

Moving from the Brown Economy to the Green Economy: The Battle over International Intellectual Property

Ji Ma

Oxford University, Oxford, United Kingdom

ji.ma@law.ox.ac.uk

Abstract

The article analyses potential intellectual-property-related disputes amid transfer of technology in the green economy within the international investment legal regime. Intellectual property rights (IPRs) protect human innovation and intellectual efforts. Tech transfer, IPRs in particular, has an important role to play in the move towards the green economy. In reality, it is the ‘private-sector-driven’ approach – foreign investment, licensing, and export – that plays the dominant role in tech transfer. Previously, private investors had brought disputes over intellectual property (IP) in the international investment legal regime. Towards the green economy, this article argues that tech transfer in the green economy can still meet more complicated challenges in the international investment legal regime due to the nature of IPRs, the sources of green tech, and the characteristics of the climate crisis.

Keywords

climate change – green economy – intellectual property rights – international investment law

1 Introduction

The United Nations Environment Programme defines a green economy as ‘one that results in improved human well-being and social equity, while significantly

reducing environmental risks and ecological scarcities'.¹ A green economy can be regarded as 'low carbon, resource efficient and socially inclusive'.² For a green economy, technologies are essential;³ for a global green economy, technology transfer (tech transfer) is critical since the sources of technologies are concentrated in developed countries and a few emerging economies. The Intergovernmental Panel on Climate Change (IPCC) describes tech transfer as 'a broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate change among different stakeholders'.⁴ In analyzing tech transfer, two words – 'tech' and 'transfer' – need to be clarified. Here, tech can mean 'clean technologies', 'environmentally sound technologies (ESTs)',⁵ or 'green technologies'. Tech encompasses both hard and soft technologies.⁶ Hard technology refers to patented technologies, such as adaptation technologies.⁷ Soft technology refers to broad know-how and experience, such as training and capacity building.⁸ The word 'transfer' encompasses diffusion of and cooperation with regard to technologies across and within States. It comprises understanding, utilising, and replicating technology, including the capacity to choose and adapt it to local conditions.⁹

Today, in the face of climate change, we are at a crossroads to determine our future. At this juncture, technologies are important to addressing climate change.¹⁰ To address climate change, the World Bank Annual Report (2021) suggests that States should broadly transform their economies by mobilizing every reserve of productive power to generate green, resilient, and inclusive

- 1 United Nations Environment Programme (UNEP), 'Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication' (2011) 2.
- 2 *ibid* 2.
- 3 *ibid* 15.
- 4 IPCC, 'Methodological and Technological Issues in Technology Transfer: A Special Report' (CUP 2000).
- 5 See Programme of Action for Sustainable Development (UN GAOR, 46th session) (14 June 1992) UN Doc A/Conf.151/26, Agenda Item 21 (Agenda 21).
- 6 IPCC (n 4) 3.
- 7 UNFCCC Secretariat, 'Technologies for Adaptation to Climate Change' (2004).
- 8 *ibid*.
- 9 IPCC (n 4) 55.
- 10 See Matthew Rimmer, 'Carbon Capture and Storage: Intellectual Property, Innovation Policy, and Climate Change' in Hirdan Katarina de Medeiros Costa and Carolina Arlota (eds), *Carbon Capture and Storage in International Energy Policy and Law* (Elsevier 2021) 181; Francesco Pasimeni, Alessandro Fiorini and Aliko Georgakaki, 'International Landscape of the Inventive Activity on Climate Change Mitigation Technologies: A Patent Analysis' (2021) 36 *Energy Strategy Reviews* 100677.

development.¹¹ For green development, intellectual property rights (IPR)s have been applied to renewable energy resources like solar power, energy storage facilities like batteries, energy efficient lighting sources like light-emitting diode (LED) lighting, non-polluting technologies that enable better waste management and recycling processes, artificial intelligence (AI) applications like smart grids, and collective marks bolstering environmental credentials and symbolizing protection of the environment such as 'Energy Star'. These intellectual property (IP) applications are essential to curbing the emission of greenhouse gases and, ultimately, to addressing climate change. Due to the significance of these applications, international legal instruments place great emphasis on the role of IP – in particular, the role of tech transfer – in meeting these challenges. Indeed, the 2020 United Nations Framework Convention on Climate Change (UNFCCC) Annual Report states that tech transfer is critical for 'building resilience to climate change, adapting to its inevitable impact and reducing greenhouse gas emissions'.¹²

Tech transfer typically occurs in the forms of trade, foreign investment, or licencing. For instance, the European Union (EU) has imported solar electricity panels from China; and Pakistan has imported technology from China and Germany for solar panels and wind turbines.¹³ In reality, developed States are reluctant to transfer tech to developing States and least developed countries (LDCs). It is the private sectors rather than developed States who play the dominant role in tech transfer. Amid the private-sector-driven tech transfer, private investors can bring claims to protect their IP-related investments in international investment law.

This article argues that tech transfer in the green economy can meet old as well as new challenges in the decades-old international investment legal regime due to the nature of IP, the sources of green tech, and the characteristics of the climate crisis. The international investment legal regime might exacerbate the gridlock in tech transfer for climate change. IPRs have enjoyed another layer of protection in the international investment legal regime, which aims to protect and promote foreign investment by setting obligations for host States.¹⁴ Given that IP may be recognized as an 'investment' in international investment agreements (IIAs), traditional investors have employed this legal

11 World Bank Group, 'World Bank Annual Report 2021' (2021) 69, Supporting Countries' Crisis Response and Recovery.

12 UNFCCC, 'UNFCCC Annual Report 2020' (2020) 32.

13 Saleem Shaikh, 'Pakistan to Import Green Technologies' (*The Guardian*, 7 July 2021).

14 See Rochelle Dreyfuss and Susy Frankel, 'From Incentive to Commodity to Asset: How International Law Is Reconceptualizing Intellectual Property' (2014) 36 *Mich J Intl L* 557.

regime to protect their IPRs in a series of cases. Prior cases may illuminate how to address the balance of public interests and IP protection; however, these cases have left several issues unresolved. These issues may resurface and become even more complex in the green economy: The private-sector-driven approach to tech transfer, the expansive concept of green tech, the broadness of States' IP-related measures, and the necessity of green tech in addressing the climate crisis will introduce ever more complexities into the field of international investment law.

Building on prior cases, this article explores how tech transfer in the green economy can meet serious challenges within the international investment legal regime when faced with a climate crisis. First, this article examines the reluctance of tech transfer from developed States to developing States and LDCs to address climate change, with underlying explanations. This reluctance toward tech transfer has made the 'private-sector-driven' approach dominant in tech transfer. By taking two recent tech-transfer cases – *ES Holdings v Mexico* and *Uber v Colombia* and other similar cases as examples – this part synthesizes three kinds of States' IP-related measures in the green economy: adopting unstable measures to regulate IPRs, lowering the price of IP-related products or granting a compulsory licence, and expanding fair use of IPRs. Confronting States' IP-related measures, private investors could file claims to protect their IP-related investments before international investment tribunals. Secondly, by examining a series of cases, this article explores how the international investment legal framework has opened the door for IP litigation and how recent IIAs respond to challenges posed by IP litigation. It primarily examines three substantive investment issues in connection with IP in recent IIAs: the definition of investment, the fair and equitable treatment (FET) obligations, and indirect expropriation. In particular, this article explores how IP-related disputes can become more complicated as the world confronts the climate crisis due to three intertwined features: the nature and sources of green tech, the characteristics of the climate crisis, and the essential role of international investment law. The final part concludes this article by suggesting an urgent consideration of how to address the issue of protecting IPRs in the era of climate crisis.

2 The Possible Intellectual Property-Related Risk in Tech Transfer in the Green Economy

IPRs protect human innovation and intellectual efforts. The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) identifies

the term ‘intellectual property’ including the forms of patents, trademarks, copyrights, and others.¹⁵ The EU–Singapore and EU–Vietnam Investment Protection Agreements (IPAs) recognize these forms as IP.¹⁶ The World Intellectual Property Organization (WIPO) Convention also has similar forms of IP.¹⁷ Among many justifications for IP protection,¹⁸ the dominant one is from the perspective of law and economics: to incentivize private creators by covering the cost of research and development as well as providing potential returns.¹⁹

2.1 *The Rise of Private Sectors to Dominate Tech Transfer and Its Associated Risks in the Green Economy*

2.1.1 The Reluctance to Tech Transfer to Address Climate Change

Early on, in 1975, the Agreement between the United Nations (UN) and the WIPO sought to promote and facilitate tech transfer from developed to LDCs.²⁰ In 1992, the Rio Earth Summit started the discussion of tech transfer for environmental purposes by adopting Agenda 21, which boldly emphasized tech transfer. In the same year, the UNFCCC stressed tech transfer. The UNFCCC states that developed States shall adopt ‘all practicable steps’ to assist

15 Marrakesh Agreement Establishing the World Trade Organization (signed 15 April 1994, entered into force 1 January 1995) 1867 UNTS 3, annex 1C (‘Agreement on Trade-Related Aspects of Intellectual Property Rights’) (TRIPS Agreement 1994) Annex 14-B 3(a).

16 EU–Singapore Investment Protection Agreement (signed 19 October 2018, entered into force 21 November 2019) (EU–Singapore IPA) art 1.2(g); EU–Vietnam Investment Protection Agreement (signed 30 June 2019, entered into force 1 August 2020) (EU–Vietnam IPA) art 1.2(h)(vi).

17 Convention Establishing the World Intellectual Property Organization (signed 14 July 1967, entered into force 26 April 1970) (WIPO Convention) 828 UNTS 3. Article 2(viii) defines the term as including ‘the rights relating to:

- literary, artistic and scientific works,
- performances of performing artists, phonograms, and broadcasts,
- inventions in all fields of human endeavor,
- scientific discoveries,
- industrial designs,
- trademarks, service marks, and commercial names and designations,
- protection against unfair competition,
- and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields.

18 See Robert P Merges, *Justifying Intellectual Property* (Harvard UP 2011) (three kinds of theories justify intellectual property: law and economics, personality, and labor theories.).

19 See William M Landes and Richard A Posner, *The Economic Structure of Intellectual Property Law* (Harvard UP 2003).

20 Agreement Between the United Nations and the World Intellectual Property Organization (entered into force 17 December 1974) art 10.

tech transfer to implement its provisions.²¹ Furthermore, it stipulates that effective tech transfer from developed States is a precondition for developing States to implement their commitments effectively.²² The Kyoto Protocol to the UNFCCC also recognises the importance of tech transfer.²³

Entering into the era of globalization, the World Trade Organization (WTO) trade agreements incorporated TRIPS as a package in order to reduce distortions and impediments to international trade.²⁴ TRIPS significantly raised the standards of IP protection and imposed enforcement obligations.²⁵ In addition to the protection of IPRs, TRIPS expressly states that the protection and enforcement of IPRs should contribute to transfer of technology (tech transfer) and that such contribution should benefit both producers and users.²⁶ Moreover, WTO members may adopt necessary measures to promote important public interests or to prevent practices that adversely affect tech transfer.²⁷ In sum, TRIPS balances IPRs in order to facilitate tech transfer by taking into account broader policy considerations.

Later, in 2007, the Bali Conference of Parties (COP) prioritized tech transfer to tackle the climate crisis. In 2010, the Cancún COP agreed to set up the Technology Mechanism, a milestone step to accelerate tech transfer. The Technology Mechanism established the Technology Executive Body as a policy body as well as the Climate Technology Centre and Network as an operational

21 United Nations Framework Convention on Climate Change (opened for signature 9 May 1992, entered into force 21 March 1994) (UNFCCC) 1771 UNTS 107, art 4.5.

22 *ibid* art 4.7 (It will also 'take fully into account that economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties.').

23 Kyoto Protocol to the UNFCCC (signed 11 December 1997, entered into force 16 February 2005) (Kyoto Protocol) [2008] ATS 2, art 10(c) (Article 10(c) asks all Parties to 'cooperate in the promotion of effective modalities for the development, application and diffusion of, and take all possible steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies, know-how, practices and processes pertinent to climate change, in particular to developing countries, including the formulation of policies and programmes for the effective transfer of environmentally sound technologies that are publicly owned or in the public domain and the creation of an enabling environment for the private sector, to promote and enhance the transfer of, and access to, environmentally sound technologies').

24 TRIPS (n 15). For an alternative explanation of why IP was incorporated into the WTO package, see Peter Drahos and John Braithwaite, 'Intellectual Property, Corporate Strategy, Globalisation: TRIPS in Context' (2001) 20 *Wis Intl L J* 451.

25 TRIPS (n 15) art 3 (national treatment) and art 4 (most-favored-nation treatment).

26 *ibid* art 7.

27 *ibid* art 8.

body.²⁸ In 2012, the Rio+20 Outcome Document, 'The Future We Want', emphasized the importance of tech transfer for sustainable development.²⁹

In the preparations for the 2015 Paris Agreement, the United Nations Secretary-General Ban Ki-moon commented: 'Intellectual property, technology transfer, and financing are among a wide range of topics that must be addressed in the context of climate change and sustainable development'.³⁰ The landmark, binding Paris Agreement addresses tech transfer.³¹ Article 10.2 emphasizes that State parties shall strengthen cooperation on tech transfer. Article 10.6 notes that support shall be provided to developing States to implement this provision. In addition, Article 10 calls for strengthening the above Technology Mechanism.³²

Although developing States and LDCs have continuously been seeking a favourable regime for tech transfer, the progress itself is stuck due to the unclear role of IPRs, the persistent South-North divide, and ambiguous treaty obligations. First, whether IPRs are critical for addressing climate change is unclear.³³ Factors other than IPRs, such as domestic scientific capabilities, healthy market conditions, and favourable investment climate, may account

28 'Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action Under the Convention, CP.16' (UNFCCC, 2010) and 'Outcome of the Work of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol at its Fifteenth Session, CMP.6' (UNFCCC 2010) (Cancún Agreements 2010) paras 113–29; See also Ahmed Abdel-Latif, 'The Climate Technology Mechanism: Issues and Challenges' (March 2011) International Centre for Trade and Sustainable Development Information Note No 18 ('The Technology Mechanism is an important milestone in efforts to operationalise the technology transfer provisions of the UNFCCC. This approach includes a greater focus on innovation as an overarching concept and priority, a stronger recognition of the role of the private sector, and an acknowledgement of the growing technological capabilities of some developing countries, particularly emerging economies.')

29 UNGA, 'The Future We Want' (11 September 2012) A/RES/66/288, para 269.

30 'Unfair to Expect Same Commitment from All Nations on Climate' (*The Tribune India*, 8 December 2014) <www.tribuneindia.com/news/archive/world/unfair-to-expect-same-commitment-from-all-nations-on-climate-15638> accessed 20 October 2022.

31 Paris Agreement (opened for signature 12 December 2015, entered into force 4 November 2016) (in UNFCCC, Report of the Conference of the Parties on its Twenty-First Session, Addendum) (29 January 2016) (Paris Agreement) UN Doc FCCC/CP/2015/10/Add.1, art 10.

32 *ibid* art 10(3) states that the TM 'shall serve this Agreement'.

33 See Abbe E L Brown, 'The Political Economy of Intellectual Property: Intellectual Property and Climate Change' in Rochelle Dreyfuss and Justine Pila (eds), *The Oxford Handbook of Intellectual Property Law* (OUP 2017) 972.

for effective tech transfer.³⁴ Given the broad scope of green tech and significant geographic differences, more studies are needed to assess the role of IPRs in addressing the climate crisis.³⁵ Secondly, a persistent North-South divide has exacerbated this problem. Developed States have always argued that IPRs can incentivize innovation and technology development, and thus promote tech transfer.³⁶ However, developing States and LDCs have asserted that IPRs can stifle large-scale tech transfer and affordable access to them.³⁷ Indeed, Agenda 21 states that the role of IPRs should be considered and the impact of IPRs on tech transfer should be further examined.³⁸ This North-South divide is unlikely to be resolved soon.³⁹ Thirdly, vague language in treaty texts may account for the deadlock of tech transfer in practice. Even in the Paris Agreement, an international treaty binding upon State parties, specific provisions in the agreement may not create concrete obligations.⁴⁰ With respect to the Paris Agreement Article 10, the provisions are only procedural,⁴¹

34 See Meir Perez Pugatch, 'Mitigating Climate Change Through the Promotion of Technology Transfer and the Use of Environmentally Sound Technologies (ESTs): The Role of Intellectual Property Rights' (2010) 1 EJRR 408; See also Agenda 21 (n 5) paras 34.13, 34.20.

35 Dean Baker, Arjun Jayadev and Joseph Stiglitz, 'Innovation, Intellectual Property and Development, A Better Set of Approaches for the 21st Century' (CEPR, July 2017) 52–53.

36 See Walter G Park and Douglas C Lippoldt, 'Technology Transfer and the Economic Implications of the Strengthening of Intellectual Property Rights in Developing Countries' (OECD Publishing 2008); Lee Branstetter and others, 'Do Stronger Intellectual Property Rights Increase International Technology Transfer? Empirical Evidence from US Firm-Level Panel Data' (2006) 121(1) Quarterly Journal of Economics 321.

37 See K Raiser, H Naims and T Bruhn, 'Corporatization of the Climate? Innovation, Intellectual Property Rights, and Patents for Climate Change Mitigation' (2017) 27 Energy Research & Social Science 1 ('The authors find that although patents provide a strong economic incentive for innovation, they limit the further commercialization of mitigation technologies based on previously patented materials and thus hinder global access to mitigation solutions. Development of mitigation technologies, specifically of renewable energies and carbon capture storage, requires predominantly an improvement of existing technologies. Therefore, patents are seen to restrict development and are perceived as an obstacle to climate change mitigation. In order to achieve the target set by COP21, the transfer of patented technologies is a necessity. However, patents are found to act as one factor that can severely restrict the dissemination of technologies globally.').

38 Agenda 21 (n 5) para 34.10.

39 Matthew Rimmer, *Intellectual Property and Climate Change: Inventing Clean Technologies* (Edward Elgar 2011).

40 Heleen de Coninck and Ambuj Sagar, 'Technology Development and Transfer (Article 10)' in Daniel Klein and others (eds), *The Paris Agreement on Climate Change: Analysis and Commentary* (OUP 2017) 101.

41 Paris Agreement (n 31) art 10.6, second sentence.

institutional,⁴² or financial.⁴³ Except for a vague obligatory provision to strengthen cooperation on tech transfer, the Paris Agreement does not provide other specific obligations on individual parties.⁴⁴ In a general sense, the Paris Agreement makes little progress on the obligations of tech transfer.⁴⁵

2.1.2 The Dominant Private-Sector-Driven Approach to Tech Transfer in the Green Economy

These shortcomings reflect the lack of political will and consensus to support climate tech transfer.⁴⁶ Today, changing global IP rules to foster tech transfer are unlikely.⁴⁷ In developed States, multinational corporations, as private investors, are major sources of technology,⁴⁸ and governments cannot force private investors to transfer tech, given that IPRs confer on private investors broad power to decide the use of technology.⁴⁹ In the face of such challenges, developing States might focus on establishing frameworks with private investors to stimulate concrete tech transfer to address climate change.⁵⁰ Indeed, this 'private-sector-driven approach' has become the dominant, mature mode of tech transfer.⁵¹

Under this 'private-sector-driven approach', foreign direct investment and joint ventures, licensing, and export-import are three dominant means by

42 ibid art 10.3 anchors the Technology Mechanism established under the Convention in the Paris Agreement; Article 10.4 establishes a technology framework; Article 10.5 second sentence tasks the Technology Mechanism.

43 ibid art 10.5 second sentence; Article 10.6, first sentence, includes technology-specific requirements for the global stocktake.

44 ibid art 10.2.

45 Margaretha Wewerinke-Singh and Curtis Doebbler, 'The Paris Agreement: Some Critical Reflections on Process and Substance' (2016) 39 UNSWLJ 1486, 150.

46 Coninck and Sagar (n 40) 276.

47 Ahmed Abdel-Latif, 'Intellectual Property Rights and the Transfer of Climate Change Technologies: Issues, Challenges, and Way Forward' (2015) 15 Climate Policy 103, 107.

48 IPCC (n 4) 55.

49 Carlos M Correa, 'The Burden of Intellectual Property Rights' (18 February 2015) Bulletin of the Atomic Scientists <https://thebulletin.org/roundtable_entry/the-burden-of-intellectual-property-rights/> accessed 20 October 2022.

50 Frederick M Abbott, *Innovation and Technology Transfer to Address Climate Change: Lessons from the Global Debate on Intellectual Property and Public Health* (2009) ICTSD Global Platform on Climate Change, Trade Policies and Sustainable Energy Issue Paper No 24.

51 IPCC (n 4) 57. See also IPCC Working Group III, 'Climate Change 2022: Mitigation of Climate Change' (2022) ch 16, figure 16.3; UNCTAD, 'UNCTAD Series on Issues in International Investment Agreements: Transfer of Technology' (2001) 11–16.

which the private sector makes tech transfers.⁵² With respect to the means of foreign investment, private investors – multinational corporations in particular – can transfer technology to their offshore wholly owned subsidiaries; they can establish joint ventures with domestic firms; or they can invest directly in foreign States, such as building a factory. For instance, Chinese corporations have invested significantly in green tech such as solar panels in Saudi Arabia.⁵³ Licensing is another major means of tech transfer, especially in the digital age. For instance, the sustainable technology of 3D printing can make products by printing their precise shape and form rather than by sculpting out materials. The owner can license its 3D printing technologies to reduce scrap waste significantly and to contribute to a greener economy. The means of export-import can also entail tech transfer. For instance, US investors have exported clean coal technology to China to reduce emissions of ash and sulphur dioxide and to produce electricity in relatively clean ways.⁵⁴

Amid tech transfer, these three means of tech transfer – foreign investment, license, and export-import – can have potential risks for private investors. The risks include unstable foreign States' investment policies, insufficient protections of intellectual property, and the repatriation of profits.⁵⁵ These risks will lead private investors to protect their investment and can give rise to IP-related disputes in international investment law.

2.2 *The Possible Intellectual Property-Related Measures in the Green Economy*

Given the substantial impact of climate change on all of humanity and the ethical imperative to act, it is necessary to rethink the role of IPRs. The Universal Declaration of Human Rights (UDHR) in 1948 established the human right

52 International Institute for Sustainable Development & United Nations and Environment Programme, 'Trade and Green Economy: A Handbook' (3rd edn, IISD, 2014) 86–87; See also Damien Dussaux, Antoine Dechezleprêtre and Matthieu Glachant, 'Intellectual Property Rights Protection and the International Transfer of Low-Carbon Technologies' (2018) Hall Open Science hal-01693539, Table 1: Characteristics of International Technology Transfer Market Channels (citing Matthieu Glachant and others, 'Promoting International Technology Transfer of Low-Carbon Technologies: Evidence and Policy Perspectives' (*Mines ParisTech*, October 2013)).

53 John Calabrese, 'Sustainable Momentum? China and the Mideast Solar Market' (19 October 2021) <www.mei.edu/publications/sustainable-momentum-china-and-mideast-solar-market> accessed 20 October 2022.

54 Shannon Fraser and Stefan Osborne, 'Potential Exports of US Clean Coal Technology Through 2030' (November 2007) Table 4.

55 IPCC (n 4) Table 1.2: Key issues and factors affecting choice of technology transfer pathways.

to technology, stating that '[e]veryone has the right ... to share in scientific advancement and its benefits'.⁵⁶ For instance, some scholars have proposed to consider the role of IPRs under Rawl's theory of distributive justice.⁵⁷ Indeed, Joshua Sarnoff has reflected upon the lack of substantive text on intellectual property and climate change.⁵⁸ He predicted that the rule on IP in the era of climate change would experience an experimental period until international agreements develop further to regulate IP.⁵⁹ During the experimental period, States might adopt three kinds of IP-related measures that could violate their obligations in international investment law.

First, a State might adopt unstable measures on regulating IPRs or IP-related products, such as unilaterally terminating its concession or banning IP-related applications. Consider the case of *Espiritu Santo Holdings, LP (ES Holdings) v Mexico*. Each day 2.7 million taxi trips were operated in Mexico City by around 238,000 registered taxis, most of which were equipped with technologically obsolete equipment.⁶⁰ To optimize trip service in Mexico City, ES Holdings invested hugely in a concession to replace and maintain taximeters by developing taximeter technology and mobile applications acquiring the digital tablets.⁶¹ Later, the Mexican government failed to meet its obligations to implement a platform allowing taxi operators to install the new taximeters. Not only did Mexico unilaterally terminate the concession, it failed to issue an official administrative act in that regard. Moreover, Mexico City released a 'copy-cat ride-hailing application' that infringed upon the IPRs.⁶²

Similarly, in *Uber v Colombia*, the Colombian competition authority imposed a nationwide ban on Uber's ride-hailing applications, responding to

56 UNGA Resolution 217 (III) A, Universal Declaration of Human Rights (10 December 1948) at 76. See also Ruth L Okediji, 'Does Intellectual Property Need Human Rights' 51 NYU J Intl L & Pol 1.

57 The term 'distributive justice' is broad and varies according to the different moral perspectives of what is the desired 'fairness'. This latter term can include various theories, such as Marxist and John Rawls's theory of justice. See William Fisher, 'Theories of Intellectual Property' in Stephen R Munzer (ed), *New Essays in the Legal and Political Theory of Property* (CUP 2001) 168 (describing a 'Social Planning Theory' of intellectual property based on political philosophy theorists).

58 Joshua D Sarnoff, 'Patents and Climate Change' in Joshua D Sarnoff (ed), *Research Handbook on Intellectual Property and Climate Change* (Edward Elgar 2016) 334–45.

59 *ibid*.

60 *Espiritu Santo Holdings, LP (ES Holdings) v Mexico*, ICSID Case No ARB/20/13, Notice of Intent (30 May 2019) para 10.

61 *ibid* para 27.

62 Lisa Bohmer, 'Mexico Round-up: Supreme Court of Justice Upholds Contested Electricity Reform, Provisional Measures Requests and Decisions, Virtual and In-Person Hearings, and an Application for an Additional Award' (*IAReporter*, 12 April 2022).

a complaint from a local competitor of Uber's.⁶³ In this case, Uber claimed that its investment included its IPRs – the right to license the Uber Platform, including the Uber applications, websites, content, and products, as well as the Uber trademark and associated goodwill.

Both cases can be regarded as examples of tech transfer in the green economy. AI applications dominated by private investors connect new technologies and utilise big data. In the green economy, these applications can be licensed to control traffic, reduce commute times, and save fuel consumption.⁶⁴ In both cases, ES Holdings and Uber developed or licensed its IPRs – ride-hailing applications – to optimize driving service and to reduce carbon emissions. Ride-hailing can contribute to reducing emissions and mitigating climate change when travelers share a ride-hailing vehicle, use ride-hailing to connect with mass transit, or when ride-hailing drivers use electric vehicles.⁶⁵ Indeed, Uber aims to be 'a fully zero-emission platform by 2040, with 100% of rides taking place in zero-emission vehicles, on public transit, or with micromobility' and to 'have 100% of rides take place in electric vehicles (EVs) in US, Canadian, and European cities by 2030'.⁶⁶

Secondly, a State could also require lowering the price of IP-related products⁶⁷ or grant a compulsory license in an emergency to practice a patented invention without the patentee's permission to address the climate crisis.⁶⁸ The regime of compulsory license in international IP can be traced back to the 2001 Doha Declaration on TRIPS and Public Health.⁶⁹ The Doha Declaration stated that members have the right to grant compulsory licenses and the freedom to determine the grounds upon which such licenses are granted.⁷⁰ It also declared that WTO members have the right to determine

63 *Uber Technologies, Inc and Uber Colombia, SAS v Colombia*, Notice of Dispute (30 December 2019). The ban was overturned shortly after Uber sent out the notice of dispute; and this case did not go on. And this case has no formal citation.

64 See Ricardo Vinuesa and others, 'The Role of Artificial Intelligence in Achieving the Sustainable Development Goals' 11 *Nature Communications* 1.

65 Don Anair and others, *Ride-Hailing's Climate Risks: Steering a Growing Industry Toward a Clean Transportation Future* (Union of Concerned Scientists, 2020) 3–4,7.

66 Dara Khosrowshahi, 'Driving a Green Recovery' (8 September 2020) <www.uber.com/newsroom/driving-a-green-recovery/> accessed 20 October 2022.

67 See Executive Order 13948 on Lowering Drug Prices by Putting America First (3 September 2020) 85 *Federal Regulation* 59649.

68 See Emergency Law No 2020-290 (France) (to combat the COVID-19 pandemic, the French Parliament adopted this Emergency Law).

69 Doha Declaration on the TRIPS Agreement and Public Health (adopted 14 November 2001) (Doha Declaration) WT/MIN (01)/DEC/2.

70 *ibid* art. 5.

what is to be considered a national or extreme emergency. Following a decision of the WTO in 2003,⁷¹ and in conjunction with the 2017 entry into force of a protocol to amend TRIPS, any WTO member may export generic pharmaceutical products made under an importing country's compulsory license for domestic use. Although the Doha Declaration has provided flexibility to tech transfer, the TRIPS Agreement Article 31(f) limits the issuance of a compulsory license to being predominantly for the supply of the domestic market – with Article 31bis limited to pharmaceuticals.⁷²

Indeed, the approach of lowering prices or compulsory licenses has been adopted in *Novartis v Colombia*.⁷³ There, Novartis sold the drug Glivec for around USD 19,891 per patient per year, twice the average annual income in Colombia. In April 2016, Colombia's Ministry of Health proposed to reduce Glivec's price by more than 50% and considered issuing a compulsory license if this price reduction could not be achieved.⁷⁴ Novartis notified Colombia's Ministry of Trade that it intended to bring a claim under the Colombia–Switzerland BIT. Novartis asserted that Colombia's measures discriminated against it, violated its legitimate expectations of stable patent rules, and constituted an indirect expropriation of its patent by lowering the drug price.⁷⁵

Moving toward the green economy, the issuance of a compulsory license to tackle the climate crisis may emerge. Agenda 21 has called for the use of compulsory licenses to assist tech transfer.⁷⁶ The World Bank report, *Inclusive Green Growth*, suggests the use of compulsory licenses to facilitate access to green technologies.⁷⁷ Indeed, the United States has the *quasi* compulsory

71 WTO, 'Implementation of Paragraph 6 of the Doha Declaration on the TRIPS Agreement and Public Health' (30 August 2003) WT/L/540.

72 Any WTO member may export generic pharmaceutical products made under an importing country's compulsory license for domestic use.

73 After Novartis threatened to bring claims against Colombia in international investment law, this case did not go on. And this case has no citation.

74 Zoe Williams, 'Investigation: As Colombia Pushes for Cancer Drug Price-Cut and Considers Compulsory Licensing, Novartis Responds with Quiet Filing of an Investment Treaty Notice' (*IAReporter*, 30 November 2016).

75 *ibid.* At last, the Colombian government did not grant a compulsory license facing amounts of pressure from investors, the US and Swiss government. See 'How Big Pharma Sabotaged the Struggle for Affordable Cancer Treatment: Novartis vs Colombia' (Transnational Institute, 2019).

76 Agenda 21 (n 5) para 34.18e.

77 World Bank, 'Inclusive Green Growth: The Pathway to Sustainable Development' (World Bank, 2012) 78 (On compulsory licensing, it states, '[m]aking it easier for countries to issue compulsory licenses under appropriate circumstances can help ensure more affordable access to patented green innovations by poorer households in low-income countries.').

licenses mechanism to tackle air pollution.⁷⁸ In the United States, the Clean Air Act provides for compulsory licenses of the patented invention under the following conditions: the use of a specific patent is necessary to meet emissions standards; the patented technology is not otherwise available to the potential licensee and there is no other reasonable alternative means to achieve the reduced emission levels; and the denial of such license may cause a 'lessening of competition or [the] tendency to create a monopoly'.⁷⁹ Upon recommendation by the US Environmental Protection Agency and then certification by the Attorney General, a federal district court can grant a compulsory license on reasonable terms.⁸⁰ Moreover, in India, the government has considered granting compulsory licenses in the latest green tech when facing the unwillingness of patentees, the unreasonableness of license fee, or the insufficiency of green tech to meet domestic demand.⁸¹

Actually, developing States and LDCs have proposed changing international IP rules to address climate change. In March 2013, drawing from the 2001 Doha Declaration on TRIPS and Public Health,⁸² Ecuador made a submission to the WTO TRIPS Council, requesting it to reaffirm 'the existing flexibilities in the TRIPS Agreement so that Members use them in connection with ESTs, for example through a declaration addressing flexibilities in the TRIPS Agreement, climate change and access to ESTs'.⁸³ In a green economy, high prices of IP-related products can indirectly cause serious economic and health consequences in a climate crisis. Like the Colombian government in *Novartis v Colombia*, a State may lower the price of IP-related products or grant a compulsory licence to practice relevant patents in coping with the climate crisis.

Thirdly, a State could expand fair use of IPRs to fight against climate change.⁸⁴ A foreshadowing of the climate crisis could be the Covid-19 pandemic. Amid the Covid-19 pandemic, some scholars have called for greater

78 Joseph A Yosick, 'Compulsory Patent Licensing for Efficient Use of Inventions' (2001) 111 L Rev 1275, 1279.

79 Clean Air Act (United States) (1963), 42 USC § 7608.

80 *ibid.*

81 Government of India Ministry of Commerce & Industry Department of Industrial Policy & Promotion (Manufacturing Policy Section), 'National Manufacturing Policy' (2011) art 4.4.

82 Doha Declaration (n 69).

83 Communication by Ecuador to the TRIPS Council of the WTO, 'Contribution of IP to Facilitating the Transfer of Environmentally Rational Technology' (27 February 2013) IP/C/W/585.

84 Joshua D Sarnoff, 'The Patent System and Climate Change' (2011) 16 Virginia Journal of Law & Technology 301, 354–56 (discussing the possible expansion of the governmental use of patent clause 28 USC § 1498).

attention to public interests. Amy Kapczynski has argued for governmental patent use, considering the US government's important role in funding and research collaboration for the drug Remdesivir.⁸⁵ Haochen Sun argued that the right to technology should be 'redefined as a collective right that entitles people to enjoy the benefits of technological progress and minimizes the harms that such progress may cause'.⁸⁶ With respect to patent responsibility in particular, Sun has also argued that patentees should assume greater responsibility for disclosing sufficient patent information, taking measures to benefit the public, and confronting social injustice in the COVID-19 era. Since the public is involved in creating patents, and previous knowledge has contributed to patent innovation, prioritizing the protection of patent rights is hostile to global efforts to combat the COVID-19 pandemic.⁸⁷ To combat Covid-19, States have also proposed the waiver of vaccine patents. South Africa and India initiated the campaign for this waiver to expedite the manufacture of vaccines in developing countries. Later, the United States⁸⁸ and the EU Parliament⁸⁹ joined this campaign.

Similar to the Covid-19 pandemic, the climate crisis could provide the opportunity for States to expand the fair use of some IPRs. The doctrine of fair use permits the unlicensed use of copyright-protected works in certain circumstances. For instance, in the United States, the Copyright Act provides four nonexclusive factors for determining the issue of fair use; courts assess the issue of fair use on a fact-specific inquiry.⁹⁰ Thus, courts may allow certain use of AI applications, like Uber Applications, to tackle climate change under the fair use doctrine. Taking insight from copyright law, Maureen O'Rourke has argued that patent law should adopt a fair use doctrine to prevent patent rights

85 Amy Kapczynski, 'Realizing Public Rights Through Government Patent Use' (2021) 49 *J L Med & Ethics* 34.

86 Haochen Sun, 'Reinvigorating the Human Right to Technology' (2020) 41 *Mich J Intl L* 279.

87 Haochen Sun, 'Patent Responsibility' (2021) 17 *SJCRCL* 141.

88 See Office of the United States Trade Representative, 'Statement from Ambassador Katherine Tai on the Covid-19 Trips Waiver' (Press Release, 5 May 2021) <<https://ustr.gov/about-us/policy-offices/press-office/press-releases/2021/may/statement-ambassador-katherine-tai-covid-19-trips-waiver>> accessed 20 October 2022.

89 See European Parliament, 'Parliament Calls for Temporary COVID-19 Vaccine Patent Waiver' (Press Release, 6 October 2021) <www.europarl.europa.eu/news/en/press-room/20210604IPR05514/parliament-calls-for-temporary-covid-19-vaccine-patent-waiver> accessed 20 October 2022.

90 Copyright Act (United States) 17 USC § 107 (these four factors are: 'the purpose and character of the use, including whether the use is of a commercial nature or is for nonprofit educational purposes; the nature of the copyrighted work; the amount and substantiality of the portion used in relation to the copyrighted work as a whole; the effect of the use upon the potential market for or value of the copyrighted work').

from becoming overbroad.⁹¹ Recently, the doctrine of fair use for green patents has also been proposed.⁹²

3 Possible Intellectual Property-Investment Issues in the Green Economy

This part, first, discusses how IP issues arise in international investment law by exploring a series of IP-related cases in international investment law. In addition, it analyses how the tech transfer in the green economy can meet more complicated IP-related legal challenges in international investment law.

3.1 *The Emergence of Intellectual Property Issues in International Investment Law*

Given that IP can be defined as an ‘investment’ in IIAs, bringing IP-related claims into international investment tribunals is feasible. *Philip Morris Asia v Australia*⁹³ first awakened this ‘sleeping giant’.⁹⁴ In that case, the government of Australia sought to reduce smoking by enacting plain packaging regulations, prescribing exact specifications for every aspect of tobacco and cigarette packaging, including the trademarks. Philip Morris Asia (PM Asia) brought a claim against Australia and alleged that Australia’s plain packaging regulations breached its obligations under the Australia-Hong Kong BIT and caused substantial injury to PM Asia.⁹⁵ In particular, PM Asia asserted that these regulations expropriated its business value partially deriving from its intellectual property rights, violated the FET obligations, unreasonably impaired its investments, denied it full protection and security from negligence in preventing damage to qualifying investments, and violated the umbrella clause. However, the Tribunal did not decide on the merit of the case; instead, it declined to exercise its jurisdiction because PM Asia restructured its corporate business

91 See Maureen A O’Rourke, ‘Toward a Doctrine of Fair Use in Patent Law’ (2000) 100 Colum L Rev 1177.

92 See Samuel E Cayton, ‘The “Green Patent Paradox” and Fair Use: The Intellectual Property Solution to Fight Climate Change’ (2020) 11 Seattle Journal of Technology, Environmental & Innovation Law 214, 237–42.

93 *Philip Morris Asia Limited v The Commonwealth of Australia*, UNCITRAL, PCA Case No 2012-12, Award on Jurisdiction (17 December 2015).

94 Bryan Mercurio, ‘Awakening the Sleeping Giant: Intellectual Property Rights in International Investment Agreements’ (2012) 15 JIEL 871, 915.

95 Agreement Between the Government of Hong Kong and the Government of Australia for the Promotion and Protection of Investments (signed 15 September 1993, entered into force 15 October 1993) (Hong Kong–Australia BIT).

for the principal purpose of gaining treaty protection and initiating the arbitration, which constituted an abuse of rights.⁹⁶

Almost at the same time, Philip Morris initiated another investment arbitration, *Philip Morris Brands Sàrl v Uruguay*.⁹⁷ This dispute concerned Uruguay's two tobacco control measures, the 'Single Presentation Requirement (SPR)' and the '80/80 Regulation'. The SPR prohibited tobacco companies from using multiple presentations of any cigarette brand, leaving companies the option to pick only one variant which would remain on the market.⁹⁸ The 80/80 Regulation required companies to increase the size of the health warnings on the surface of the cigarette packages, leaving only twenty per cent of the space for trademarks and other information. Here, Philip Morris claimed that the SPR had substantially deprived the value of its Uruguayan operations due to the negative impact on the value of its brands and their underlying trademarks; and the 80/80 Regulation had wrongfully limited its use of its trademarks. Like in *Philip Morris v Australia*, Philip Morris brought five claims: expropriation; denial of fair and equitable treatment; impairment of use and enjoyment of claimants' investments; failure to observe commitments as to use of trademarks; and denial of justice under the Switzerland–Uruguay BIT.⁹⁹ The Tribunal concluded that Uruguay had neither breached the FET obligations¹⁰⁰ nor denied justice by refusing Philip Morris' challenges to the validity of these two regulations in its highest court.

Later, *Eli Lilly v Canada* started the first international investment arbitration concerning patents.¹⁰¹ In 2010 and 2011, the Federal Court of Canada revoked two of Eli Lilly's drug patents because of their lack of utility under the 'promise utility doctrine' in Canadian patent law. These decisions were confirmed by the Federal Court of Appeal and the Supreme Court of Canada.¹⁰² Next, Eli Lilly filed a request for arbitration against Canada under the North American Free Trade Agreement (NAFTA) and argued that this 'promise

96 *Philip Morris v Australia* (n 93) para 518.

97 *Philip Morris Brands Sàrl, Philip Morris Products SA and Abal Hermanos SA v Oriental Republic of Uruguay*, ICSID Case No ARB/10/7, Award (8 July 2016).

98 For example, for the Marlboro family, Philip Morris chose Marlboro Red; and Marlboro Light, Blue, and Fresh Mint were taken off the market.

99 Agreement Between the Swiss Confederation and the Oriental Republic of Uruguay on the Reciprocal Promotion and Protection of Investments (Including Ad Article 10 of the Protocol Thereto) (signed 7 October 1988, entered into force 22 April 1991) (Switzerland–Uruguay BIT).

100 *Philip Morris v Uruguay* (n 97) para 399.

101 *Eli Lilly and Company v The Government of Canada*, ICSID Case No UNCT/14/2, Final Award (16 March 2017).

102 *ibid* paras 82–84, 93–94.

utility doctrine' radically departed from Canada's traditional utility standard as well as its decade-long practices. Eli Lilly alleged that Canada's revocation of its patents violated the FET obligations and constituted unlawful expropriation. The Tribunal found that Eli Lilly had not demonstrated a dramatic change in Canadian patent law; instead, the evidence showed that Canada's utility requirement underwent incremental rather than abrupt change. Since the Tribunal found no fundamental change in Canadian patent law, it rejected Eli Lilly's allegations.

The recent *Bridgestone v Panama* arbitration provides additional insights into IP disputes in international investment law.¹⁰³ In 2005, a subsidiary of the Chinese Luque Group filed for registration of the RIVERSTONE trademark in Panama. This filing was opposed by two Bridgestone entities of the Japanese Bridgestone Group – BSJ and BSLS, which owned the BRIDGESTONE and FIRESTONE trademarks in Panama. The claim was denied in the Panamanian first instance proceedings. BSJ and BSLS filed an appeal but subsequently withdrew it.¹⁰⁴ Later, Luque claimed against BSJ and BSLS in the Panamanian courts. Luque alleged that they recklessly initiated trademark opposition proceedings and caused Luque to cease sales of RIVERSTONE tires. In May 2014, the Panamanian Supreme Court decided in favour of Luque and ordered BSJ and BSLS to pay USD 5 million (plus attorney fees) to Luque.¹⁰⁵

At arbitration, the claimants contended that the Panamanian Supreme Court breached a range of provisions of Panama's Judicial Code and issued an arbitrary decision in bad faith. The claimants also claimed that such an arbitrary, tainted decision was a denial of justice under the US–Panama Trade Promotion Agreement.¹⁰⁶ Consequently, this decision weakened their trademark protection, devalued their investments in Panama, and caused injury to them. The arbitral Tribunal, first, assumed jurisdiction over the case by qualifying the trademarks and licenses each as an 'investment' within the meaning of Article 25 of the ICSID Convention and the US–Panama TPA. Then, the Tribunal stated that the denial of justice claim must meet a very high threshold by proving that 'the substance of a decision is so egregiously wrong that no honest or competent court could possibly have given it'.¹⁰⁷ In the end, the

¹⁰³ *Bridgestone Licensing Services, Inc and Bridgestone Americas, Inc v Republic of Panama*, ICSID Case No ARB/16/34, Award (14 August 2020).

¹⁰⁴ *Bridgestone v Panama*, ICSID Case No ARB/16/34, Decision on Expedited Objections (13 December 2017) para 56.

¹⁰⁵ *ibid* para 57 f.

¹⁰⁶ US–Panama Trade Promotion Agreement (entered into force 31 October 2012) (US–Panama TPA).

¹⁰⁷ *Bridgestone v Panama*, Award (n 103) paras 222–23.

Tribunal considered the decision as a whole, within the Panamanian judicial context, and decided that there was no denial of justice.¹⁰⁸

Following these cases, many significant issues surfaced, including the definition of IP as an ‘investment’, the indirect expropriation of IPRs, and the FET obligations with respect to IP. These issues can also emerge and become even more complicated with tech transfers in the green economy.

3.2 *Specific Intellectual Property-Investment Issues in the Green Economy*

Technological innovation, and IP in particular, plays a significant role in moving towards a green economy and in tackling the climate crisis.¹⁰⁹ As previously stated, foreign direct investment and equity investment, licensing, and export-import are the dominant means by which the private sector makes tech transfers.¹¹⁰ States’ measures could potentially affect these means and undermine private investors’ IP value.

Some IIAs prohibit forced tech transfer. For instance, the 2012 US Model BIT expresses that State parties may not require ‘transfer a particular technology, a production process, or other proprietary knowledge to a person in its territory’ relating to the performance of an investment.¹¹¹ The United States–Mexico–Canada Agreement (USMCA) Article 114.10(f) adopts a similar provision.¹¹² Besides, forced tech transfer can also violate other obligations in international investment treaties. The following parts will analyse four issues that have arisen and will continue to arise in IP-related investment disputes: the definition of investment, expropriation and compensation, FET obligations, and essential security interests.

3.2.1 The Green Tech as Investment

To discuss tech transfer within the international investment legal framework, the initial issue is whether there is an ‘investment’, the cornerstone of subject matter jurisdiction for international investment tribunals. To clarify this concept, investment tribunals have applied different approaches: the subjective approach, the objective approach such as the positive *Salini* test, and the

¹⁰⁸ *ibid* para 528.

¹⁰⁹ See *The Future We Want* (n 29) art 58.

¹¹⁰ See *supra* Section 1.

¹¹¹ US Model Bilateral Investment Treaty (2012) (US Model BIT) art 8.

¹¹² Agreement Between the United States of America, the United Mexican States, and Canada (signed 30 November 2018, entered into force 1 July 2020) (USMCA) art 114.10(f).

negative commercial transaction test.¹¹³ Investment treaties have adopted different approaches. For instance, the Indian Model BIT of 2016, the Brazil Model BIT, and the Southern African Development Community (SADC) Model BIT have adopted the 'enterprise-based' definition of investment,¹¹⁴ in which an enterprise is defined as 'having its management and real and substantial business operations in the territory of the Host State'.¹¹⁵ Even though different approaches can apply, the most common elements are contribution, duration, and risk. Over time, investment tribunals have refined these elements. Yet, the tribunals have not reached a consensus, and this issue remains in flux.¹¹⁶

One major means of tech transfer is via exporting. Whether exporting tech can be regarded as an 'investment' under international investment law has been explored in *Apotex v US*.¹¹⁷ In that case, Canadian pharmaceutical companies Apotex Holdings Inc. and Apotex Inc. (collectively, Apotex) claimed that they suffered mistreatment by US federal regulators when seeking approval for their generic drugs. Apotex alleged a violation of national treatment, FET, and expropriation without fair compensation under NAFTA. With respect to subject matter jurisdiction, Apotex argued that the activity of preparing each Abbreviated New Drug Application (ANDA) for filing in the United States,¹¹⁸ the actual ANDA filing, and other efforts can all be regarded as investments. To support their argument, Apotex argued that the actual ANDA filing itself should be 'property ... acquired in the expectation or used for the purpose of economic benefit or other business purposes' in the United States.¹¹⁹ In addition, Apotex had utilised Apotex Corp as a US distributor, designated its US affiliate and distributor as its agent for regulatory purposes, purchased raw materials from US suppliers, and committed significant capital and resources

113 See Michael Waibel, 'Subject Matter Jurisdiction: The Notion of Investment' (2021) 19 ICSID Rep 25.

114 See Indian Model Bilateral Investment Treaty (2015) (Indian Model BIT) art 1.4. ('[I]nvestment means an enterprise constituted, organized and operated in good faith by an investor in accordance with the law of the Party in whose territory the investment is made ... has the characteristics of an investment such as the commitment of capital or other resources, certain duration, the expectation of gain or profit, the assumption of risk and a significance for the development of the Party in whose territory the investment is made.');

Cooperation and Facilitation Investment Agreement Between the Federative Republic of Brazil and ____ art 3; SADC Model Bilateral Investment Treaty art 2.1.

115 Indian Model BIT (n 114) art 1.3.

116 Waibel (n 113) 78.

117 *Apotex Holdings Inc and Apotex Inc v United States of America*, ICSID Case No ARB(AF)/12/1, Award (25 August 2014).

118 *ibid* paras 179–85.

119 *ibid* paras 196–205.

towards the preparation, filing, and maintenance of its ANDAs and products in the United States, as well as towards US patent litigation arising as a result of these ANDAs.

The Tribunal stated that Apotex's efforts at seeking approval from federal regulators were part of commercial practice. Apotex's sale of its Sertraline and Pravastatin products in the United States made Apotex an exporter rather than an investor.¹²⁰ Furthermore, the Tribunal found that establishing an agent in the country to assist with regulatory submissions was an ordinary part of business and did not amount to an investment. Consequently, the Tribunal held that Apotex made no 'investment' in the territory of the United States and that Apotex itself did not, therefore, qualify as an 'investor' under NAFTA. Thus, following *Apotex v US*, simply exporting green tech would be difficult to constitute an 'investment'.

Besides tech export, two other major forms of tech transfer – foreign investment and licensing – might easily satisfy the requirements of 'investment'. The tech for climate change would, to a great extent, satisfy the 'contribution' element, since they are for the green economy. For instance, foreign investment, such as building a factory in foreign States would constitute an 'investment'. Even though the mere existence of a licensing agreement would not suffice to constitute an investment, the 'exploitation' of the license of 3D printing would be sufficient.¹²¹ In the aforementioned tech-transfer case *Uber v Colombia*, Uber claimed that its license to use the Uber platform as well as its associated trademark constituted a 'protected investment'.¹²² Such claims were consistent with the decision of *Bridgestone v Panama*, which qualified the trademarks and licenses each as an 'investment'.¹²³

Having established 'investments', investors may utilise different provisions in international investment legal regimes to protect their IP-related investments. In the following parts, this article analyses the issues of expropriation and compensation, FET, and essential security interests.

3.2.2 The Issue of Expropriation and Compensation

In the face of the coming climate crisis, when States take measures to obtain green tech, such as compulsory licensing, lowering prices, and expanding fair use, their measures can significantly impact the value of IP-related assets. Thus,

¹²⁰ *ibid.*

¹²¹ Gabriel M Lentner, 'Bridgestone v Panama: When Are Trademarks Covered Investments?' (2019) 34 ICSID Rev 569, 575.

¹²² *Uber Technologies, Inc and Uber Colombia, SAS v Colombia* (n 63).

¹²³ See *supra* Section 2.1.

any such measure could lay the groundwork for claims of direct expropriation as well as indirect expropriation under most IIAs.¹²⁴ To find an indirect expropriation, many factors – detrimental effect,¹²⁵ proportionality,¹²⁶ and legitimate public interest – may apply on a case-by-case, fact-based inquiry.¹²⁷ The US Model BIT considers the economic impact of the government action, the extent to which the government action interferes with distinct, reasonable investment-backed expectations, and the character of the government action.¹²⁸ The EU–Vietnam IPA, EU–Singapore IPA, and USMCA Annex 14-B 3 (a) follow similar language as the US Model BIT.¹²⁹ A broad interpretation of the concept of indirect expropriation in international investment protection could allow foreign IPR holders to challenge various host State measures constraining the commercial exploitation of their IPRs.¹³⁰

However, a State may assert the police power doctrine to regulate IP-related investments to combat climate change. Although police power measures may interfere with an investor's property, they do not constitute indirect expropriation in principle and do not provide the investor with the right to full compensation. For instance, the US Model BIT states that non-discriminatory regulatory actions that aim to protect legitimate public welfare objectives do not constitute indirect expropriations.¹³¹ USMCA Annex 14-B 3(b) adopts the same language.¹³² The Comprehensive Economic and Trade Agreement Between Canada and the European Union (CETA), the

124 Julien Chaisse, 'Both Possible and Improbable: Could COVID-19 Measures Give Rise to Investor-State Disputes?' (2020) 13 CAAJ 99.

125 See *Burlington Resources Inc v Republic of Ecuador* (formerly *Burlington Resources Inc and others v Republic of Ecuador and Empresa Estatal Petróleos del Ecuador (PetroEcuador)*), ICSID Case No ARB/08/5, Decision on Liability (14 December 2012) para 396 (discussing the sole effects test).

126 The principle of proportionality is to find a balance between the public interests and the private interests.

127 See Rudolf Dolzer, 'Indirect Expropriations: New Developments?' (2002) 11 NYU Envtl LJ 64, 65.

128 US Model BIT (n 111) Annex B: Expropriation

129 USMCA (n 112) Annex 14-B 3(a); EU–Vietnam IPA (n 16) Annex 4(2); EU–Singapore IPA (n 16) Annex 1(2). See cf Comprehensive Economic and Trade Agreement Between Canada and the European Union (signed 30 October 2016, provisionally entered into force 15 February 2017) (CETA) Annex 8-A(2). (In addition to the listed three factors in the US Model BIT, CETA Annex 8-A (2) considers 'the duration of the measure or series of measures' in determining indirect compensation).

130 Julien Chaisse, 'Exploring the Confines of International Investment and Domestic Health Protections – Is a General Exceptions Clause a Forced Perspective?' (2013) 39 AJLM 332, 353.

131 US Model BIT (n 111) Annex B 4(b).

132 USMCA (n 112) Annex 14-B 3(b).

EU-Singapore IPA, and the EU-Vietnam IPA include similar provisions that indicate that non-discriminatory public measures shall not be considered indirect expropriation.¹³³ All indicate that States adopt a rather narrow approach towards interpretation of investor claims based on interference with IPRs with regard to expropriation.¹³⁴

Given that all States' measures can be asserted to aim to pursue public interest, virtually all non-discriminatory measures can be characterized as non-compensable regulations under the police power doctrine. Thus, a 'gaping loophole' exists in the operation of the rule protecting foreign investors.¹³⁵ However, in *Santa Elena v Costa Rica*, the Tribunal found that measures taken for environmental protection still constituted an expropriation, and the obligation to pay compensation remained.¹³⁶ Indeed, this compensational model is supported by some States. For instance, China's Foreign Investment Law requires the government to pay fair, reasonable, and timely compensation for its expropriation or requisition of foreign investment in the public interest.¹³⁷

To apply the police power doctrine, the *Philip Morris v Uruguay* tribunal engaged in balancing the interests between the burden imposed upon the foreign investor and the aim to be achieved by the measure. With respect to the 80/80 Regulation, although 'the claimants had property rights regarding their trademarks capable of being expropriated',¹³⁸ the Tribunal found not even a *prima facie* case of indirect expropriation.¹³⁹ Concerning the SPR, the Tribunal stated that indirect expropriation entails a 'substantial deprivation of the value, use or enjoyment' of the investment and held that the claimed partial

133 CETA (n 129) Annex 8-A (3); EU-Vietnam IPA (n 16) Annex 4; EU-Singapore IPA (n 16) Annex 1.

134 Bryan Mercurio, 'Safeguarding Public Welfare?-Intellectual Property Rights, Health and the Evolution of Treaty Drafting in International Investment Agreements' (2015) 6 JIDS 252, 263. ('This clause, in combination with the addition of provisions limiting expropriation provisions to situations where the revocation, limitation, or creation is inconsistent with the IP Chapter of the IIA or the TRIPS Agreement significantly narrows and constrains any potential claim for indirect expropriation based on the limitation, revocation or creation of IPRs.').

135 *Pope & Talbot Inc v The Government of Canada*, UNCITRAL, Interim Award (26 June 2000) para 99; see also *ADC Affiliate Limited and ADC & ADMC Management Limited v The Republic of Hungary*, ICSID Case No ARB/03/16, Award (2 October 2006) paras 423, 442.

136 *Compañía del Desarrollo de Santa Elena SA v Republic of Costa Rica*, ICSID Case No ARB/96/1, Award (17 February 2000) para 72; see also *Azurix Corp v The Argentine Republic*, ICSID Case No ARB/01/12, Award (14 July 2006) para 309.

137 Foreign Investment Law of the People's Republic of China [中华人民共和国外商投资法] (issued by National Peoples' Congress) (entered into force 1 January 2020) art 20.

138 *Philip Morris v Uruguay* (n 97) para 274.

139 *ibid* para 276.

loss of profits arising from the SPR did not constitute indirect expropriation.¹⁴⁰ Importantly, the Tribunal also noted that Uruguay adopted the measures pursuant to international recommendations. These measures were ‘a valid exercise of the State’s police powers’, defeating the claim for expropriation.¹⁴¹

Notably, the *Saluka v Czech Republic* tribunal stated that the line between measures within the police power doctrine and expropriatory measures is not distinct.¹⁴² Thus, disputes about whether compensation should be paid under the police power measures for climate change could arise to test the police power doctrine. Indeed, David Khachvani has proposed the ‘changed circumstances test’ to distinguish non-compensable regulation and regulatory expropriation by disposing the concept of property. Under this test, regulations that respond to changed circumstances in order to preserve the existing level of welfare are non-compensable, while regulations in favour of public welfare and that thereby render the investor’s assets economically unviable will have to pay compensation.¹⁴³ Khachvani argued that legitimate, scientific evidence-based regulations on climate change do not trigger a right to compensation, even where the investor is fully deprived of its investments.¹⁴⁴ By contrast, Yannick Radi argued that ‘the circumstances of each case’ and proportionality are the keys to distinguishing measures within the police power doctrine from expropriatory measures.¹⁴⁵

Whether compulsory licenses could give rise to indirect expropriation is also an important issue and should be determined with case-by-case, fact-based inquiry.¹⁴⁶ However, some recent investment agreements negate the possibility of compensation for compulsory licenses. For instance, CETA Article 8.12(5) says that the article on expropriation does not apply to the issuance of compulsory licenses consistent with TRIPS. The EU-Singapore Investment Promotion Agreement Article 2.6(3) adopts the same language.¹⁴⁷

140 *ibid* para 192.

141 *ibid* para 287.

142 *Saluka Investments BV v The Czech Republic*, UNCITRAL, Partial Award (17 March 2006) paras 263–64.

143 David Khachvani, ‘Non-Compensable Regulation versus Regulatory Expropriation: Are Climate Change Regulations Compensable?’ (2020) 35 ICSID Rev 154, 165.

144 *ibid* 170–72.

145 Yannick Radi, ‘Regulatory Measures in International Investment Law: To Be or Not to Be Compensated – A Commentary of Philip Morris v Uruguay’ (2018) 33 ICSID Rev 74, 80.

146 Henning Grosse Ruse-Khan, *The Protection of Intellectual Property in International Law* (OUP 2016) 474–94; See also Carlos M Correa, ‘Investment Protection in Bilateral and Free Trade Agreements: Implications for the Granting of Compulsory Licenses’ (2004) 26 Mich J Intl L 331, 347–52.

147 EU–Singapore IPA (n 16) art 2.6(3).

In USMCA Article 14.8(6), the provision mandating compensation in cases of direct or indirect nationalization or expropriation ‘does not apply to the issuance of compulsory licenses granted in relation to intellectual property rights’.¹⁴⁸

In addition, recent IIAs have clarified the application of expropriation related to IPRs. USMCA Article 14.8(6) clarifies that measures, including the revocation, limitation, or creation of IPRs, that are inconsistent with TRIPS or the Chapter on Intellectual Property of the USMCA do not automatically result in expropriation.¹⁴⁹ CETA Article 8.12(6) has a similar language.¹⁵⁰ Moreover, in the CETA, the Joint Declaration in Annex 8-D demonstrates the clear intent of the parties to exclude the enforcement of IPRs from the reach of investor-State dispute settlement (ISDS). It states that domestic authorities have full capacity to determine the existence and validity of IPRs.¹⁵¹ Such clarification offers sufficient security for host States that measures consistent with TRIPS will not constitute expropriation.¹⁵² However, not every State has such provisions limiting IP disputes. When there is compulsory licensing in the era of climate change, this issue of compensation will re-emerge. Indeed, in the case *Novatis v Colombia*, which did not receive a final judgment, the Swiss government argued that a compulsory license was equal to an expropriation of the patent.¹⁵³

¹⁴⁸ USMCA (n 112) art 14.8(6).

¹⁴⁹ *ibid.*

¹⁵⁰ CETA (n 129) art 8.12(6).

¹⁵¹ *ibid* Joint Declaration in Annex 8-D: ‘Mindful that investor-state dispute settlement tribunals ... are not an appeal mechanism for the decisions of domestic courts, the Parties recall that the domestic courts of each Party are responsible for the determination of the existence and validity of intellectual property rights. The Parties further recognize that each Party shall be free to determine the appropriate method of implementing the provisions of this Agreement regarding intellectual property within their own legal system and practice. The Parties agree to review the relation between intellectual property rights and investment disciplines within three years after entry into force of this Agreement or at the request of a Party. Further to this review and to the extent required, the Parties may issue binding interpretations to ensure the proper interpretation of the scope of investment protection under this Agreement in accordance with the provisions of Article 8.31.3 [under which the CETA Joint Committee may adopt binding interpretations].’

¹⁵² Henning Grosse Ruse-Khan, ‘Protecting Intellectual Property Under BITs, FTAs, and TRIPS: Conflicting Regimes or Mutual Coherence?’ in Chester Brown and Kate Miles (eds), *Evolution in Investment Treaty Law and Arbitration* (CUP 2011) 485, 514.

¹⁵³ Swiss Government State Secretariat for Economic Affairs SECO, ‘Patent of Imatinib/Glivec: Closing Arguments’ (26 May 2015) <www.minsalud.gov.co/sites/rid/Lists/BibliotecaDigital/RIDE/VS/MET/patent-of-Imatinib-glive-closing-arguments.pdf> accessed 20 October 2022.

In *Philip Morris v Uruguay*, another noteworthy point is that the Tribunal analyzed the indirect expropriation claim based on ‘investment as a whole’ rather than on discrete parts of the business.¹⁵⁴ When IPRs are embedded in investments, an expropriation would be less likely when adjudicators concentrate on the effects caused by the measure on the ‘investment as a whole’. But *Philip Morris v Uruguay* noted that this issue ‘largely depends on the facts of the individual case’.¹⁵⁵ Indeed, when the overall investment can be disassembled into discrete rights, a partial expropriation should be found under certain conditions.¹⁵⁶ Such issues can emerge in a green economy. For instance, in the aforementioned tech transfer case *ES Holdings v Colombia*, besides the rights under the concession, *ES Holdings* might assert that its IPRs relating to developing the taximeter were expropriated since the government supported a copy-cat ride-hailing app. In *Uber v Colombia*, Uber’s license to use its platform might fall under the definition of ‘investment’ and could be exploited separately from the rest of the investment. Thus, this issue may still be debated in tech transfer in the green economy.

3.2.3 The Issue of Fair and Equitable Treatment

Traditionally, IIAs define FET as part of the ‘minimum standard of treatment’, following the US Model BIT.¹⁵⁷ With respect to IPRs, based on the aforementioned cases, two aspects of protections under FET are notable. First, FET is often understood as protecting the legitimate expectations of investors against government interference.¹⁵⁸ Investors’ legitimate expectations may arise out of binding treaties, stable domestic legal regulations, governmental licenses, or State-investor contracts.

Some investment tribunals have relied on legitimate expectations based on the domestic law in force when the investments were made. For example, in *Eli Lilly v Canada*, Eli Lilly claimed that the initial grant of drug patents represented that Eli Lilly ‘would have exclusive rights to make, use, and sell its invention until the expiry of the patents’;¹⁵⁹ Canada should comply with international agreements to protect ‘the reasonable investment-backed

154 *Philip Morris v Uruguay* (n 97) paras 283–86.

155 *ibid* para 280.

156 Ursula Kriebaum, ‘Partial Expropriation’ (2007) 8 JWIT 69, 83–84.

157 See US Model BIT (n 111) art 5.

158 Ioana Tudor, *The Fair and Equitable Treatment Standard in the International Law of Foreign Investment* (OUP 2008) 164–68.

159 *Eli Lilly v Canada*, Final Award (n 101) para 264.

expectations of the investor'.¹⁶⁰ Based on existing Canadian law, Eli Lilly argued that it had 'legitimate expectations' that its patents would not be invalidated based on a 'radically new utility requirement'.¹⁶¹ Moreover, it asserted that the 'promise utility doctrine' was a radical departure from Canada's traditional utility standard. Since Eli Lilly had failed to demonstrate a dramatic change in Canadian law, the Tribunal dismissed its allegation of a violation of its legitimate expectations.¹⁶² Moreover, the *Philip Morris v Uruguay* tribunal stated that legitimate expectations can be based on specific undertakings and representations made by the host State to induce investors to invest.¹⁶³ Although the Tribunal concluded that Uruguay had not breached 'legitimate expectations' since the claimants had no legitimate expectations that similar measures would not be adopted,¹⁶⁴ the arbitrators admitted that the situation would have been different had Uruguay given specific commitments to Philip Morris.¹⁶⁵

Second, FET concerns whether IPR-related measures adopted by States are manifestly arbitrary. The *Philip Morris v Uruguay* tribunal adopted the concept of 'arbitrariness' defined by the *ELSI* case, which is 'a willful disregard of due process of law, an act which shocks, or at least surprises, a sense of juridical propriety'.¹⁶⁶ In *Philip Morris v Uruguay*, claimants contended that the SPR and 80/80 Regulation were arbitrary since these measures were not based on scientific evidence of their effectiveness, due consideration by public officials, and reasonable connection between the objectives pursued by the State and the utility of the chosen measure.¹⁶⁷ But, the Tribunal concluded that the measures were reasonable, not 'arbitrary, grossly unfair, unjust, discriminatory or disproportionate'.¹⁶⁸

After a series of IP-related cases in international investment tribunals, the scope of FET obligations has clearly been narrowed. First, FET provisions in recent IIAs set a narrow, precise standard of treatment with an exclusive list of instances that give rise to a breach. For instance, CETA Article 8.10(2) attempts to further define the scope of FET obligations, with similar language

160 *Eli Lilly and Company v The Government of Canada*, Notice of Arbitration (12 September 2013) paras 71, 77.

161 *Eli Lilly v Canada*, Final Award (n 101) paras 261 and 263.

162 *ibid* para 380.

163 *Philip Morris v Uruguay*, Award (n 97) para 426.

164 *ibid*.

165 *ibid* para 377.

166 *Eletronica Sicula SpA (ELSI) (United States of America v Italy)* (Judgment) [1989] ICJ 15, para 128.

167 *Philip Morris v Uruguay*, Award (n 97) para 389.

168 *ibid* paras 410 and 420.

in Article 2.4(2) of the EU–Singapore Investment Protection Agreement and Article 2.5(2) of the EU–Vietnam Investment Protection Agreement.¹⁶⁹ The US Model BIT and USMCA list only ‘denial of justice’ as part of FET obligations.¹⁷⁰ Furthermore, USMCA Article 14.6(4) clarifies that ‘the mere fact that a Party takes or fails to take an action that may be inconsistent with an investor’s expectations’ does not violate FET obligations.¹⁷¹

Second, recent IIAs have clarified the relationship between FET obligations and violations of other international agreements. For instance, EU–Singapore IPA Article 2.4(7), CETA Article 8.10(6), EU–Vietnam IPA Article 2.5(7), and USMCA Article 14.6(3) all provide that ‘a breach of another provision of this Agreement, or of a separate international agreement, does not establish that there has been a breach of this Article’.¹⁷² This convergence ensures that investors cannot invoke a violation of the TRIPS or other IP-related treaties to claim a violation of FET obligations.

Even though the scope of FET obligations has been narrowed, some IP-related measures for tech transfer can violate FET. First, domestic IP-related measures can be challenged under legitimate expectations, such as abrupt regulatory changes in regulating IP, a sudden decision to impose price controls, and expanding the scope of fair use. For instance, in the tech-transfer case *ES Holding v Mexico*, the investors asserted that Mexico frustrated their

169 See CETA (n 129) art 8.10(2); EU–Singapore IPA (n 16) art 2.4(2); EU–Vietnam IPA (n 16) art 2.5 (2). CETA (n 129) art 8.10(2), the content of this standard is clarified as follows:

(2) A Party breaches the obligation of fair and equitable treatment ... if a measure or series of measures constitutes:

- (a) denial of justice in criminal, civil or administrative proceedings;
- (b) fundamental breach of due process, including a fundamental breach of transparency, in judicial and administrative proceedings;
- (c) manifest arbitrariness;
- (d) targeted discrimination on manifestly wrongful grounds, such as gender, race or religious belief;
- (e) abusive treatment of investors, such as coercion, duress and harassment; or
- (f) a breach of any further elements of the fair and equitable treatment obligation adopted by the Parties in accordance with paragraph 3 of this Article.

(4) When applying the above fair and equitable treatment obligation, a Tribunal may take into account whether a Party made a specific representation to an investor to induce a covered investment, that created a legitimate expectation, and upon which the investor relied in deciding to make or maintain the covered investment, but that the Party subsequently frustrated.

170 US Model BIT (n 111) art 5.2(2); USMCA (n 112) art 14.6 2(a).

171 USMCA (n 112) art 14.6(4).

172 See *ibid* art 14.6(3); CETA (n 129) art 8.10(6); EU–Singapore IPA (n 16) art 2.4(7); EU–Vietnam IPA (n 16) art 2.5(7).

legitimate expectations to develop and operate a long-term concession and recover its investment.¹⁷³ Moreover, CETA Article 8.10(4) states that the tribunal may take into account ‘whether a Party made a specific representation to an investor to induce a covered investment, that created a legitimate expectation, and upon which the investor relied in deciding to make or maintain the covered investment, but that the Party subsequently frustrated’.¹⁷⁴ *Eli Lilly v Canada* took a rather expansive view of legitimate expectation, suggesting that dramatic changes in the law could constitute FET violations.¹⁷⁵ In that case, the claimant lost since it did not meet the burden of proof. Thus, the *Eli Lilly v Canada* tribunal did not decide on whether investors have protectable expectations with regard to the speed at which the law changes.¹⁷⁶

Secondly, some IP-related State measures can be challenged for manifest arbitrariness. The two previous tech-transfer cases can support this point. In *ES Holding v Mexico*, the investors considered that Mexico violated FET obligations due to its arbitrary decision to unilaterally suspend and then tacitly terminate the concession. In *Uber v Colombia*, Colombia made an order to cease making the Uber Platform available to drivers and to require telecommunication companies to suspend transmissions, data storage, and access to the Uber Platform, which Uber said was issued ‘under questionable circumstances’ and was arbitrary.¹⁷⁷

In the face of a climate crisis, one noteworthy point is the evidence-based approach to arbitrariness. In *Philip Morris v Uruguay*, Uruguay relied on the World Health Organization (WHO) Framework Convention on Tobacco Control to claim that its measures were scientifically valid and not arbitrary. The Tribunal accepted this argument. To a great extent, regulating under international standards can avoid manifest arbitrariness and violation of treaty obligations.¹⁷⁸ However, Uruguay’s condition of ‘limited technical and economic resources’ suggests that more evidence may be required from States not similarly situated.¹⁷⁹ Also in *Philip Morris v Uruguay*, the dissenting arbitrator Gary Born insisted that the SPR was arbitrary because it was adopted with

173 *Espirito Santo Holdings, LP (ES Holdings) v Mexico* (n 60) para 33.

174 CETA (n 129) art 8.10 (4).

175 *Eli Lilly v Canada*, Final Award (n 101) paras 349–59.

176 Simon Klopschinski, Christopher S Gibson and Henning Grosse Ruse-Khan, *The Protection of Intellectual Property Rights Under International Investment Law* (OUP 2021) para 6.39.

177 *Uber Technologies, Inc and Uber Colombia, SAS v Colombia* (n 63).

178 Nicolás M Perrone, *Investment Treaties and the Legal Imagination* (OUP 2021) 137.

179 *Philip Morris v Uruguay* (n 97) para 393.

no prior deliberations or external consultation.¹⁸⁰ Following *Philip Morris v Uruguay*, to combat climate change and to promote green development, a State could adopt IP-related measures suggested by IPCC or other international organizations. However, the scope of clean tech is broad, covering mitigation and adaptation tech. A State might not be able to prove that a particular piece of tech is essential tech under this broad concept.¹⁸¹ This expansive concept of green tech, with the potential broad IP-related measures, could give rise to problems of arbitrariness.

3.2.4 The Issue of Non-Precluded Measures in the Climate Crisis

Non-precluded measures (NPM) are general exceptions to protect certain public interests in IIAs.¹⁸² The public interests include ‘public order’, ‘public health’, ‘public morality’, and essential security interests.¹⁸³ Climate change is regarded as the biggest threat facing humanity, and it can affect States’ essential security interests as well as public health.

First, climate change can pose a threat to essential security interests. The concept of security has been increasingly broadened to cover military, socio-economic, environmental and energy security.¹⁸⁴ The term ‘essential security interests’ has variations such as ‘national security’ and ‘public security’; and it includes environmental crisis.¹⁸⁵

180 *Philip Morris v Uruguay*, ICSID Case No ARB/10/7, Concurring and Dissenting Opinion (8 July 2016) paras 167, 174.

181 Bryan Mercurio and Ronald Yu, ‘Compulsory Licensing for Environmental Purposes’ in Michael Faure (ed), *Elgar Encyclopedia of Environmental Law* (Edward Elgar 2021) 429, 434.

182 See Agreement Between Japan and the Islamic Republic of Iran on Reciprocal Promotion and Protection of Investment (signed 5 February 2016) (Japan-Iran BIT) art 13.

183 William W Burke-White and Andreas von Staden, ‘Investment Protection in Extraordinary Times: The Interpretation and Application of Non-Precluded Measures Provisions in Bilateral Investment Treaties’ (2007) 48 Va J Intl L 307, 332–35.

184 Ji Ma, ‘International Investment and National Security Review’ (2019) 52 Vand J Transnatl L 899, 907–08; See also Mary E Footer and others (eds), *Security and International Law* (Hart 2016).

185 Ridhi Kabra, ‘Return of the Inconsistent Application of the “Essential Security Interest” Clause in Investment Treaty Arbitration: *CC/Devas v India* and *Deutsche Telekom v India*’ (2019) 34 ICSID Rev 723, 735–36; see also Stewart M Patrick, ‘The International Order Isn’t Ready for the Climate Crisis: The Case for a New Planetary Politics’ (2021) 100 Foreign Affairs 166 (‘In a historic executive order issued one week after his inauguration, Biden declared climate change to be a top-tier threat to the United States.’).

Luckily, international investment treaties provide two categories of essential security clauses – self-judging¹⁸⁶ and non-self-judging¹⁸⁷ – to empower State parties to protect their essential security interests. The difference between these two categories is that self-judging clauses refer to measures that ‘[the State itself] considers necessary’, while non-self-judging clauses only say ‘necessary’. When a State adopts IP-related measures to tackle climate change, the State can use an essential security clause to justify its disobeying obligations if its essential interests are at stake. So far, there have been no known investment arbitration cases in which essential security interests were raised out of environmental emergency, but it is not difficult to hypothesize such a situation.¹⁸⁸ For instance, banning fertilizers that are particularly responsible for emissions of the greenhouse gas nitrous oxide may deprive an investor of the benefit of related IP rights.¹⁸⁹

However, a State’s reliance on essential security clauses to address climate change might fail due to the possible non-self-judging nature of such clauses and the difficulty of proving necessity. First, essential security clauses do not confer States full competence to assess the necessity of the measures related to essential security. As for non-self-judging clauses, they do not clearly specify that State parties have full competence to assess the necessity of the measures related to essential security.¹⁹⁰ And, as for self-judging clauses, they empower the parties to fully judge the necessity of the measures taken to protect their essential security interests, but a State can abuse such self-judging clauses

186 See US Model BIT (n 111) art 18 (‘Nothing in this Treaty shall be construed (1) to require a Party to furnish or allow access to any information the disclosure of which it determines to be contrary to its essential security interests; or (2) to preclude a Party from applying measures that it considers necessary for the fulfillment of its obligations with respect to the maintenance or restoration of international peace or security, or the protection of its own essential security interests.’). See cf USMCA (n 112) art 14.16, which does not use the expression of ‘essential security interests’ (ibid art 14.16, Investment and Environmental, Health, Safety, and other Regulatory Objectives: ‘Nothing in this Chapter shall be construed to prevent a Party from adopting, maintaining, or enforcing any measure otherwise consistent with this Chapter that it considers appropriate to ensure that investment activity in its territory is undertaken in a manner sensitive to environmental, health, safety, or other regulatory objectives.’).

187 See Treaty Between United States of America and the Argentine Republic Concerning the Reciprocal Encouragement and Protection of Investment (14 November 1991) (the United States–Argentina BIT) 31 ILM 124, art XI.

188 Julien Chaisse and Flavia Marisi, ‘Investor-State Dispute Settlement and Environment’ in Faure (n 181) 615, 618.

189 Khachvani (n 143) 170.

190 Stephan W Schill and Robyn Briesse, ‘“If the State Considers”: Self-Judging Clauses in International Dispute Settlement’ (2009) 13 Max Planck UN YB 61, 112.

with respect to climate change. Since climate change can be regarded as an essential security interest, a State can try to block or expropriate any IP-related investments under this justification.¹⁹¹ To prevent possible abuse by host States, their determination to adopt security measures can still be reviewed under the 'good faith' standard by international tribunals, and this is supported by the case law.¹⁹²

In addition to the self-judging nature of these provisions, the characteristics of tech transfer and climate change may complicate the applications of security exceptions. Whether a State can prove the necessity of a particular tech to tackle climate change is uncertain. Under essential security clauses, IP-related measures should be necessary for the protection of States' essential security interests. Firstly, green IPRs are broad, vague. They are open to all industries rather than limited to any sector. Green IPRs have a high degree of substitutability among patented products in the specific sector as well as across sectors.¹⁹³ Thus, proving the necessity of limiting a particular IPR is difficult. Secondly, the previous part has mentioned that the bottleneck of tech transfer might not depend on IPRs. Some claim that the most important measure to enhancing the transition to clean technology in developing States is to build up appropriate capacity.¹⁹⁴ If so, then the necessity of limiting a particular IPR is doubtful if the real bottleneck issue in tech transfer is not resolved. Thirdly, IP-related measures for addressing climate change might be difficult to put into practice, especially in cross-border tech transfer. For instance, building carbon capture storage facilities must cater to certain geological conditions, which are specific and sensitive to location.¹⁹⁵ Fourthly, the characteristic of climate change – its incrementality rather than abruptness – would make the proof of necessity difficult except there is consensus. Whether climate change can be considered as an essential security interest by a particular ISDS tribunal is also doubtful.

191 See Ma (n 184).

192 See generally Jorge E Viñuales, 'Defence Arguments in Investment Arbitration' (1 January 2021) 18 ICSID Rep 9, 28, citing *CMS v Argentina*, ICSID Case No ARB/01/8, Award (12 May 2005) paras 359 and 370; *LG&E v Argentina*, ICSID Case No ARB/02/, Award (25 July 2007) paras 212–13; *Enron v Argentina*, ICSID Case No ARB/01/3, Award (22 May 2007) para 339; *El Paso v Argentina*, ICSID Case No ARB/03/15, Award (31 October 2011) para 561; *Devas v India*, PCA Case No 2013-09, Award (13 October 2020) paras 219, 235, 244 and 353.) Jorge E Viñuales has argued that, different from necessity exceptions, essential security clauses intend to serve as primary norms to exempt States' obligations. But this approach conflicts with the 'good faith' practice.

193 See John H Barton, *Intellectual Property and Access to Clean Energy Technologies in Developing Countries* (December 2007) ICTSD Issue Paper 2.

194 Coninck and Sagar (n 40) 268.

195 See IPCC, 'IPCC Special Report on Carbon Dioxide Capture and Storage' (CUP 2005).

Some arbitrators may not be willing to adopt the views of the IPCC. With respect to a particular State, whether the global climate crisis can be seen as a security threat in that State can be difficult. For instance, geographically large States can have more capacity to adapt to climate change than smaller island States. Moreover, whether the existence of a climate crisis is necessary to prove 'essential' security interests is open to debate.¹⁹⁶ The United States, for instance, has repeatedly emphasised that essential security interests include 'actions not arising from a state of war or national emergency', if such actions 'have a clear and direct relationship to the essential security interest of the Party involved'.¹⁹⁷

In addition, States' measures adopted in the era of climate change can also be regarded as aiming to protect public health since the climate crisis affects public health. Climate change is regarded as the biggest health threat in the world.¹⁹⁸ For instance, in the face of the climate crisis, certain IPR-based technologies for gas production can be of fundamental importance since the people's survival depend upon them. Therefore, an interruption of supplies of IP-based tech, with the resultant dangers for a country's existence, could seriously affect public security. Here, two similar issues still need to be proven. First, the aim of protecting public health in relation to which host States can take measures should be shown. This should be easy to prove. In *Philip Morris v Uruguay*, Uruguay stated that their SPR and 80/80 Regulations were exclusively to protect public health, in compliance with its international obligations under the 2002 WHO Framework Convention on Tobacco Control.¹⁹⁹ Similarly, in the face of a climate crisis, a State can rely on IPCC or WHO reports to claim that its measures are in accordance with international guidelines or recommendations.²⁰⁰ In addition, investment tribunals addressing the merits of health measures have, to a great extent, deferred to States under existing investment treaties.²⁰¹ Secondly, the necessity between the measures and the objective should be shown. The proof of necessity will meet the same challenges above.

196 Kabra (n 185) 738–39.

197 Kenneth J Vandeveld, *US International Investment Agreements* (OUP 2009) 201.

198 WHO, 'Climate Change and Health' (30 October 2021) <www.who.int/news-room/fact-sheets/detail/climate-change-and-health> accessed 20 October 2022.

199 World Health Organization Framework Convention on Tobacco Control (adopted 21 May 2003, entered into force 27 February 2005) 2302 UNTS 166.

200 See IPCC Working Group II, 'Climate Change 2022: Impacts, Adaptation and Vulnerability' (IPCC, 2022).

201 Freya Baetens, 'Protecting Foreign Investment and Public Health Through Arbitral Balancing and Treaty Design' (2022) 71 ICLQ 139, 172–73.

4 Conclusion

Tech transfer has an important role to play in the move towards the green economy. To date, various international efforts have been undertaken to encourage tech transfer to address climate change. However, the reluctance of developed States to transfer tech to developing States and LDCs has lasted for decades, due to the unclear role of IPRs, the persistent North-South divide, and the non-binding obligations of tech transfer in international treaties. Practically speaking, it is the 'private-sector-driven' approach – foreign investment, licensing, and export – that plays the dominant role in tech transfer rather than developed States.

Unfortunately, the international investment legal regime can add another layer of complexity to tech transfers in the green economy. Previously, the series of cases – *Philip Morris v Australia*, *Philip Morris v Uruguay*, *Eli Lilly v Canada*, and *Apotex v America* – opened the door to IP litigation within the international investment law framework. These cases illuminated some specific issues, including the definition of IP as an investment, the indirect expropriation of IP, and FET in the context of IP. Although recent IIAs have narrowed expropriation claims and clarified the FET standards, IP-related disputes regarding tech transfer for climate change can still arise. This is due to the dominant role of private investors in tech transfer; the essential role of international investment law; and the incentive-based nature of IPRs.

By examining the possible IP-related issues in the green economy in international investment law, this article has demonstrated how IP disputes can still complicate the already deadlocked condition of tech transfer and constrain States' ability to promote the green economy. This article does not dispute the incentive-based theory of IP and the essential role of international investment law. Extraordinary situations may arise in international investment law, one purpose of which is precisely to protect investments during such difficult periods. The potential for synergy between investment and other global public interests has attracted much attention.²⁰² Stephan W. Schill and Vladislav Djanic have argued that the international investment legal regime can accommodate both economic and non-economic global public interests by recalibrating, interpreting and applying substantive investment clauses, and adapting ISDS procedure.²⁰³ However, the international investment legal regime, climate change, and IPRs exist in three distinct spaces with separate

²⁰² See *ibid* 179.

²⁰³ Stephan W Schill and Vladislav Djanic, 'Wherefore Art Thou? Towards a Public Interest-Based Justification of International Investment Law' (2018) 33 ICSID Rev 29, 42–53.

backgrounds and objectives. Such distinctness obfuscates the nature of IP as an incentive-driven system. To prepare for such complications, now, international legal scholars and policymakers must consider the nature of IP, the sources of green tech, the characteristics of the climate crisis, as well as their implications in international investment law.

Biographical Note

Ji Ma is a graduate student at Oxford University Faculty of Law, a visiting lecturer at Peking University School of Transnational Law, Research Associate with the China, Law and Development Project at Oxford University, and affiliated fellow with the Information Society Project at Yale Law School.

Acknowledgments

Many thanks are due to Hélène Ruiz Fabri, Mark Feldman, Danny Friedmann, Markus Gehring, Taorui Guan, Patrick Jiang, Andrew Kerr, Douglas Levene, Asif Qureshi, Lavanya Rajamani, Catherine Redgwell, Stephan W Schill, Francis Snyder, Géraud de Lassus St-Geniès, Marios Tokas, Christina Voigt, Joy Xiang, as well as to the participants in the Oxford Public International Law Research Seminar, and Peking University School of Transnational Law Workshop. The usual disclaimer applies.