPC is the Commission on Phytosanitary Measures (CPM), which sets International Standards for Phytosanitary Measures (ISPMs).[80] As of April 2024, there are forty-six adopted ISPMs that aim to protect sustainable agriculture and enhance global food security, protect forests and biodiversity, and facilitate economic and trade development.[81] The IPPC also fosters the exchange of plant health information through national reporting obligations and aims to develop capacity-building opportunities.[82] Article II of the Convention defines a "pest" as "any species, strain or biotype of plant,

74. *See* Bern Convention, *supra* note 43, at 8.

75. The commonly used acronym is OIE, referring to its original name, "Office International des Epizooties."

76. *See Sanitary and Phytosanitary Measures*, WTO, https://www.wto.org/english/tratop_e/sps_e/sps_e.htm#standard_bodies (last visited Oct. 12, 2024).

77. *See* Bern Convention, *supra* note 43, at 4.

78. *See id.* at 9.

79. *See id.* at 9–10.

80. *See Adopted Standards (ISPMS)*, INT'L PLANT PROTECTION CONVENTION, https://www.ippc.int/en/core-activities/standards-setting/ispms/ (last visited Oct. 12, 2024).

81. *See id.*

82. *See National Reporting Obligations (NRO)*, INT'L PLANT PROTECTION CONVENTION, https://www.ippc.int/en/ippc-community/countries/nro/ (last visited Oct. 12, 2024); *see also Implementation & Capacity Development*, INT'L PLANT PROTECTION CONVENTION, https://www.ippc.int/en/about/core-activities/capacity-development/ (last visited Oct. 12, 2024).

animal or pathogenic agent injurious to plants or plant products."[83] Thus, while the IPPC mainly focuses on preventing damage to plants of economic importance, it also covers IAS that meet Article II's definition of "pest" and cause damage to wild plants or to the natural environment.[84]

b. The World Organization for Animal Health

In terms of fauna, the SPS Agreement invokes the standards set by the OIE, which aims to improve animal health and welfare by collecting, analyzing, and disseminating veterinary scientific information.[85] With international trade being a driving force in spreading animal diseases, OIE's mandate is "to safeguard world trade by publishing health standards for international trade in animals and animal products" via the Terrestrial and Aquatic Animal Health Codes.[86] OIE focuses on harmonizing trade requirements on the global and regional scale and developing risk analyses for importing and exporting countries of animals and animal products.[87] Because the OIE is involved in livestock trade and health, it could potentially be applied to the case of IAS in situations where the IAS is a disease-causing parasite or other pathogen-carrying species.

B. *Environmental Law Mechanisms for Preventing the Spread of IAS*

Unlike international trade agreements, there are some explicit legal measures in MEAs aimed at slowing the spread of IAS. The most directly applicable is the U.N. Convention on Biological Diversity (CBD), which contains provisions related to IAS as a threat to biodiversity.[88] The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is another MEA worth evaluating, as it effectively blends conservation and free-trade objectives.

83. *See* International Plant Protection Convention, art. II, Jan. 1, 1999, 23 U.S.T. 2767, 2367 U.N.T.S. 2 [hereinafter IPPC].

84. *See* Bern Convention, *supra* note 43, at 10.

85. *See What We Do*, WORLD ORG. FOR ANIMAL HEALTH, https://www.woah.org/en/what-we-do/ (last visited Oct. 12, 2024) [hereinafter WOAH].

86. *See* Bern Convention, *supra* note 43, at 11.

87. *See* WOAH, *supra* note 85.

88. *See* U.N. Convention on Biological Diversity, art. 8(h), June 5, 1992, 1760 U.N.T.S. 69 [hereinafter CBD].

1. United Nations Convention on Biological Diversity

The CBD is an international legal instrument aimed at fostering the conservation of biological diversity, along with the sustainable use and equitable division of biological resources.[89] 196 states have ratified the CBD and Article 18 of the treaty extends to them "the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction."[90] The CBD identifies IAS as a major factor in the loss of biodiversity, based on their capacity to out-compete or prey on native species, and thus Article 8(h) directly refers to IAS by stating that "[e]ach contracting Party shall, as far as possible and as appropriate, prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species."[91] Through this, the CBD enables and encourages parties to set global priorities and guidelines, collect information, and help coordinate international action on IAS.[92]

One notable development was in 2010, when the CBD Conference of the Parties (COP) approved the Aichi Biodiversity Targets.[93] Target 9 specifically targeted IAS and recommended that "by 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment."[94] However, despite its ambitious goals, Target 9 and the nineteen other Aichi Biodiversity Targets were largely seen as a failure as none of them were achieved by 2020 and only six were "partially met."[95] Thus, like many MEAs, the lack of binding law has led to a lack of initiative among the majority of nations.[96] There is a hopeful sign of resurgence as the Kunming-Montreal Global Biodiversity Framework, recently agreed upon at COP 15 in December of 2022, includes a target for urgent action by 2030 on IAS prevention.[97] Target 6 urges the parties to:

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89. *See Convention on Biological Diversity*, U.N., https://www.un.org/en/observances/biological-diversity-day/convention (last visited Oct. 12, 2024).

90. *See* CBD, supra note 88, art. 3.

91. *See* CBD, supra note 88, art. 8(h).

92. *See The CBD and Invasive Alien Species*, CONVENTION ON BIOLOGICAL DIVERSITY (2009), https://www.cbd.int/idb/2009/about/cbd (last visited Oct. 12, 2024).

93. *See Aichi Biodiversity Targets*, CONVENTION ON BIOLOGICAL DIVERSITY, https://www.cbd.int/sp/targets (last visited Oct. 12, 2024).

94. *Id.*

95. *See generally* Felix Ekardt et al., *Legally Binding and Ambitious Biodiversity Protection Under the CBD, the Global Biodiversity Framework, and Human Rights Law*, 35:80 ENV'T SCI. EUR. 1 (2023).

96. *See id.* at 8.

97. *See* Conference of the Parties to the Convention on Biological Diversity, *Kunming-Montreal Global Biodiversity Framework*, ¶ 31, CBD/COP/15/L25 (Dec. 18, 2022).

> [e]liminate, minimize, reduce and or mitigate the impacts of invasive alien species on biodiversity and ecosystem services by identifying and managing pathways of the introduction of alien species, preventing the introduction and establishment of priority invasive alien species, reducing the rates of introduction and establishment of other known or potential invasive alien species by at least 50 percent, by 2030, eradicating or controlling invasive alien species especially in priority sites, such as islands.[98]

This is one of the most specific and urgent international law provisions on IAS, and emphasizes that its implementation should also consider other relevant international obligations, national circumstances, and socioeconomic conditions.

2. The Convention on International Trade in Endangered Species of Wild Fauna and Flora

CITES is the only MEA to address international trade in certain categories of animals and plants.[99] While IAS is not directly mentioned in the agreement, at the tenth meeting of the parties in 1997, the parties to CITES recognized the potential relevance of the agreement to IAS and came together to establish a list of potentially invasive species in different regions of the world, and thereby set a pattern of the topic being discussed at subsequent COPs.[100] Later, in 2004, CITES passed Resolution 13.10 on Trade in Alien Invasive Species which recommended that CITES parties should "consider the problems of invasive species when developing national legislation and regulations that deal with trade in live animals or plants."[101] However, since then, no formalized work program on IAS in trade has been developed within CITES and the initiative has somewhat

98. *Id.*

99. *See* Convention on International Trade in Endangered Species of Wild Fauna and Flora, pmbl., Mar. 3, 1973, 27 U.S.T. 1087, 993 U.N.T.S. 243 [hereinafter CITES].

100. *See* Convention on International Trade in Endangered Species of Wild Fauna and Flora, Decisions 10.54, 10.76 (no longer in force) *in* Decisions of the Conference of the Parties at its 10th Meeting (Harare) 133, 138 (1997), https://cites.org/sites/default/files/eng/cop/10/E10-Decisions.pdf; *see also* Convention on International Trade in Endangered Species of Wild Fauna and Flora, *Twentieth Meeting of the Animals Committee Johannesburg (South Africa)*, at 1, AC20 Doc. 20, (Apr. 2, 2004), https://cites.org/sites/default/files/eng/com/ac/20/E20-20.pdf (referencing Decisions 10.54 and 10.76).

101. Convention on International Trade in Endangered Species of Wild Fauna and Flora, Trade in Alien Invasive Species, Conf. 13.10 (Rev. COP14) (2004), https://cites.org/sites/default/files/document/E-Res-13-10-R14.pdf.

stalled. Further, CITES mainly deals with the intentional trade of potential IAS, which involves a different set of prevention measures than for the unintentional spread through the trade of non-IAS commodities. The agreement is still important to keep in mind as international cooperation on stopping the spread of IAS grows, because it could act as a framework for a potential new agreement made specifically for trade and the unintentional spread of IAS.

IV. Opportunities and Challenges for Effective Implementation of IAS Prevention Measures

While no major environmental or international trade legal instrument effectively addresses the problem of IAS on its own, there are exciting opportunities to harmonize the language and mechanisms between preexisting environmental and international trade instruments to create a more robust IAS prevention regime. Currently, pervasive gaps exist within the WTO agreements that make it difficult for governments to curb the trade-fueled spread of IAS into their borders without engaging in unlawful restrictions of trade under the GATT. Yet, there is great promise for synthesizing the current framework of the SPS Agreement—in conjunction with the IPPC and OIE regulatory frameworks—with the foundational IAS principles outlined in the CBD.

Even if these legal gaps are narrowed, however, there remain challenges for capacity building that will be key to ensure developing nations can effectively utilize a new SPS legal framework to prevent the introduction of IAS into their borders. Among the tactics to be discussed include increasing the flexibility of the SPS Agreement's risk assessment and scientific finding requirement, as well as opportunities to utilize preexisting risk assessment mechanisms in the public health sector.

A. *Synergy and Harmonization of Language between Trade and Environmental Agreements*

The SPS Agreement is a potentially powerful tool in allowing nations to enact strict IAS prevention protocols while remaining compliant with international trade rules. As a multilateral agreement, the SPS Agreement could be an effective transboundary framework in the fight against IAS and bolster the legal toolkit of developing countries that may lack robust domestic IAS prevention measures.[102] Article 3 of the SPS Agreement calls for the "harmonization" of sanitary and phytosanitary measures "on as wide of a base as possible" and allows parties to introduce

102. *See* Mogomotsi et al., *supra* note 65, at 75.

or maintain sanitary or phytosanitary measures that result in a higher level of protection that would be achieved by relevant international standards, as long as there is a scientific justification.[103] Further, all sanitary and phytosanitary measures which conform to international standards, guidelines, or recommendations are presumed to be consistent with the SPS Agreement and the GATT.[104] Therefore there is great potential to harmonize the SPS Agreement, in conjunction with the IPPC and OIE regulatory frameworks, with the protection against the spread of IAS that is outlined in the CBD.

A similar nod to synergy between international trade and environmental agreements is seen in Decision VI/23 of the CBD's COP 6, which introduced "Guiding Principles for the Implementation of Article 8(h)."[105] In implementing Article 8(h) of the CBD, which directs parties to prevent the introduction of IAS, the parties acknowledged the contribution of "existing international instruments, such as the International Plant Protection Convention [IPPC], and relevant international organizations such as the Office International des Epizooties [OIE]" in developing relevant standards and agreements related to IAS.[106] Further, in Decision IX/4 of the CBD's COP 9, titled "In-depth review of ongoing work on alien species that threaten ecosystems, habitats or species," the COP encouraged the use of the risk assessment guidance and other procedures and standards developed by the IPPC and the OIE in order to contribute to closing gaps on IAS at the national level.[107]

Harmonizing the SPS Agreement and its standard-setting bodies with the CBD could make the agreement a powerful tool for regulating the spread of IAS while maintaining compliance with trade rules. However, there are key gaps that need to be addressed before synergy between the agreements can be effectively leveraged to tackle the threat of IAS.

1. Gaps in Empowering Policy Actions Aimed at Preventing the Spread of IAS

The applicable international agreements for IAS prevention, notably the CBD, SPS Agreement, and the standard-setting bodies of the IPPC

103. *See* SPS Agreement, *supra* note 69, at 70.

104. *Id.*

105. *See* Convention on Biological Diversity, Alien Species that Threaten Ecosystems, Habitats or Species, II-III, COP 6 Dec. VI/23 (2002) [hereinafter Decision VI/23], https://www.cbd.int/decision/cop?id=7197.

106. *See id.* at III.

107. *See* Convention on Biological Diversity, In-Depth Review of Ongoing Work on Alien Species That Threaten Ecosystems, Habitats or Species, at 1, COP 9 Dec. IX/4 (2008), https://www.cbd.int/decision/cop?id=11647.

and OIE, were developed at different times and emerged from sectors with different guiding goals.[108] Thus, it is not surprising that the terminology and conceptual frameworks differ. For example, even though they both refer to preventing the introduction of harmful species, the CBD and IPPC define terms regarding this scenario quite differently.[109] In the CBD, the "introduction" of species refers to "the movement by human agency, indirect or direct, of an alien species outside its natural range," however, in the IPPC, "introduction" of species refers to "the entry of a pest resulting in its establishment."[110] The initial "introduction" of an IAS is a key step in the chain of preventing its spread through an ecosystem, therefore, aligning these two definitions will be crucial to harmonize agreements.

Another gap is that, while the CBD refers to IAS in a broad manner that includes all potential flora and fauna that could be invasive, the SPS Agreement, the IPPC, and the OIE refer solely to "pests" or other limited categories of species. The CBD defines an alien species as "a species, subspecies or lower taxon, introduced outside its natural past or present distribution; includes any part, gametes, seeds, eggs, or propagules of such species that might survive and subsequently reproduce" and describes an IAS as "an alien species whose introduction and/or spread threaten biological diversity."[111] On the other hand, while the SPS Agreement allows for the protection of "animal or plant life or health" and "human life or health"—which is important in applying to IAS prevention because IAS tend to cause biodiversity loss or human health issues in the ecosystems they invade—the agreement is limited in protecting these entities only from "pests, diseases, disease-carrying organisms or disease-causing organisms."[112]

When it comes to defining "pest," the only definition in the SPS Agreement exists in the notes of the agreement, which detail: "[f]or the purpose of these definitions, 'animal' includes fish and wild fauna; 'plant' includes forests and wild flora; 'pests' include weeds; and 'contaminants' include pesticide and veterinary drug residues and extraneous matter."[113] While the definition of "weeds" would apply to some harmful plant species of IAS like the water hyacinth in Lake Victoria, it is an extremely limiting definition. While many

108. *See* STDF, *supra* note 49, at 1–2.

109. *See* STDF, *supra* note 49, at 7–8.

110. *See* Decision VI/23, *supra* note 105, at n.57; IPPC, *supra* note 83, art II.

111. Decision VI/23, *supra* note 105, at n.57.

112. SPS Agreement, *supra* note 69, at Annex A, Definition 1(a).

113. *Id.* at Annex A, n.4.

noxious weeds are indeed invasive, invasive plants are more broadly those that are not native to the country or ecosystem in which they are growing.[114] Thus, the SPS Agreement definition excludes IAS plant species that are not considered "weeds" and all IAS that are fauna, or animal species.

However, the nature of the SPS Agreement is that it relies on the IPPC and OIE in determining which species can be regulated, so the definition of "pest" can extend beyond just "weeds" through the IPPC and OIE.[115] Under IPPC Article II, "pest" is defined as "any species, strain or biotype of plant, animal or pathogenic agent injurious to plants or plant products."[116] Further, the IPPC defines "quarantine pest" as "a pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled."[117] These definitions are key to extending the application of the SPS Agreement to IAS prevention, as the effect of IAS on agricultural crops, timber, and other economically and ecologically important plant varieties is a huge part of the IAS crisis. In fact, in 2001 the IPPC's governing body adopted recommendations highlighting the relationship between IAS and quarantine pests and the role of the IPPC with regard to IAS and decided that IAS can indeed be plant pests.[118] On this basis, the IPPC is directly relevant to implementing Article 8(h) of the CBD.

The IPPC, however, leaves a pervasive gap in IAS management, leaving out any species that may be invasive but do not have adverse impacts on plant health and plant biodiversity.[119] For animals in this category, which notably includes most fauna and flora that affect aquatic ecosystems, such as the highly invasive zebra mussel,[120] there is no legal framework through the IPPC—and therefore the SPS—to regulate their invasions.[121]

As with the IPPC, certain limits exist in applying OIE regulations to IAS. While there is a clear connection between the OIE's published health standards covering animal diseases and pathogenic agents and

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114. *See About Weeds and Invasive Species*, U.S. DEP'T OF THE INTERIOR, BUREAU OF LAND MGMT., https://www.blm.gov/programs/weeds-and-invasives/about (last visited Sept. 6, 2024).

115. *See* STDF, *supra* note 49, at 3-4.

116. IPPC, *supra* note 83.

117. *Id.*

118. *See* Food & Agric. Org. [FAO], *Third Interim Commission on Phytosanitary Measures*, app. XIII at D, ICPM 01 / REPORT (2001).

119. *See* STDF, *supra* note 49, at 7.

120. *See generally* Sophie Kech, *Invasive Zebra Mussels*, NAT'L PARK SERV., https://www.nps.gov/articles/zebra-mussels.htm (last visited Oct. 12, 2024).

121. *See* Bern Convention, *supra* note 43, at 14.

IAS, in that animal IAS can be sources for introduced pathogens into a native animal population, the OIE has not established specific standards for IAS except OIE-listed pathogens considered to be IAS.[122] Particularly, OIE standards "do not provide a basis to ban imports of animal species that may be invasive in their own right."[123] Rather, OIE standards currently focus just on pathogens themselves, not on the animals potentially carrying the pathogens, hence "the OIE does not specifically consider hazards that are not infectious diseases," leaving a critical gap to be addressed.[124]

The CBD COP expressed concern over this gap in the aforementioned COP 9 Decision IX/4, in which they invited the OIE "to note the lack of international standards covering invasive alien species, in particular animals, that are not pests of plants under the International Plant Protection Convention, and to consider whether and how [the OIE] could contribute to addressing this gap."[125] The COP suggested either expanding the OIE's list of pathogens to include a wider range of animal diseases, including diseases that solely affect wildlife and not just agricultural livestock, as well as urging OIE to consider if they could expand their role as an organization to address IAS that are not considered as causative agents of diseases under OIE.[126]

2. Potential Solutions and Recommendations

Ultimately, in looking across the SPS Agreement policy framework, a pervasive gap exists for IAS that are neither plant pests as defined by the IPPC nor OIE-listed pathogens and parasites.[127] The SPS Committee should thus consider developing guidance regarding synergy between the CBD, the SPS Agreement, the IPPC, and the OIE in terms of embedding IAS management into the global trade law framework.

One path forward could be to amend the SPS Agreement itself to align it with IAS prevention goals. This could be done by expanding on the definition of "pest" in Annex A, Definition 1(a) of the SPS Agreement to extend beyond "weeds" to include "invasive alien species." This revision would likely require adding an inclusive definition of "invasive alien species" to Annex A, or expanding the IPPC definition of "pest" to encompass IAS. Similarly, the OIE could expand, referencing threats from IAS

122. *See* STDF, *supra* note 49, at 19.
123. Bern Convention, *supra* note 43, at 11.
124. *See* STDF, *supra* note 49, at 21.
125. *See* Dec. IX/4, *supra* note 105, at A. 3.
126. *See id.* at A3(a)–(b).
127. *See* STDF, *supra* note 49, at 21.

outside of the scope of pathogen carriers. While both of these changes are possible, it would likely take a high level of coordination.

Further, as flagged by CBD COP 9, there would have to be in-depth conversations regarding the scope of these standard-setting bodies and whether their purposes would be undermined by expanding to include all forms of IAS in their protections.[128] The IPPC was formulated specifically to deal with protecting the world's plant resources from the spread and introduction of pests, and the OIE was formulated to deal with animal health in the context of pathogens spreading to livestock.[129] Thus, the inclusion of generic references to IAS prevention could be viewed as undermining the purposes of the IPPC and OIE.[130] However, this concept does find support among other MEAs, particularly CITES, in which Resolution 13.10 on Trade in Alien Invasive Species recommended that parties should "consider the problems of invasive species when developing national legislation and regulations that deal with trade in live animals or plants."[131] Regardless, in light of the deep connection that IAS concerns have to each of their overarching goals and SDGs at large, this is a conversation worth having.

A second and arguably simpler path forward could be expanding the SPS Committee's standard-setting bodies to include the CBD. The SPS Agreement would then be guided by standards set by the Codex Alimentarius Commission (for food safety), the IPPC (for plant protection), the OIE (for animal health and zoonoses), and the CBD (for environmental and human health protection against IAS).[132] Therefore, the all-encompassing definition of IAS included in the CBD and the standard set under Article 8(h) of the CBD to prevent the introduction of IAS which threaten ecosystems, habits, or species, would fall under the protection of the SPS Agreement.

B. *Unique Capacity Building Challenges for Developing Nations*

International and regional organizations that work in IAS prevention have sounded the alarm on the desperate need to enhance the capacity of governments to control IAS risks at the entry stage.[133] Effective

128. *See* Dec. IX/4, *supra* note 105, at A. 1, 2–5.

129. *See* STDF, *supra* note 49, at 7, 15.

130. *See generally Who We Are*, WORLD ORG. FOR ANIMAL HEALTH (OIE), https://www.woah.org/en/who-we-are/ (last visited Oct. 12, 2024).

131. CITES, *supra* note 99.

132. *See Sanitary and Phytosanitary Measures*, WTO, https://www.wto.org/english/tratop_e/sps_e/sps_e.htm#standard_bodies (last visited Oct. 12, 2024).

133. *See* STDF, *supra* note 49, at 22.

national SPS measures in the form of border controls, quarantine infrastructure, and on-site eradication measures are a necessary foundation for bolstering the capacity of IAS management at the point of entry.[134] In some countries, SPS measures are well-equipped to address the majority of trade-related IAS. However, many developing countries, particularly those that fall within the U.N. Least Developed Country (LDC) identification, require substantial additional resources and support to strengthen their SPS measures.[135] Overarching challenges in this arena emerge from a legal feasibility standpoint and a developmental capacity standpoint, the two of which this Note discusses in turn.

1. Increasing the Flexibility of the SPS Agreement's Risk Assessment Requirement

While SPS disciplines offer the potential to enact far-reaching measures to protect against IAS, developing countries face the challenge that the measures must be backed by robust scientific evidence and risk analyses in order to withstand legal challenges.[136] This presents a problem for countries that lack the capacity "to resolve uncertainties and apply precaution," particularly as there are few broad scientific principles or reliable procedures for identifying the invasive potential of plants that countries with lower capacities can use as a starting point.[137] Thus, in order to conduct proper risk assessments for IAS invasions, it would likely require a team of technical experts to conduct research and make appropriate recommendations for each specific case of a potential IAS threat emerging from each specific trade commodity. This is a massive undertaking for even the most developed nations. While Article 5.7 of the SPS Agreement contains a potential exception to the requirement of a risk assessment and hard scientific evidence through its formulation of the "precautionary principle," there is some disconnect between this principle and the "precautionary approach" outlined in the CBD.[138] However, if the two concepts were harmonized, it could ease some of the burden on developing countries' efforts to combat IAS invasions through SPS principles.

The "precautionary principle" of the SPS Agreement allows states to take action when international standards do not exist, provided that

134. *See id.*

135. *See id.*

136. *See* U.N. ENV'T PROGRAMME DIV. OF TECH., INDUS. AND ECONS., ECONS AND TRADE BRANCH & INT'L INS. FOR SUSTAINABLE DEV., ENVIRONMENT AND TRADE: A HANDBOOK 39 (2005).

137. *See* Bern Convention, *supra* note 43, at 21.

138. *See* SPS Agreement, *supra* note 69, art. 5.7; *see also* CBD, *supra* note 88, pmbl.

available scientific information and risk assessment are applied and the measure is reevaluated within a reasonable period of time in order to take into account new scientific information.[139] In slight contrast, while the CBD does encourage the successful use of risk assessment procedures in evaluating the economic, health, and environmental impacts of IAS when there is a threat of significant reduction or loss of biological diversity, the "lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat."[140] Known similarly as the "precautionary approach," this concept emerges from Principle 15 of the Rio Declaration on Environment and Development.[141] With the potential damage of IAS invasions being so severe and threatening to many SDGs in developing nations, there could be value in modifying the SPS precautionary principle to align more with the CBD's precautionary approach. Given the speed in which an IAS invasion can escalate into a full-blown emergency, particularly in terms of food security,[142] it could be important to provide developing countries with a clearer indication that their IAS prevention measures will not be legally challenged, even if they lack the capacity to complete a full risk assessment within a reasonable period of time, as is the standard in Article 5.7 of the SPS Agreement.[143]

2. Utilize Preexisting Mechanisms and Collaborate with External Sectors

As a parallel effort to changing the legal structure around risk assessments, there is also promise in building capacity for countries to complete risk assessments and monitor ongoing IAS threats by collaborating with preexisting mechanisms in related third-party sectors.[144] Notably, there are already extensive international programs in place for identifying and managing the spread of human diseases and animal diseases.[145] Administered by the World Health Organization (WHO), the International Health Regulations (IHR) mandates cooperative international action to address the human health risks posed by trade and travel-related disease introductions.[146] In particular, Article 9 of the IHR requires "notification of any

139. *See* SPS Agreement, *supra* note 69, art. 5.7.

140. *See* CBD, *supra* note 88, pmbl.

141. *See* Rio Declaration on Environment and Development, United Nations Conf. on Env't and Dev., Principle 15, Aug. 12, 1992, A/CONF.151/26 (Vol. I).

142. *See* Mogomotsi et al., *supra* note 65, at 66.

143. *See* SPS Agreement, *supra* note 69, art. 5.7.

144. *See* Hulme, *supra* note 2, at 676.

145. *See* Keller & Perrings, *supra* note 8.

146. *See* Keller & Perrings, *supra* note 8, at 1009.

international public health risk due to the movement of people, disease vectors, or contaminated goods."[147] In light of the COVID-19 pandemic, these efforts have only been bolstered, providing ample risk management frameworks to use as a basis for IAS prevention, rather than forcing developing countries to start from scratch.[148]

This idea has been codified in the new concept of "One Biosecurity," an interdisciplinary approach to biosecurity policy and research that "enhances the interconnections among human, animal, plant, and environmental health to prevent and mitigate the impacts of invasive alien species."[149] The hopeful outcome of "One Biosecurity" would be a more coordinated approach to dealing with the pandemic risks introduced by IAS through early identification and risk management of potentially invasive species before they get exported.[150] Ultimately, One Biosecurity could bolster the development of species surveillance and data reporting programs that developing countries could utilize as part of their overall IAS risk assessment process.[151]

V. Conclusion

While the path forward in combating the spread of IAS is legally complex and will likely involve the tactful synergizing of multiple international trade and environmental agreements, it is a path we desperately need to take. With the ongoing threat of IAS invasions only being exacerbated by quickening globalization and climate change, the time to act is now. While IAS invasions are foundationally an environmental issue, they touch on almost every other sector of sustainable development.

Ultimately, as a first step, this Note urges the international trade and international environmental legal communities to come together and formally incorporate IAS prevention measures into their agreements. As discussed, synergy between preexisting trade agreements and MEAs could greatly expand the ability of the SPS Agreement to allow governments more flexibility in shoring up their IAS prevention mechanisms without facing pushback for potentially unlawful restrictions to trade under the GATT. Specifically, expanding the definitions of "pests" to more broadly include all types of IAS, as well as expanding the applicable definitions within the standard-setting bodies of the SPS Agreement, could

147. *Id.*

148. *See generally* Philip E. Hulme, *Advancing One Biosecurity to Address the Pandemic Risks of Biological Invasions*, 71 BioScience 708, 708–21 (2021).

149. *See* Hulme, *supra* note 2, at 676.

150. *See id.*

151. *See id.*

be a huge step forward in bringing IAS prevention to the forefront of the international trade law framework. Even more impactful could be adding the CBD as the fourth standard-setting body for the SPS Agreement, blending two multilateral agreements together and bringing light to the fact that the threat of IAS is both a trade law and environmental law issue.

Finally, it is important to note that, as many environmental and social issues do, the threat of IAS disproportionately affects developing nations. Therefore, changes in the legal language of trade agreements will likely need to be paired with tactful capacity-building and smart collaboration with external sectors, such as public health and infectious disease prevention. As trade continues to increase, IAS will continue to invade unsuspecting ecosystems and communities. However, if leveraged properly, the international trade law framework can help remove barriers that governments face in creating and maintaining effective defense systems against the unintentional spread of IAS.