Linking the Issues:

China, Trade and the Environment

A qualitative analysis to assess the effect of the environmental provisions in the preferential trade agreements of China

MARLOES KOOL
JANUARY 2019

MSc. International Public Management and Policy
Erasmus University Rotterdam

First Reader: dr. M. Onderco
Second Reader: prof. dr. A.G. Dijkstra
Word Count: 24,995

Summary

With the establishment of the Sustainable Development Goals the international community has been shown to believe in an integrated approach to tackle the most pressing global challenges. Connecting issues, rather than addressing them individually is the chosen path forward. This trend is also represented by the growing number of environmental provisions in preferential trade agreements, meant to encourage environmental improvements with the lure of trade access to a major market. As the two most eminent markets, it is no surprise that the most active trade nations to include environmental provisions to date are the EU and the US, with the consequence that research into the effect of environmental provisions has also revolved primarily around these two markets.

This thesis recognizes and addresses the lack of research into the environmental provisions in the preferential trade agreements of emerging markets. To analyse whether environmental provisions influence the environment status of the trading partner country of an emerging market, the preferential trade agreements of China are taken as a point of reference. China is the most prominent emerging market, increasingly active on the global stage in both the environmental as well as in the climate regime and conducts an increasing number of trade agreements which include environmental provisions. This means that when these provisions prove to be effective, there is a promising alternative to multilateral negotiations for the combat of environmental degradation.

The effectiveness of the environmental provisions of China's trade agreements is researched by looking into the design of the agreements and into the response of the trading partner country. Respectively, diffusion theory and compliance theory are used to set a framework for the analysis and the cases of Chile and Pakistan are selected to perform qualitative research. The analysis shows that the design of the Chile-China preferential trade agreement hints at diffusion practices from the Chile-US trade agreement, which suggests a positive effect of the provisions. However, the environmental provisions in the China-Pakistan preferential trade agreement failed to bring about a change in the behaviour of Pakistan regarding the environment. Therefore, this thesis concludes that the environmental provisions in the preferential trade agreements of China are not effective.

Acknowledgements

Writing the notorious master thesis has been a long road full of obstacles, doubt, despair but also solutions, ideas, inspiration and lots of learning moments. At times it appeared to become a never-ending process, while at other moments I was filled with pride about the progress I had made. The past months have revolved around PTAs with their environmental provisions, around China on the world stage and around Pakistani government documents. All of this was at times hard to explain to those around me but has truly intrigued me.

"Do not go where the path may lead, go instead where there is no path and leave a trail." – Ralph Waldo Emerson

This quote of Ralph Waldo Emerson reminds me of both my thesis topic as process. The uniqueness of my topic made it interesting but challenging. Data limitations and language barriers had to be overcome, but the excitement of making new connections compensated for those struggles.

Special words of gratitude go to my supervisor, Mr. Onderco, without whose problem-solving mind-set, constant willingness to answer questions and unlimited knowledge and expertise this thesis would not have been realized and to prof. Dijkstra who patiently and rightfully provided me with the necessary points of improvement. Furthermore, I want to thank Prof. Dr. Muhammad Irfan Khan – professor at the International Islamic University in Islamabad for his time and effort. His comments and information were highly appreciated. Last, but not least, I want to express my sincere gratitude towards the other students in my thesis cycle and fellow classmates. Their motivation, ideas and pep talks have kept me motivated to continue!

Thank you.

Contents

I. List of Tables

II. Appendix List of Tables

III. List of Figures

IV. Appendix List of Figures

V. Abbreviations

ASEAN	Association of Southeast Asian Nations
BRICS	Brazil, Russia, India, China and South-Africa
CIA	Comparative Institutional Analysis
CIDP	Community Initiatives for Development in Pakistan
CO2	Carbon dioxide
COV	Co-variational analysis
CPEC	China Pakistan Economic Corridor
CU	Customs Union
DESTA	Design of Trade Agreements Database
DG	Directorate-General
EIA	Economic integration agreement
EKC	Environmental Kuznets Curve
EP	Environmental provision
EPI	Environmental Performance Index
EU	European Union
FTA	Free trade agreement
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GDP	Gross domestic product
GHG	Greenhouse gas
HEDF	Huqooq-ul-Ebad Development Foundation
IO	International organization
MEA	Multilateral environmental agreement
MOFCOM	Ministry of Commerce
NA	National Assembly
NAFTA	North Atlantic Free Trade Agreement
NTI	Non-trade issue
NGO	Non-governmental organization
PTA	Preferential trade agreement
RTA	Regional trade agreement
SDG	Sustainable Development Goal
SPS	Sanitary and Phytosanitary
TFEU	Treaty on the Functioning of the European Union
TREND	Trade and Environment Database
X	Independent variable
Y	Dependent variable
WTO	World Trade Organization
WTO-X	World Trade Organization – extra
UN	United Nations
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
US	United States

1. Introduction

The 2015 Sustainable Development Goals (SDGs) introduced by the United Nations (UN) underline the interconnectedness of the major challenges of the 21st century: social, economic and environmental (Berger, Brandi, Bruhn & Chi, 2017). Strategies to address poverty, for example, go hand-in-hand with addressing economic growth and environmental deterioration; one issue cannot be solved without tackling the other. The SDGs are unique because it is the first time that all countries have agreed to take action (UN, 2018). It is clear that a global understanding has developed that acknowledges that the scope of these challenges is too big to be tackled by countries separately. Instead, countries need to collaborate, take responsibility and help each other to overcome the crises threatening the sustainable development of people and planet.

An area that is greatly affected by the increased interdependence of countries is international trade. Collaboration to enhance the mutual benefits gained from trade is done through the World Trade Organization (WTO), whose main focus is the liberalization of the global trade system (Molle, 2014). Additionally, the WTO has struggled with the "trade and" agenda, commonly referred to as WTO-X issues, which concerns trade issues that have not been integrated into WTO regulations but move into other areas, like the environment. The linkage between trade and the environment has been subject to an abundant amount of research (Batabyal & Baladi, 2001; Copeland & Taylor, 2004). Whereas some scholars argue that trade negatively impacts the environment (Shrybman, 1990), others state that the implied causality is overrated (Frankel & Rose, 2006; Perroni & Wigle, 1994). The fact remains that growing societal concerns about the environment have put increased pressure on the international trade regime to take responsibility.

In 2001, the Doha Development Round negotiations started, with the intention of extending the mandate of the WTO and provide equitable trade rules between the developed and developing world (Hartman, 2013). However, it soon became clear that the conclusion of the Doha negotiations was a slow and tedious process. Until the present day, it has been impossible to get all the WTO members to reach consensus, especially because of the 'nothing is agreed until everything is agreed' principle (WTO, 2018). During the same time that the Doha negotiations entered into a stalemate, the number of preferential trade agreements (PTAs) steadily increased (Hartman, 2013). Many of these PTAs include WTO-X areas, which are therefore not legally enforceable under the WTO guidelines (Horn, Mavroidis & Sapir, 2010). Generally speaking, PTAs have more "depth" than is allowed within the WTO mandate, leading to the hypothesis that 'PTAs are essentially competing with the WTO by adding additional regulatory authority beyond the

scope of the WTO agreement' (Hartman, 2013, p. 425). As such, PTAs are a possible threat to the multilateral trading system, by threatening the regulatory authority of the WTO and undermining its ability to promote and govern free trade (Hartman, 2013; Horn et al., 2010).

At the same time, PTAs are less complicated to establish than the Doha Development Round is to complete; while their objectives partly overlap, they can enhance multilateral cooperation and help manage a more complex and integrated world order (Hartman, 2013). This also counts for the environment, one of the more eminent WTO-X issues. By addressing environmental concerns in PTAs, the international trading market is connected with the global challenge of curbing climate change. Such issue linkage is already commonly used in international environmental negotiations for three specific reasons. First, adding an issue may add an additional advantage and thus a reason to agree with the other issues – in the case of PTAs this would be access to a big trade market. Second, adding an issue adds parties to the negotiation table which can counteract a blocking coalition – this mainly applies to trade agreements between more than two countries. Third, an extra issue allows the shifting of the locus of negotiation to a new venue in which implementation may be easier – here, it is easier to discuss trade access than emission reductions (Susskind & Ali, 2014, p. 99). PTAs including environmental provisions (EPs) may thus be a threat to the international trading regime, but a blessing for the international environmental regime.

International collaboration to curb climate change is stimulated and coordinated by the United Nations Framework Convention on Climate Change (UNFCCC), established in 1992 (UNFCCC, 2018). Forthcoming from the UNFCCC was the 1997 Kyoto Protocol, a "hard" agreement, which 'commits its parties by setting internationally binding emission reduction targets' (Yamagata, Yang & Galaskiewicz, 2013; UNFCCC, 2014, para. 1). The Protocol differentiated between the responsibilities for developed and developing countries, where only the developed countries were bound to emission reduction targets to be achieved during 2008-2012. This differentiation, however, led the United States (US) to decline the ratification of the protocol because they considered the exemption of developing countries from binding emission targets unacceptable (Böhringer, 2003). Due to the withdrawal of the US and the exclusion of some major polluting countries, such as China and India, the Kyoto protocol failed to reduce global greenhouse gas (GHG) emissions (Lau, Lee & Mohamed, 2012). The 2010 Copenhagen Climate Conference, meant to come up with a successor to the Kyoto protocol and to include developing countries, failed to produce a successful outcome and is therefore oftentimes referred to as the "Copenhagen failure" (Dimitrov, 2010). After the disappointing results of the Kyoto

protocol and the Copenhagen Conference, many spoke of a "global climate gridlock" (Victor, 2011; Falkner, 2016) and the US blamed China for its uncooperative position in the climate negotiations (Dong, 2017). Indeed, up to the 2010 Copenhagen Conference, China held tightly to the stance that environmental policies should not be implemented at the expense of the economy and that the developed world should carry the main burden (He, 2010). However, ever since Copenhagen, China's position has changed. Their ambitions to participate in the environmental climate regime have increased over the years and during the 2015 climate conference in Paris, China took an active role in the negotiations and became a recognized promotor of the Paris Agreement (Dong, 2017). This is in line with China's grand strategy to participate more actively in the international climate regime and exert a larger influence over the rules of international affairs in general (He, 2010).

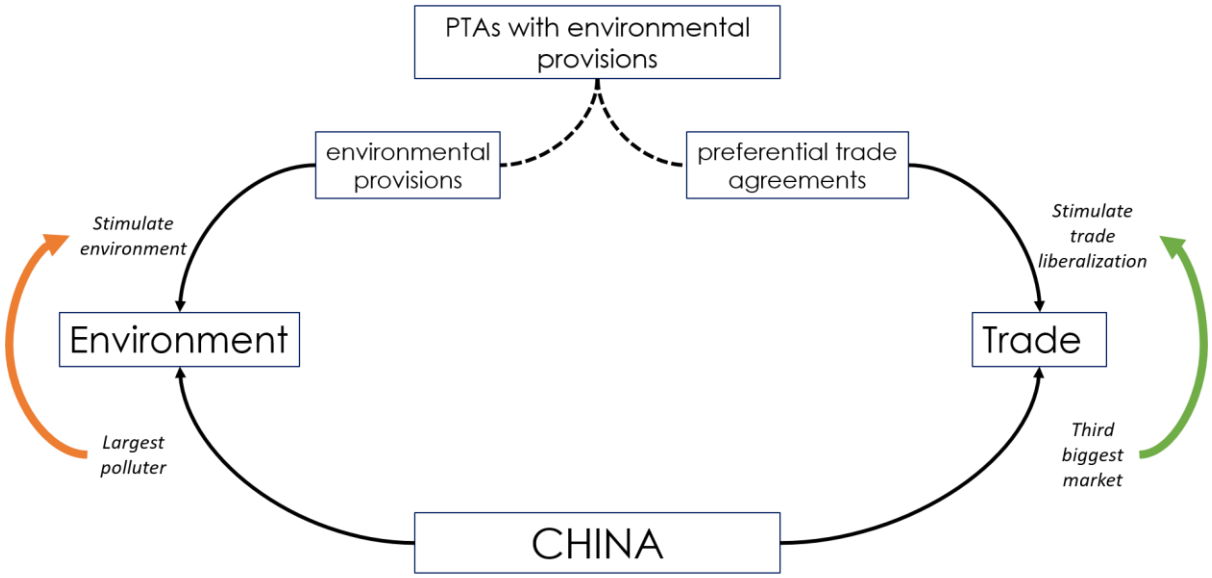
Even though the 2015 Paris Agreement seems promising as the first multilateral environmental agreement (MEA) in which all countries participate, there is also considerable doubt whether it is enough to curb the negative consequences of climate change. The voluntary contributions of countries are insufficient to keep the temperature rise below the necessary 2° Celsius and there is no hard enforcement mechanism (Clémençon, 2016). Therefore, to effectively curb climate change, more action is needed.

Thus, to sum up, the situation at hand is a global trade regime that has become increasingly overruled by bilateral and regional trade agreements, undermining the authoritative power of the WTO and a global environmental regime which cannot effectively combat climate change multilaterally. In both regimes, China has taken a more active role during the past decade. China's economy, measured by its gross domestic product (GDP), has grown from 1.471 Trillion US$ in 2002 to 11.199 Trillion US$ in 2016 (World Bank, 2018), making it the second biggest economy in the world after the US and thus an attractive trading partner. Similarly, the number of PTAs that China has conducted has also progressed steadily, with two PTAs in 2003 to 14 in 2015 (Berger, Brandi, Bruhn & Morin, 2017). And even though China is the largest GHG emitter in the world (Janssens-Maenhout et al., 2017), it has taken up its responsibility in the global environmental regime since the 2010 Copenhagen conference. This situation shapes the rationale behind this thesis and the next section explains how these components lead to the research question.

1.1. Problem Statement

The aforementioned situation involves many different concepts; trade, the environment, PTAs and China are all involved in one way or another. To clarify how this thesis considers the relations between those concepts, a simplified depiction of the linkages between them is presented in Figure 1.

Figure 1. Linkages between the various concepts.



The environment and trade are two of the main factors that connect countries on the international level. Without an authority that sets the rules regarding environmental provisions, countries must come up with their own regulations and agreements to orderly manage the opportunities and threats that come forth from interdependence. One of the means of connecting these channels is PTAs with EPs. They stimulate trade between countries by way of agreements on the reduction of trade restrictive policies and stimulate environmental action by including provisions that make market access conditional on the inclusion of certain environmental concessions. As depicted in Figure 1, China contributes to international trade as the third biggest market and contributes negatively to the status of the environment by being the largest polluter, in terms of GHG emissions. Although it has taken more responsibility now, it has in the past had a reputation for blocking international agreements and being unwilling to take on binding emission targets. The green arrow, therefore, underlines how the connection between China, PTAs and trade is logical, while the relation between China and the use of EPs is more doubtful, illustrated by the orange arrow. This orange arrow is the focal point of this thesis.

Considering China's pursuance of a greater international role, this paper focusses on the effectiveness of the EPs in PTAs conducted by China with trading partner countries. It

seems counterintuitive that China has the credibility to truly aspire to taking climate action in trading partner countries, because of its hesitant position in MEA negations in the past and its large emission output. However, connecting the attractiveness of its big trade market with the environment could be a possible means of exerting a greater influence. Yet, to do so, the EPs in their PTAs need to be effective. Therefore, this thesis revolves about the following research question:

> **RQ**: What is the effectiveness of the environmental provisions in the preferential trade agreements of China?

1.2. Definitions

The focus of this research is on the EPs in PTAs, so the first step is to clarify what is meant by "preferential trade agreement". 'PTAs are international institutions based on credible commitments that constrain signees to obey a set of rules, often across various fields, thereby heightening the predictability of participants' future behaviour' (Yoo & Kim, 2016, p. 724). Although this is a practical and functional description of a PTA, it does not fully capture the essence of the agreement like the next definition. A PTA is 'an international treaty with restrictive membership and including any articles that (i) apply only to its members and (ii) aim to secure or increase their respective market access' (Limão, 2016, p. 284). This definition establishes that the agreement is discriminatory in nature, as any included articles only count for the members of the agreement. Furthermore, the agreement can include non-trade issues (NTIs), but there needs to be a connection with trade, in the way that greater market access remains the ultimate objective of the agreement. Therefore, agreements between countries that focus exclusively on one NTI, such as intellectual property rights, are excluded (Limão, 2016).

Frankel, Stein & Wei (1997) recognize that trade agreements cover a spectrum of arrangements between countries, bilateral or regional, and classify them by their degree of integration. Nonetheless, within the research body of trade agreements, the terms used are overlapping. Whereas the WTO defines PTAs as unilateral preferences (WTO, 2018b), Frankel et al. (1997) recognize that a PTA can also be reciprocal and cover a club of countries, for which the WTO would use the term regional trade agreement (RTA). Furthermore, Baier, Bergstrand, Egger and McLaughlin (2008) consider a PTA to be a subcategory of economic integration agreements (EIAs) which are international agreements between countries meant to enhance the flow of goods, services, capital, et cetera. Like Baier, Bergstrand and Feng (2014), they strictly differentiate between a PTA and a free trade agreement (FTA). However, by following the definition of Limão (2016), the definition of a PTA in this thesis encompasses sub classifications such as RTA, FTA and

customs unions (CU). Moreover, this definition conforms to the definition of a PTA by the two most important related databases; Trade and Environment Database (TREND) and Design of Trade Agreements (DESTA).

The use of the term "environmental provisions" is also in line with TREND and is deliberately chosen. Whereas terms like "clauses", "norms" or "rules" reflect a level of obligation for the included clauses in PTAs, the term "provisions" does not, and thus conveniently covers all types of provisions, from aspirational to enforceable (Berger, Brandi, Bruhn & Morin, 2017). As a result of this broad range of obligation levels of EPs, it is difficult to specify what is meant with "effective environmental provisions". This research refers to effective EPs when those provisions, whether enforceable or aspirational, trigger a change in the behaviour of trading partner countries regarding the environment and which also have a positive effect on the environmental situation. This can be newly implemented environmental policies by the government, but also newly started non-governmental organizations (NGOs) by societal actors. It is important to notice that the changes following from the EPs need to have an actual positive effect on the environmental situation, meaning that provisions which trigger adjustments by the trading partner country that do not actually positively affect the environment are not considered effective.

1.3 Structure of thesis

The introduction has outlined the situation regarding both the international environmental and the international trade governance regimes and the role China plays in both governance structures. Both issue areas are linked through PTAs which include EPs and this thesis estimates the effectiveness of that linkage by analysing the provisions of China, a major country for which effective EPs are not self-evident.

The next chapter provides an overview of the existing literature on the relation between environment and trade on different levels. Based on the literature, the two sub questions will be introduced, which divide the research into two separate parts; one about the content of the PTAs and the other about their effect. The third chapter discusses the diffusion theory for the first and compliance theory for the second sub question, out of which the hypotheses are inferred. Chapter four then describes how those hypotheses will be analysed and introduces the case of Chile and the case of Pakistan respectively for the sub questions and the actual analysis is described in the fifth chapter. The sixth and final chapter interprets the findings from the analysis, answers the research question, provides the relevance of this thesis and closes with a discussion of the results.

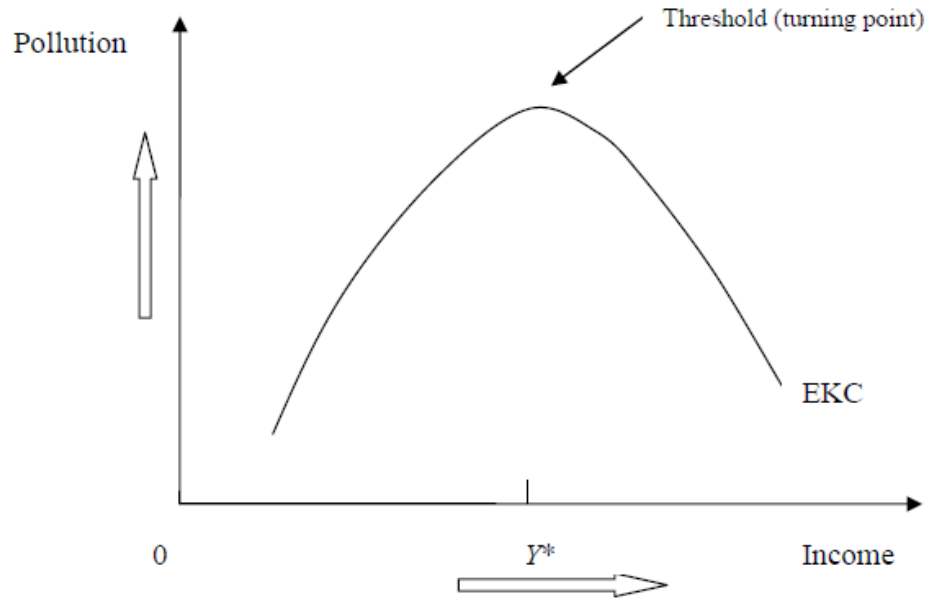
2. Literature Review

This chapter introduces the existing literature related to the research question. It is structured in such a way that each section zooms in on one level of the relationship between trade and the environment: from global trade and the environment to EPs in PTAs. Each section also discusses the case of China separately, if available, and the end of the chapter introduces the two sub questions that structure the rest of the thesis.

2.1. Trade and the environment

As mentioned previously, the relation between trade and the environment has been extensively covered by research but remains a controversial topic. Grossman and Krueger (1995) introduced the theory of the Environmental Kuznets Curve (EKC), implying that the relation between economic growth and the environment follows an inverted U-shaped curve, as depicted in Figure 2. The relation between the curve and trade is that more trade, through increased economic activity, deteriorates the environment but boosts income level. After a while, society transitions into a service-based economy which improves the state of the environment again (Aslanidis, 2009). However, the evidence on the connection between income and pollution as well as on the impact of trade on the theory is mixed (Cole, 2003; Kaika & Zervas, 2013; Suri & Chapman, 1998).

Figure 2. Environmental Kuznets Curve



Note. Reprinted from "Environmental Kuznets Curve for Carbon Emissions: A Critical Survey" by N. Aslanidis, 2009, *FEEM Working Papers, no. 336,* p. 32.

Another perspective on the connection between trade and the environment focuses on the "race-to-the-bottom" and the connected "pollution haven" hypothesis. These hypotheses, respectively, state that countries fail to implement stricter environmental regulation to remain internationally competitive and that multinationals will move the polluting activities in their supply chain to countries with less environmental regulation (Eskeland & Harrison, 2003; Frankel & Rose, 2006). Again, the results of the research on these hypotheses are mixed (Jaffe et al., 1995; Konisky, 2007; Mani & Wheeler, 1998; Zheng & Shi, 2017).

Due to its sudden economic acceleration, relative late integration into the global economy and its high emission output, China has been a popular case study for research regarding the connection between trade and the environment. Liu et al. (2015) find that 'production in China is several times as carbon intensive as the same production in other countries' (p. 6) and that trade with China thus conflicts with the global CO2 emission reduction efforts. He (2005) confirms the pollution haven hypothesis using China's provinces as case studies. He finds that there is indeed a relation between capital inflow, environmental regulation and industrial emissions. Li, Fu, Ma and Yang (2014) refer to China as the "workshop of the world" because 'high energy-consuming and carbon-intensive products produced in China are consumed by foreign countries while the corresponding energy consumption and pollution remain' (p. 228). Thus, there is clear evidence that the environmental status of China is linked with its increased involvement in the global trade regime.

2.2. PTAs

The global trade regime has experienced a significant upsurge in the number of conducted PTAs in the past few decades and is oftentimes referred to as a "noodle-bowl" due to its complexity (Hartman, 2013). This section covers the reasons for the popularity of trade agreements and the increased complexity of the trade network.

Whalley (1998) identifies various objectives for countries to sign PTAs: to underpin domestic policy reforms; to achieve firmer market access; to establish strengthened security arrangements and to gain a strengthened bargaining position in multilateral negotiations (p. 82). Baldwin (1997), contrarily, uses the domino theory to explain the popularity of PTAs. The domino theory revolves around the appealing effect that a newly established trade block has on excluded nations and the "pressures for inclusion" it creates. Those excluded nations therefore broaden existing trade block arrangements by requesting access and, in case of denial, are likely to set up new PTAs with each other. Baier, Bergstrand, Egger and McLaughlin (2008) find that the market for bilateral and regional trade agreements

corresponds with the bilateral and regional trade flows in the world, owing to the gains from specialization and product diversity, while Manger, Pickup & Snijders (2012) conclude that the patterns of PTA formation indicate network effects. The unequal gains flowing from the network of PTAs function as an incentive for "triadic closure" which means that 'if countries A and B as well as A and C have PTAs, then, ceteris paribus, B and C are more likely to form a PTA' (p. 854).

Antkiewicz and Whalley (2004) conclude that China started signing PTAs because the Chinese government wants to abide by WTO regulations like the non-discrimination clause to ensure mutual access to large markets, while at the same time they want to use their beneficial power asymmetries to negotiate PTAs with local, smaller trading partner countries. According to Snyder (2009), China's PTAs can be subdivided into three categories; economic integration agreements, regional trade agreements and bilateral free-trade agreements (Snyder, 2009). This typology helps to assess the objectives of the PTAs, although each agreement should always be placed in its broader context to fully understand its purpose. Nonetheless, analyses of the agreements highlight that China not only uses its PTAs for economic reasons, but it is also increasingly taking part in the geopolitical game of PTAs with objectives such as 'enhancing political trust, using regional integration to strengthen its position in the Asia-Pacific and providing a platform for broader political alliances and increased leverage in international institutions' (Snyder, 2009, p. 54).

2.3. Non-trade issues in PTAs

Over the past decade, not only have the number of PTAs increased, but the PTAs have also increasingly deepened by including more WTO-X issues. The "behind the border issues" that are included in contemporary PTAs govern areas such as 'investment regimes, technical and sanitary standards, trade facilitation, competition policy, government procurement, intellectual property, environment protection, migration, labour rights and human rights' (Chauffour & Maur, 2011, p. 17).

This exponential trend of including NTIs has captured the attention of Milewicz, Hollway, Peacock and Snidal (2016), whose research tries to explain why countries include such issues that are not directly linked to trade. NTIs are 'mutual commitments to pursue nontrade policy objectives' (Milewicz et al., 2016, p. 746). They differentiate between three possible reasons why the spread of NTIs in PTAs is growing exponentially: commitment, power and costs. NTIs in a bilateral trade agreement enforce mutual commitment in these areas and thus prevent a "race to the bottom" to gain a competitive advantage over the counterparty. However, some NTIs have no relation to

trade and are most likely included to uphold common values or to capitalize on relative power advantage. Powerful trading partners use the leverage they have due to their market size to compel other less powerful states to accept NTIs that they otherwise would not have accepted. This way, powerful states can enforce their own values or prevent the counterparty from gaining a competitive advantage through lower standards. Lastly, countries can decide to include or exclude NTIs based on cost calculations (Milewicz et al., 2016). In general, NTIs only increase costs for the respective trading partners as no benefits are expected to flow from such clauses. The start-up costs for the first NTI to be included in a country's PTA are relatively high. Besides negotiation costs, they also include substantive implementation costs. However, if one of the countries has already signed a PTA with a similar NTI before, the costs decrease and if both trading partners have already concluded a PTA with NTIs with the same third party, costs will be even lower (Milewicz et al., 2016).

Baccini, Dür and Haftel (2013) differentiate between three types of PTA design: the European Union (EU) design, the US design after the North Atlantic Free Trade Agreement (NAFTA) and a "Southern" design which includes smaller and less extensive trade agreements. Newly conducted trade agreements are not created in a void, but the included NTI provisions tend to take the design of one of these models, depending on their own domestic circumstances and the relation between the PTA members and the EU and the US (Baccini, Dür & Haftel, 2013). The existence of templates is supported by the findings of Kim and Manger (2017). They investigate the institutional design of PTAs and find that they are likely to follow one of the two distinguished templates; the NAFTA or the General Agreement on Trade in Services (GATS). Additionally, they conclude that the initial choices a country makes regarding the inclusion of certain provisions in their PTA design strongly influence its future PTAs.

In contrast to the EU and the US, however, the early Chinese PTAs are characterized by their brevity and focus mainly on conventional WTO fields of trade in goods and services, while WTO-X areas, which play a major role in EU and US PTAs, are seemingly less important (Antkiewicz & Whalley, 2004). Antkiewicz and Whalley (2004) recognized that this could change in the future but interpreted it as China's aspiration to appear as WTO compatible as possible at the time.

2.4. Environmental provisions in PTAs

Just like other WTO-X issues, the use of EPs has also proliferated after the EU presented its Global Europe strategy in 2006 and the Doha Round negotiations in the WTO halted (Jinnah & Morgera, 2013). Considering this trend, there is a vast body of research that

revolves around EPs in PTAs. The existing research can be classified into roughly two categories based on their focus: (1) what is the design of the EPs and (2) what are the effects of the EPs?

2.4.1. Design of environmental provisions in PTAs

Morin, Pauwelyn and Hollway (2017) demonstrate that the trade regime is expected to develop through exploitation and exploration using the example of EPs. They find that the rate of including new EPs in trade agreements is declining. During the 1970s and 1990s, many innovative provisions were included in new trade agreements, but this rate has stabilised since the 2000s. With a larger pool of EPs already available through innovation, actors now turn to exploitation by using existing provisions "off-the-shelf" to save costs (Morin, Pauwelyn & Hollway, 2017). This has led to certain provisions being particularly popular or even entire groups of EPs being copied from one agreement to another. Lechner (2016) finds that the inclusion of EPs is strategically considered, meaning that actors do not automatically apply the same design of EPs in their PTAs, but adjust it based on their strategic interests towards their trading partner.

Comparing the design of EPs in trade agreements between the EU and the US, Postnikov (2018) explains the variation in their design, using the principal-agent theory. The provisions in the EU's design are less strict and emphasise international rules because the principal - the member states - is large, collective and includes many different preferences. The European Commission as the agent has full authority over trade matters and is completely insulated from both the national governments as well as from societal interest groups. The social standards design in the US' trade agreements is stricter and focusses on transferring domestic standards because the principal, the legislators in Congress, remains fully in control of the design of the trade agreements and societal groups are closely connected to these legislators. Thus, the domestic institutional structure of trade policy matters for the EP design of the PTAs (Postnikov, 2018). Jinnah and Morgera (2013) likewise emphasize the difference in design between the PTAs of the EU and the US. Key differences are related to the breadth and depth of EPs. Whereas the EU has signed more PTAs including them, the US has included provisions that intervene deeper in the environmental policy of the trading partner. These differences can be assigned to different rationales for including EPs. The EU appears to use them as a stepping stone to influence future multilateral climate change negotiations, so it uses a more cooperative approach, while the US is more confrontational and includes the provisions to appease to the environmental concerns of its domestic civil society. However, both designs can influence domestic law and initiate policy change in trading partner nations and both the EU and the US are increasingly including more ambitious EPs (Jinnah & Morgera, 2013).

Berger, Brandi, Bruhn and Chi (2017) track the development of EPs in China, India, Indonesia, Brazil and Mexico and find two main trends. First, the PTAs of the emerging markets have indeed included more EPs over time and second, the content of a PTA is more environmentally friendly when it is concluded with countries who are part of the Organisation for Economic Cooperation and Development. They confirm this for China specifically, who indeed included substantially more EPs in PTAs with developed countries.

2.4.2. Effectiveness of environmental provisions in PTAs

That the effectiveness of EPs in PTAs is not to be taken for granted is established by Dawar (2010); although they prevent a race to the bottom regarding environmental standards, they do not necessarily establish a race to the top. Indeed, Bechtel and Tosun (2009) find that environmental policy convergence between trading partners and the accompanying improvement in the environmental situation is possible, but only under specific, yet not completely unrealistic, conditions such as a minimum detection probability. Furthermore, the fact that high-regulating countries can also benefit when a low-regulating country covers up domestic non-enforcement of environmental policy improvements might hinder the effectiveness of EPs (Bechtel & Tosun, 2009).

However, Baghdadi, Martinez-Zarzoso and Zitouna (2013) find that the convergence of CO2 emission levels between pairs of countries is fostered by signing a PTA which includes EPs, while a PTA without those provisions does not lead to emission convergence. Hence, they conclude that EPs positively affect emission levels in trading partner countries. Moreover, the rate of convergence is higher when an enforcement mechanism is included in the trade agreement (Baghdadi, Martinez-Zarzoso & Zitouna, 2013). The US has also been able to transpose US norms into trading partners' domestic environmental policy and thus effectively use EPs in PTAs as a mechanism for norm and policy diffusion (Jinnah & Lindsay, 2016)

Instead of wondering *if* EPs are effective, Bastiaens and Postnikov (2017) focus on *how* they are effective. Their expectation is that the different enforcement mechanisms included in the PTAs 'will greatly affect the implementation dynamic of environmental standards' (p. 848). The demands of the EPs towards the trading partner is relatively similar in the EU and US PTAs, both designs include legally enforceable environmental standards chapters and require compliance with previously signed MEAs. However, the difference in enforcement mechanisms is crucial for the effect of the provisions. The US' provisions are enforceable through hard measures, such as trade sanctions and fines, while the EU's provisions are enforceable through soft measures. Expert panels review whether a trading partner complies and in case of non-compliance, the EU relies on Civil Society Dialogue,

meaning that 'governmental and civil society actors from both the EU and its trading partners meet on a regular basis to work together on the implementation of environmental standards' (Bastiaens & Postnikov, 2017, p. 850).

Bastiaens and Postnikov (2017) find that the threat of exclusion from the US market leads to ex ante compliance with the EPs, while the soft mechanism of EU PTAs will manifest in ex post improvements in the environmental situation through policy learning. Thus, the type of enforcement mechanism determines the timing of compliance. Moreover, the EU mechanism of soft measures makes developing countries feel less like the provisions are being imposed on them.

2.5. Sub questions

Even though the relationship between trade and the environment within China has been a popular research subject, research on EPs in China's PTAs is lacking. Compared to the EU and the US, the number of PTAs that China has signed is limited, although it has increased in the past decade, and most of the more extensive PTAs were only signed recently. These factors complicate research into the effectiveness of the Chinese EPs on the environmental status in the partner country, but nonetheless, due to China's increased global activity, it remains an important topic to research. This thesis covers both the design as well as the impact of the EPs in Chinese PTAs because (1) it is in line with existing literature and, as such, this thesis contributes to the existing literature on EPs in terms of all its aspects in the area of emerging markets, and (2) with the limited data availability, using multiple perspectives on the effectiveness of China's EPs allows for a more complete understanding.

As a relative newcomer to the PTA market, China has had the opportunity, in theory, to learn from the PTAs already in place and copy good-case and low-cost practices from either the EU or the US. Hence, the first sub question (SQ1) of this paper will investigate the design of the EPs in Chinese PTAs and compare them to those of the EU and the US. To do so, the PTAs the three trade markets signed with Chile will be used as case study, because Chile is the only country to have signed a PTA with all three of the trade markets, of which China was the most recent.

> **SQ1**: Do EU and/or US environmental provision design elements diffuse into Chinese PTAs?

When similarities, or clear differences, are found, assumptions about the effectiveness of the Chinese PTAs can be made based on the available literature on EU and US PTAs. This allows for estimating the type of PTA regarding EPs the Chinese agreements are inclined to develop. Sub question 2 (SQ2) is used to see whether the provisions actually generate

behavioural changes regarding the environment. This is analysed using the case study design of Pakistan with the 2006 China-Pakistan PTA and taking compliance theory as a point of reference. The reason for the selection of the China-Pakistan PTA is because Pakistan is the only country that has signed a PTA with China and not with the EU and the US, meaning it is the only case that can isolate the effect of a PTA with China.

> **SQ2**: Does Pakistan improve its environmental situation based on the EPs in the 2006 China-Pakistan PTA?

Together, the analysis of these two sub questions constructs an argument for answering the research question in such a way that the analysis of the second sub question builds upon the analysis of the first. Meaning that the sub questions are consecutive, rather than separately answering different parts of the research question.

3. Theoretical Framework

To estimate the effectiveness of the EPs, this thesis relies on both diffusion theory as well as compliance theory to support the analysis. The diffusion theory stipulates how the design of Chinese PTAs has possibly taken the form of those of either the EU or the US and is used to back up sub question one. Compliance theory is used to build the framework for the second sub question.

3.1. Diffusion theory

When China started to participate in the global trade market and began to establish PTAs with partner countries, it entered an area called 'institutional construction', as it had no previously signed PTAs to build upon. 'Institutions do not emerge in a vacuum; they always challenge, borrow from, and, to varying degrees, displace prior institutions' (Scott, 2014, p. 114). The studies by Baccini, Dür and Haftel (2013) and Kim and Manger (2017) emphasize how the initial institutional construction of a PTA matters for a country's future PTA design and how the designs of different countries' PTAs influence each other. Therefore, it is important to understand the PTA design of China and to do so, this thesis builds upon the theory of policy diffusion. The idea is to not only analyse whether existing PTA designs influence newly constructed PTAs, but also analyse the mechanism by which this diffusion happens. Diffusion theory provides the required differentiation of possible mechanisms to build upon.

Diffusion theory is a distinct class within the area of policy convergence between states, which increasingly takes place due to structural pressures at the macro-level such as 'economic globalization, political internationalization and "modernizing forces"' (Busch & Jörgens, 2005, p. 862). Diffusion refers to the phenomenon that 'prior adoption of a trait or practice in a population alters the probability of adoption for remaining non-adopters' (Strang, 1991, p. 325). The focus in diffusion theory is more on the process than on the outcome, so in other words, diffusion is thought of as 'a voluntary and decentralized process in which actors make similar decisions in the absence of a central co-ordinating body' or 'an uncoordinated process of interdependence' (Elkins & Simmons, 2005, p. 35; Jetschke & Lenz, 2013, p. 628). Researchers have observed that countries install similar institutions within a circumscribed time period, leading to temporal and spatial clusters of policy reforms. These observations formed the foundation of diffusion research, which tried to explain why clustering occurs (Elkins & Simmons, 2005). There are tree separate perspectives within the theory, which differ in the catalytic mechanism for diffusion: competition, learning and emulation (Jetschke & Lenz, 2013).

3.1.1. Competition mechanism

The competition mechanism postulates that states adopt practices that will give them a competitive advantage over international rivalry in areas such as trade. Therefore, the competition mechanism emphasizes how the decisions of one government alter the payoffs of other governments, meaning that decisions taken by early adopters create externalities that need to be considered by subsequent adopters (Elkins & Simmons, 2005). Regarding the design of trade agreements, it is in the interest of weaker states to adopt the trade design of stronger states. A country may lose out if it fails to embrace PTA provisions while other, similarly weak states do adopt the provisions and gain a relative advantage as a result (Baccini, Dür & Haftel, 2013). This argument obviously predominates in PTAs agreed between a major market, such as the EU and the US, and a smaller state, but also in PTAs agreed between weaker state governments, where competition may influence the design of the agreement. By maintaining the design of one of the stronger states, they can signal readiness to negotiate PTAs with that country as well. So, according to the competition mechanism, PTA design is more similar for countries that are in a similar structural position, for example in terms of a similar composition of exports, which might lead to a preference for a certain trading partner (Jetschke & Lenz, 2013).

3.1.2. Learning mechanism

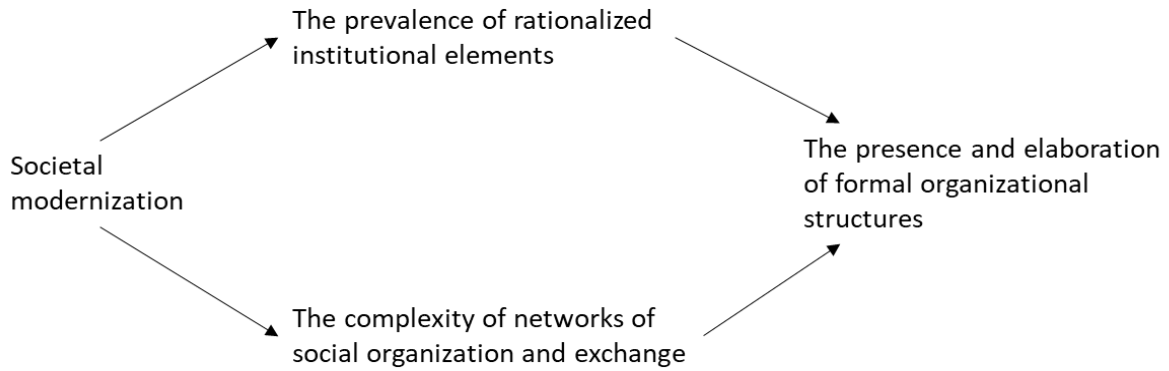
The learning mechanism explains diffusion of practices and processes through information flows. Practices of success are more likely to diffuse to countries with which the pioneering country has closer information networks (Jetschke & Lenz, 2013). External innovations provide information on the consequences of certain policy decisions and countries are expected to use this information in a rational manner to increase the likelihood that their own policy will bring about the designated outcome (Simmons & Elkins, 2004). This learning happens mostly through success and through reference groups. When information is lacking, countries are more likely to adopt the practices of others that have been successful or have been implemented in a similar policy context. Moreover, Goldsmith (2003) finds that vicarious learning in international relations is more likely to occur following a domestic policy failure and in a polytomous choice situation. In those situations, a policy continuation is not desirable and direct learning is not possible due to the variety of options, thus learning from other countries is plausible. The stronger the informational ties and the more communication that takes place between two countries, the more likely it is that countries will learn from mutual experiences (Jetschke & Lenz, 2013).

3.1.3. Emulation mechanism

The emulation mechanism implies that the spread of practices among states does not happen according to rational cost-benefit analysis, but through social processes and the

identification of desirable norms (Jetschke & Lenz, 2013; Meyer & Rowan, 1977). Emulation occurs when external practices and processes are adopted ceremonially to increase an organization's legitimacy and survival prospects, while the conformity to those institutionalized rules is often in contrast to efficacy aspirations (Meyer & Rowan, 1977). The mechanism starts with "societal modernization" which brings about an increased complexity of relational networks and introduces new institutionalized practices. The process of modernization itself also creates new institutional rules because these are used as the building blocks for new organizations formed to structure society. Together, these two processes lead to innovation in formal organizational structures, as is summarized in Figure 3.

Figure 3. The origins and elaboration of formal organizational structures.



Note: Adapted from "Institutionalized Organizations: Formal Structure as Myth and Ceremony" by J. W. Meyer and B. Rowan, 1977, *American Journal of Sociology, 83*(2), p. 346.

The emulation dynamics occur mostly between states with high status differences, measured by, for example, economic performance or democracy. Meaning that developing countries or more autocratic countries are expected to copy practices from the developed, democratic world (Jetschke & Lenz, 2013). Therefore, similar patterns can often be observed among clusters of similar, lower-status countries that have been mirrored from higher-status trading partners such as the EU and the US. Moreover, countries are more inclined to adopt practices that have been adopted by a fair number of countries already, due to the increased pressure for conformity which in turn will improve their self-esteem in an international society increasingly structured by normative standards of appropriate behaviour (Busch & Jörgens, 2005).

Table 1 provides an overview of the driving forces behind the mechanisms, the influences on the design of the PTAs and the consequences for decision making of the three perspectives within the diffusion theory.

Table 1. Overview of mechanisms of the diffusion theory.

MECHANISM	*DRIVERS*	*DESIGN*	*DECISION-MAKING*
Competition	Rivalry over scarce resources	Similar among states with similar structural position	Adaptation alters conditions for other governments' decision-making
Learning	Performance asymmetries	Similar among states that have more intense information ties	Adaptation does not alter conditions for other governments' decision-making
Emulation	Status differences and emergence of unquestioned norms	Similar across states that exhibit large status differences	Adaptation alters conditions for other governments' decision-making

Note: Adapted from "Does regionalism diffuse? A new research agenda for the study of regional organizations" by A. Jetschke and T. Lenz, 2013, *Journal of European Public Policy, 20*(4), p. 630.

3.1.4. Remarks

Diffusion theory revolves around the idea that governments make choices they would not make if left completely to their own devices, which can lead to two possible outcomes. Either governments adopt policies that are inefficient because they are designed for the needs and circumstances of others, or governments adopt superior policies that they never could have created themselves due to a lack of resources (Elkins & Simmons, 2005). This principle also applies to the design of China's PTAs. The diffusion of the practice to include certain EPs in the design of PTAs can be beneficial, or counterproductive for China. Thus, diffusion may alter the effectiveness of EPs by influencing the trade agreement design and differences in design can elicit different behavioural changes in trading partners.

The types of EPs that are expected to diffuse depend on the mechanism that drives the diffusion. There are two broad classes of PTA design; the EU model and the US (NAFTA) model, in addition to a general Southern model that represents many smaller models (Baccini, Dür & Haftel, 2013). This paper compares the design of the Chinese PTAs to those two main classes to estimate the efficiency of the EPs. Regarding this comparison, the research on diffusion theory suggests the following hypotheses, based on each of the three mechanisms.

The competition mechanism stipulates that rivalry and competitive advantage are the driving forces behind diffusion of practices. Including EPs similar to either the US or the EU

provisions will not only simplify trade with those markets, but also indicate China's willingness to make adjustments to support the relationship between the countries.

> **H1:** The design of environmental provisions in China's PTAs will copy elements of the PTA design of its largest trading partner.

According to the learning mechanisms, a country implements successful practices from other countries when they themselves lack enough information to build policy upon. When China started signing PTAs and including EPs in them, there were already two major designs being used: the EU and the US design. If diffusion of these designs happened through learning, it is expected that China chose a similar construction as the one that has been most effective in reaching environmental improvements.

> **H2**: The design of environmental provisions in China's PTAs will copy elements of the most effective PTA design.

The emulation mechanism predicts that practices will diffuse from high-status actors to lower-status actors. This implies that the environmental norms in China's PTAs are similar to or in line with those included by the area that is most esteemed for its environmental preservation activity.

> **H3:** The design of environmental provisions in China's PTAs will copy elements of the PTA design of the most renowned environmental actor on the international stage.

3.2. Compliance theory

The question whether international law and international treaties can effectively change the behaviour of states is central in the compliance theory and thus corresponds with the second sub question. Just like diffusion theory for the design of PTAs, compliance theory has not been adopted in research into the impact of EPs in PTAs before. However, the theories adopted in existing EP research are either not applicable to the Chinese context or unusable due to the lack of data and thus compliance theory has been selected to provide the framework for the analysis of sub question two. It remains important, however, to distinguish between implementation, compliance and effectiveness. Implementation is 'the adoption of domestic rules or regulations that are meant to facilitate, but do not in themselves constitute compliance with international agreements' (Simmons, 1998, p. 77). Compliance exceeds implementation and refers to 'whether countries in fact adhere to the agreement's provisions and to the implementing measures that they have instituted' (Weiss & Jacobson, 1999, p. 18). Effectiveness refers to the agreement itself; when countries comply with the content of an agreement, but the agreement's objectives are

nonetheless not accomplished, the agreement is ineffective (Weiss & Jacobson, 1999). Thus, compliance is neither a necessary, nor sufficient condition for effectiveness.

Even when a government does not comply with an international commitment, it can still bring about positive behavioural change. Particularly with environmental agreements, compliance does not necessary lead to an improved environmental situation. This is due to the versatility of environmental problems, as they have three different types of sources: regulated human behaviour, other non-regulated human behaviours and non-human sources (Mitchell, 1996). Nevertheless, compliance is still a valuable proxy for effectiveness since greater compliance will still lead to an improved environmental situation, although it might not solve the problem completely (Mitchell, 1996). So, when a trading partner complies with provisions and those changes elicit positive environmental behavioural changes, the EPs are considered effective.

The traditional assumption in the study of international relations is that states are sovereign and that they prefer to preserve their authority over their own policies. This is in sharp contrast with the general belief in compliance theory, introduced by Louis Henkin 'that almost all nations observe almost all principles of international law and almost all of their obligations almost all of the time' (Koh, 1997, p. 2599). Indeed, there are many instances in which countries have voluntarily complied with or given some of their sovereign powers to supranational institutions. Simmons (1998) distinguishes between four perspectives that explain the occurrence of compliance on the international level; realism, rational functionalism, domestic-regime-based explanations and normative approaches. Those perspectives view the occurrence of compliance through the mechanism of persuasion. 'Persuasion is a process of changing actors' preferences and understandings of appropriate social behaviour to create new social facts' (Hafner-Burton, 2005, p. 599). The other compliance mechanism is coercion, which influences behaviour 'by changing actors' calculations of the price of adopting certain behaviours over others' (Hafner-Burton, 2005, p. 600). Thus, within the compliance theories of Simmons (1998), the assumption is that a specific coercion mechanism is lacking.

3.2.1. Persuasion mechanisms

For realists, states are sovereign units operating in an anarchic world and unlikely to be willing to give up their authority. Only forces like power relations and interest matter in inter-state communication and international agreements lack enforcement power, especially when provisions are open to interpretation (Morgenthau, 1985; Simmons, 1998). In general, international law has little impact on states' national policies and compliance indicates a spurious correlation rather than true causation (Mitchell, 1996). According to realist theory,

countries will not voluntary comply with EPs unless strong power considerations are present.

The second perspective is rational functionalism. Functionalists consider interstate collaboration as a possibility to address and solve problems that cross borders, so problems that states cannot solve separately. Countries are still interest driven but can steer their environment and neighbouring countries' behaviour in a direction that is preferred over a situation in which each country acts independently (Simmons, 1998). International agreements are taken seriously because they are considered essential for finding solutions and as such are a collective good. It is in the interest of each individual country to comply with them. However, functionalism still recognizes compliance mechanisms, one of which is reputation costs. By complying with one international agreement, a country gains legitimacy for future international agreements. Furthermore, international agreements can also provide a solution for cases where the domestic situation does not allow any policy reforms, due to political polarization, extensive political costs or lacking administrative capabilities (Simmons, 1998). Rational functionalism predicts that countries will comply with those international agreements that solve problems that cannot be tackled by countries individually.

Third of all, democracies are more likely to comply with international agreements than countries with other domestic regimes (Simmons, 1998). The argumentation for this perspective follows multiple lines of reasoning. First, democracies have independent juridical institutions and thus are more accustomed to complying with judicial processes, whether they are national or international. Compliance will be even more likely when international law is absorbed in domestic law. Second, civil society, in the form of NGOs, has more freedom and power in democracies than in other regimes. These groups can use international agreements to force their government to install policy reforms and they can hold their governments accountable. The domestic-regime perspective of compliance expects democracies to be more willing and more likely to comply with international agreements.

The last mechanism considers normative approaches as the reason for the voluntary compliance of nations with international law. 'Normative standards of appropriate conduct are socially constructed reference points against which state behaviour can be gauged' (Simmons, 1998, p. 85). Here, the legitimacy of international agreements and laws is important; the higher the perceived legitimacy, the higher the sense of obligation to comply. States are more likely to comply with commitments that are in line with internationally accepted norms, such as those involving equality of opportunity.

Regarding human rights, for example, international regimes 'provide the justification and forum for action that can shape states' political interests and beliefs about appropriate action' (Hafner-Burton, 2005, p. 597). Thus, the normative approach views the force of ideas, beliefs and norms of appropriate behaviour as the main reason for a governments' compliance with international agreements (Simmons, 1998).

Simmons (1998) recognizes in her review that these perspectives partly overlap, or at least are not contradictory towards each other. Applying Simmons' four perspectives on the case of China's EPs leads to the following four hypotheses. The first hypothesis corresponds with the realist explanation that power relations are an important force for compliance. When a country is less powerful than China and thus cannot withstand China, neither economically nor military, it is more inclined to comply with the PTA provisions.

> **H4**: A trading partner complies with the environmental provisions of a PTA signed with China when it is a less-powerful country than China.

Rational functionalism predicts that countries take reputation costs into account and whenever a country pursues a bigger role, for example by accessing an IO, or foresees more contact moments with a negotiation partner, for example when both are member to the same international organization (IO), it will care more about its reputation and thus comply with internationally signed agreements.

> **H5:** A trading partner complies with the environmental provisions of a PTA signed with China when it is member of the same IOs.

The next hypothesis reflects the argumentation of the domestic regime explanation that predicts that democracies are more likely to comply.

> **H6:** A trading partner complies with the environmental provisions of a PTA signed with China when it is a democratic country.

The normative approaches to compliance state that legitimacy is important, which is why only less environmentally friendly countries are expected to comply, as predicted in the seventh hypothesis.

> **H7:** A trading partner complies with the environmental provisions of a PTA signed with China when it is less-environmentally friendly than China.

3.2.2. Enforcement mechanisms

Simmons' (1998) perspectives on compliance provide a general theory for compliance with international law, while Bastiaens and Postnikov (2017) focus on the specific compliance with EPs in PTAs. While the EU and the US include different enforcement mechanisms in their PTAs - the EU based on persuasion, the US on coercion - both have

shown to be effective. Only the soft compliance mechanism of the EU leads to ex post reform, while the hard measures of the US induce ex ante compliance with the EPs. This is in line with the "perseverance effect", which arises with the persuasion mechanism. It implies that voluntary compliance with international agreements takes a relatively long time since individuals tend to adhere to their own beliefs, even when new and better information has been presented (Hafner-Burton, 2005). As a big trading market itself, China can also credibly impose the threat of sanctions on its trading partners and thus enforce ex ante compliance. However, as world's biggest polluter it lacks the credibility to stimulate policy learning through Civil Society Dialogue, like the EU. Therefore, it is expected that compliance with Chinese PTA provisions will happen ex ante.

> **H8**: Compliance with the environmental provisions in China's PTAs will happen ex ante.

The two theories, diffusion and compliance theory gave rise to eight hypotheses. H1 – H3 shape predictions for sub question one, whereas H4 – H8 present the predictions for sub question two. The next chapter describes the research design, including the methodology and data explanation for the analysis of both sub questions.

4. Research Design

The analysis of the research question is twofold and each of the two sections is guided by one of the sub questions; first the focus will be on the design of China's PTAs regarding the EPs ("PTA design"), then it will be on the compliance with the EPs ("PTA compliance"). Both sections are so called factor-centric designs, as the goal is to estimate the explanatory power of causal factors (Gschwend & Schimmelfennig, 2007). For the first sub question, the design of the Chinese PTAs is the dependent variable, whereas the designs of the European and American PTAs are the independent variables. For the second sub question the behavioural changes regarding the environment in the trading partner countries is the dependent variable. This section explains the design of the analyses of both these subsections and corresponding hypotheses.

4.1 PTA design

The goal of the analysis of this subsection is to compare the design of the PTAs regarding the EPs included in them between China and the two main trade areas, the EU and the US. The analysis revolves around the first sub question:

> **SQ1**: Do EU and/or US environmental provision design elements diffuse into Chinese PTAs?

4.1.1. Methodology

PTAs function as international institutions, which are defined as 'formal and informal rules, regulations, norms, and understandings that constrain and enable behaviour' (Morgan, Campbell, Crouch, Pedersen & Whitley, 2010, p. 2). Therefore, the method of comparative institutional analysis (CIA) will be used to answer this sub question. This method is generally applied to analyse how economic organization is shaped and affected by social institutions and the consequences on various (social) economic process such as inequality and unemployment (Morgan et al., 2010). However, this thesis limits the scope of CIA solely to research the influence of existing institutions on newly introduced institutions, as the effects of the PTA provisions will be analysed in the second section. CIA combines institutional analysis, which is concerned with 'explaining similarities among organizations within an institutional field', with a comparative methodology which aims to 'link the similarities and differences in these institutions with a particular outcome of interest' (Jackson, 2010, p. 64). Indeed, 'how transnational institutions and international regimes are formed, through which actors and networks they operate, and how they emerge are all questions for comparative institutional analysis' (Seabrooke, 2010, p. 253).

The number of PTAs, the number and type of EPs included per PTA, the trading partners and the years in which the PTAs have been signed differ substantially between the EU, the

US and China. To check whether established practices of the EU or he US PTA design have diffused to China's design, it is important to understand the broader context in which they came about, and the actors involved in their conclusion. Jackson (2010) acknowledges that the method of CIA raises interest in the nature and configurations of important actors in different institutional settings. Therefore, the first part of the analysis provides separate country profiles for the EU, the US and China. The profiles will cover country characteristics and statistics in the areas of international trade, PTAs and the international environmental regime. The information provided in the country profiles is necessary to specify the expectations flowing from the first three hypotheses, which are 1) *the design of environmental provisions in China's PTAs will copy elements of the PTA design of its largest trading partner*; 2) *the design of environmental provisions in China's PTAs will copy elements of the most effective PTA design*; and 3) *the design of environmental provisions in China's PTAs will copy elements of the PTA design of the most renowned environmental actor on the international stage*. Thus, with the information from the country profiles it can be specified for each of the hypotheses which design, the EU's or the US', is the one China is most likely to copy from.

4.1.2. Dependent variable

In addition to the general country profiles, the design of the PTAs regarding the EPs of all three areas is assessed to find out which type of EPs they regularly include. The Y in this case is the type of EPs included in the Chinese PTAs and, in order to make the analysis perceptible, data is taken from the Trade & Environment Database (TREND), which is a dataset that tracks over 300 different EPs found in about 630 PTAs signed since 1945, is used (Berger, Brandi, Bruhn & Morin, 2017). They divide the type of EPs into eight categories, as listed in Table 2. The evaluation of whether EU or US design elements have diffused into China's PTAs is based on those categories. For each of the trade markets, the inclusion of EPs will be tracked to get a comprehensive understanding of the situation regarding EPs.

Table 2. Overview of the categorical dimensions of environmental provisions in PTAs.

CATEGORIES	*DESCRIPTION*
Environmental protection	Provisions that can be clearly assigned an environmental protection purpose
Regulatory space	Provisions that more or less explicitly deal with preserving countries' regulatory space related to the environment
Level playing field	Provisions that help to establish a level playing field between the parties. Provisions implicitly address (i) the fear of some developed countries that lower environmental standards in other countries create a comparative advantage and encourage trade and investment flows to their detriment and (ii) the fear of some developing countries that developed countries use higher environmental measures as protectionist instruments.
Policy coherence	Provisions that specify the relationship between the environment and trade and investment rules as well as the interaction between the environment and more specific issue areas
Development	Provisions that take into account the role of economic development
Multilateral environmental agreements	Provisions that aim at reinforcing and expanding international environmental commitments.
Implementation	Provisions that specify how the agreement, and more precisely its environmental content, will be implemented
Enforcement	Provisions that regulate the enforcement of environmental regulations stipulated in the trade agreement as well as domestic environmental measures

Note. Adapted from "TREND analytics - Environmental Provisions in Preferential Trade Agreements" by Berger, Brandi, Bruhn & Morin, 2017, German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn, Germany, and Université Laval, Canada.

4.1.3. Independent variables

The variety between the countries, PTAs and years is such that a causal relation between the design of EU and US PTAs and the design of China's PTAs cannot easily be established. One must control for a spurious effect and try to limit the risk of other causal factors influencing the relationship between the dependent and independent variables (Gschwend & Schimmelfennig, 2007). To control for variables relating to a variety in trading partner countries, this thesis will thus look at the occurrence of diffusion by comparing the PTA designs of the three markets with the same trading partner country. It is necessary to select a trading partner country that has signed a PTA with the EU and the US before a PTA with China. As can be seen in Appendix Table 1, the only possible country that qualifies is Chile. Appendix Table 2 shows that besides Chile, all three of the trade markets have signed a PTA with Singapore and Peru as well, but for those countries the PTAs with China were signed before the PTAs with the EU which makes it impossible to check for diffusion towards Chinese PTAs. Chile signed a PTA with the EU in 2002, with the US in 2003 and with China in 2005 (Berger, Brandi, Bruhn & Morin, 2017). Therefore, negotiations with China happened shortly after the trade agreements with the EU and the US were conducted, which provided the perfect context for diffusion to happen because global external factors remained relatively similar.

The advantage of small-N research is that it enables in-depth research. For the case of Chile, the analysis for diffusion will zoom in at an even lower level than the EPs categories mentioned in table 2. TREND provides subcategories per category about what the EPs relate to in a more specific manner. For example, an environmental protection EP can relate to waste management, renewable energy or preservation of natural parks. Those subcategories thus translate the text of the PTA into comparable components and allow for an even more specific analysis on diffusion.

4.2 PTA compliance

The analysis of the design of China's PTAs provides insight into what kind of reaction can be observed from the trading partner, so the logical next step is to check whether this corresponds with reality. Thus, the goal of the analysis of this subsection is to analyse whether a trading partner country, in this case Pakistan, complies with the EPs in a PTA signed with China, which is summarized by the second sub question:

> **SQ2**: Does Pakistan improve its environmental situation based on the EPs in the 2006 China-Pakistan PTA?

4.2.1 Methodology

The most influential and accurate research on compliance with EPs in PTAs to date is performed by Bastiaens and Postnikov (2017). They use a sample of 79 developing countries to research whether EU and US trading partners comply with the provisions, a sample size this thesis cannot match to due to the lack of Chinese PTAs. This limited availability of data calls for the approach of co-variational analysis (COV); 'this methodological approach presents empirical evidence of the existence of co-variation between an independent variable (X) and a dependent variable (Y) to infer causality' (Blatter & Haverland, 2012, p. 33). This type of research is called X-centred and is typically led by an interest in whether certain factors of social reality produce an effect in social reality as well, an interest that is answered by the COV approach through systematic comparison of the variation in the independent variables with the variation of potential effects, the dependent variable (Mahoney & Goertz, 2006).

4.2.2. Independent variable

Within the COV approach, the strength of the claim that the independent variable caused the change in the dependent variable is determined by the selection of the cases (Blatter & Haverland, 2012). It is therefore important that the selection process does not happen randomly, but that one consciously chooses the cases to the effect that the independent variable is different, but other control variables remain as stable as possible. The first step is to decide upon the comparison method, out of the two options within COV: spatial and temporal comparison. Spatial comparison, within cross-sectional designs, compares variation across cases within the same time period, while temporal comparison compares the situation before and after a change in the independent variable (Blatter & Haverland, 2012).

The X-variable in this instance is the ratification of a PTA with EPs. The ratification of a PTA with EPs is a clear and easily identifiable event, which lends itself perfectly for intertemporal comparison. The advantage of using intertemporal comparison over cross-sectional is that by comparing situations shortly before and after the change of the independent variable, other non-relevant variables are more likely to remain the same during the timeframe and thus do not influence the outcome (Blatter & Haverland, 2012). Therefore, comparing the environmental situation of the same country before and after it has signed a PTA is the best way to isolate the effect of the trade agreement, because other variables such as economic development, political situation and societal awareness have not changed significantly.

To be able to measure the compliance with the EPs, the case under analysis needs to fulfil the following criteria. First of all, only bilaterally signed PTAs are suitable in order to capture the direct link between China and the trading partner country, meaning the agreements with the Association of Southeast Asian Nations and the Asia Pacific Trade Agreement are not suitable for assessing the compliance with Chinese PTAs. Second, the PTA needs to include a considerable number of EPs to be able to make a difference in the environmental situation of the trading partner country, meaning that just one or two EPs will not suffice. Third, the trading partner country must be less economically developed than China. This is important for the assumption that China sets the standards in the PTA and the trading partner country has strong incentives to agree with those standards, because access to the Chinese market is of utmost importance for the trading partner. The last, and most important, is the condition that the country has signed a PTA with China, but not with the EU or the US. Appendix Table 2 presents all the PTAs signed by China until 2017, including the number of EPs each agreement contains and an indication of whether the participant(s) has/have signed – other than with China – a PTA with the EU and/or the US as well. Taking all the criteria into consideration leaves one case: the 2006 China-Pakistan PTA.

With Pakistan as subject the analysis will start with a brief outline of the China-Pakistan PTA, the relation between the two countries and relevant information about Pakistan. Hypotheses four to seven, which are 4) a *trading partner complies with the environmental provisions of a PTA signed with China when it is a less-powerful country than China*; 5) a *trading partner complies with the environmental provisions of a PTA signed with China when it is member of the same IOs*; 6) a *trading partner complies with the environmental provisions of a PTA signed with China when it is a democratic country*; and 7) a *trading partner complies with the environmental provisions of a PTA signed with China when it is less-environmentally friendly than China*, can be specified with the information of the outline and together with hypothesis 8) *compliance with the environmental provisions in China's PTAs will happen ex ante*, they stipulate the expectations for the analysis. The factors of social reality that need to produce the effect in social reality according to the COV approach are in this instance the EPs included in the China-Pakistan PTA. Therefore, the analysis will also provide a detailed description of the included EPs after the expectations are set.

4.2.3. Dependent variable

The dependent variable, the Y, of this subsection corresponds to the Y in the research of Bastiaens and Postnikov (2017) – the implementation of environmentally sustainable

policies – but is extended to behavioural changes regarding the environment from societal actors as well. It is thus the positive change in behaviour from Pakistan regarding the environment. This dependent variable covers regulated compliance such as newly installed regulation, but also non-regulated human behaviour that has been inspired by the PTA. As a subjective concept, there is a high risk of measurement error. A commonly used method to limit the measurement error in small–N research is data triangulation, which means 'that multiple sources or data types are used to measure the same concept for a single unit' (Leuffen, Shikano & Walter, 2012, p. 41). By applying data triangulation, one can correct for the risk of measurement errors, caused by, for example, systematic bias that often occurs in interviews. Thus, 'the possibility of the intensive study of cases allows for a careful, context specific operationalization and makes measurement error unlikely' (Blatter & Haverland, 2012, p. 68). With just one case to focus on, this analysis is perfectly suitable for data triangulation using multiple data sources as summarized in Table 3.

The first step to checking whether the environment has improved in line with the EPs is to analyse wide-ranging databases containing global information regarding various environmental concepts in countries around the world. One of those is the Environmental Performance Index (EPI), set up by joint effort of the Yale University and Colombia University and used to evaluate the performance of a country's environmental policy. The EPI is an aggregation of "environmental health" and "ecosystem vitality", which are subdivided into nine issue categories (see Appendix Figure 1). Weighted indicators provide scores for each of these categories using a "proximity-to-target" methodology which assesses how close a country is to a policy target set by international or national policy goals or scientific thresholds (Hsu et al., 2014). Those scores are then calculated to one EPI value between 0 – 100, with 0 being farthest from the target and 100 being closest. The dataset available covers the EPI from 2002 till 2012. With the PTA being signed in 2006, this offers the opportunity to check both *ex post* as *ex ante* environmental changes and therefore this timeframe is also maintained for the other data sources. Other databases that will be reviewed are the World Bank Indicators for data regarding emission output and the International Environmental Agreements database for information about MEAs in which Pakistan participates. To also consider environmental action undertaken by civil society, the analysis will include the list of accredited organizations from the United Nations Environment Programme (UNEP). This list provides a separate heading for NGOs and is the only official list of existing Pakistani environmental NGOs available. Additionally, the list only includes 'major groups and stakeholders' meaning organizations that are expected

to have a significant impact on the environment and omits NGOs that are too small to have a visible effect on the environmental status of the entire country (UNEP, 2018).

The next data sources are governmental sources. As a parliamentary country, the legislative powers in Pakistan are in the hands of two houses: the National Assembly (NA) and the Senate. Besides setting up the country's legislation, the two houses also check and oversee the executive power (National Assembly of Pakistan, 2018a). Consequently, the ministers are required to explain their policy choices to the houses, and the members of both the NA and the Senate are free to ask questions about the executed policy. Thus, the *National Assembly debates* and the *questions/answers* of the Senate are the most extensive sources of information to analyse whether any discussions have taken place in the government based on the EPs in the China-Pakistan PTA. However, the *questions/answers* documents from the Senate are not available before 2009, therefore only the *National Assembly debates* are examined. This is not considered a hindrance for the analysis because the NA is the larger of both houses, meaning that discussion is more likely to occur, and the NA has a slight power advantage over the Senate because it has exclusive legislative rights on money matters (National Assembly of Pakistan, 2018a).

The available data in the documents is extensive. Therefore, to narrow down the scope of the analysis, it only includes questions related to either of the two concepts: (international) trade and environment. Regarding the concept of trade, only those questions that inquire into international trade in general, trade agreements or bilateral trade with China are counted. Questions about trade in specific product groups or bilateral trade with any other country than China are left out. For the concept 'environment' the included questions revolve around environmental policies implemented by the government, environmental actions undertaken by the government and polluting practices within the country.

Due to the specificity of the required information, two experts are also consulted for their opinion about the effects of the EPs. Prof. Dr. Muhammad Irfan Khan is specialized in Environmental Governance and works at the International Islamic University in Islamabad and Mrs. Khadija Amir is a lecturer in Environmental Sciences at the National University of Sciences and Technology (NUST) in Islamabad (International Islamic University, 2018; NUST, 2017).

Table 3. Data triangulation.

GOVERNMENT SOURCES	***DATABASES***	***EXPERT OPINIONS***
• National Assembly • Reports	• Environmental Performance Indicators • World Development Indicators • International Environmental Agreements • Accredited NGOs by UNEP	• Prof. Dr. Muhammad Irfan Khan • Mrs. Khadija Amir

4.2.4. Control group

The disadvantage of merely having one country to analyse is the threat of omitted variable bias. This is the case when variables that have explanatory power towards the dependent variable are left out of the analysis, causing the relationship between the dependent and independent variables to become spurious (Blatter & Haverland, 2012). The comparison of Pakistan is intertemporal and within a relatively short timeframe, meaning that the context within Pakistan before and after the conduction of the PTA with China remains as similar as possible. However, as a control group and to back up the findings, this thesis also analyses the overall environmental situation of Bangladesh for the extensive database sources. The ideal control group would consist of a case identical to the case under analysis with the exception of the independent variable, which in this case is the conclusion of a PTA with EPs with China. Since a country that is exactly identical to Pakistan is impossible to find, the closest one can get is Bangladesh due to its historical connection and similar cultural, political and economic traits.

Bangladesh, formerly known as East-Pakistan, became an independent country in 1971 (Shukla, 2015). Before their independence, it was part of Pakistan and, as such, the two countries are similar in many cultural and social aspects. The two countries, together with India, share a 'geographical region, cultural affinity and language familiarity' due to their shared history (Ahmed & Shabbir, 2014). Whereas India's economy is among the largest in the world and not comparable to either Pakistan's or Bangladesh's, the latter two are more similar in size, both geographically and economically. Moreover, Bangladesh has not signed a bilateral trade agreement and thus is the most suitable country to serve as control group. If the environmental situation in Bangladesh has developed in similar

manner to the Pakistani environmental situation without a PTA including EPs, it is expected that the relationship between a change in environmental behaviour in Pakistan and the PTA with EPs conducted with China is spurious.

4.3 Validity

The number of EPs in the PTAs signed by China to date is limited, which makes it hard to perform large-N designs of research to test their effectiveness, where N is the number of cases – EPs – available. Therefore, small-N research is necessary. 'Small-N research potentially leads to very precise causal stories for one or a few cases at the expense of generality' (Gschwend & Schimmelfennig, 2007, p. 11). Indeed, the findings of both sections can hardly be expanded to other cases. If diffusion from the EU/US design into the Chinese PTA design has happened in the cases of Chile, it does not confirm anything for PTAs signed with other countries. The same goes for possible Pakistani compliance. However, small sample research was the only opportunity to extend the existing body of PTA research into the new area of emerging economies and generate new assumptions for future research.

Even though small-N research is characterized by low external validity, the operationalization of variables is more valid than is typically the case for large-N research (Blatter & Haverland, 2012). The advantage of the methodology used in this thesis is the in-depth focus on the cases at hand and the high degree of contextual specificity. Variables do not necessarily need to be operationalized quantitatively and can be analysed individually, creating a high degree of concept validity. However, the risk of omitted variable bias still affects the validity. Diffusion theory has not been used in combination with PTA design, thus the causal relationships assumed in this research have not been tested before, thereby negatively impacting the internal validity. The same goes for hypotheses four to seven, as only the relationship stated in hypothesis eight has been applied in PTA research before. However, the PTA compliance analysis part uses the methodology of data triangulation, which is, as mentioned before, particularly useful for the intensive study of a few number of cases and is characterized by high concept validity.

5. Analysis

5.1 PTA Design

This section covers the analysis for the first sub question and focusses on the diffusion of PTA design regarding the EPs from the US and EU PTAs into the Chinese PTAs. First, the three trade markets will be discussed briefly and separately to provide context. With the information in the country profiles and the hypotheses formulated in chapter three, the expectations for the analysis are set and then they are tested by looking at the inclusion of EPs in general and more specifically at the PTAs they all signed with Chile.

5.1.1. Country profiles

5.1.1.1. European Union

The EU has a globally and academically recognized position as a global power in trade, using access to its huge market as a bargaining chip to inspire changes in the domestic policies of trade countries in issue areas other than trade (Meunier, 2005; Meunier & Nicolaïdis, 2006). Indeed, it is stated on the website of the European Council that 'one of the most important aspects of EU's trade policy is - alongside protecting European businesses and consumers - promoting the EU's principles and values' (European Council, 2017, para. 1). In 2006, the EU launched the Global Strategy, in which it recognized that the preferred way to liberalize trade is multilaterally – through the WTO. However, the use of PTAs allows for the extension of international rules by, among other things, tackling issues that are not ready for multilateral discussion (European Commission, 2006). The Global Strategy streamlined the approaches towards PTAs and connected the EPs to MEAs, thus using multilateral environmental standards as benchmark requirements (Jinnah & Morgera, 2013).

Up to 2017, the EU[1] has signed a total of 202 PTAs, including an average of 15 EPs per agreement, with the first one being the France Tunisia Customs Union Convention in 1955 (Berger, Brandi, Bruhn & Morin, 2017). According to Article 207 of the Treaty on the Functioning of the European Union (TFEU), the exclusive competence of the Common Commercial Policy is fully assigned to the EU, meaning that the Commission can initiate and negotiate the PTAs on behalf of all its members (Hix & Høyland, 2011; European Union, 2016). Ultimately, this means that the responsibility of negotiating trade agreements comes down to the Commissioner of the Directorate-General (DG) Trade, a position currently held by Cecilia Malmström (European Commission, n.d.).

[1] The EU includes PTAs signed by the current EU, its predecessors and individual member countries.

In the international environmental regime, the EU, as non-state actor, is fully recognized as an important negotiation partner. The environmental competences of the EU, however, are mixed-competences meaning that the member states still have a say in European action (Delreux, 2012). Therefore, the Commission does not automatically have the power of negotiation and it is often the rotating presidency of the European Council that represents the EU during multilateral environmental negotiations. Many member states agree upon the leading role that the EU has taken during those negotiations, thereby qualifying the EU as the leader in international environmental politics after it took the place from the US in the mid-1980s (Kelemen & Vogel, 2010; Scheurs & Tiberghien, 2007; Zito, 2005). This role got strengthened by the US' refusal to sign the Kyoto protocol and the EU's pioneering climate efforts with their Emissions Trading Scheme (Fischer & Geden, 2015). However, the EU's frontrunner position got undermined by the Copenhagen failure, after which mostly the Eastern European member states refused to take hard climate measures when other countries outside the EU refused to take on binding emission reductions (Fisher & Geden, 2015). Nonetheless, after some adjustments to its strategy, the EU took on the role as "leadiator" during the 2015 Paris negotiations and thereby managed, as a bridge- and coalition-builder, to realize its policy objectives to a greater extent than expected (Oberthür & Groen, 2017).

5.1.1.2. United States

The US has started, compared to the EU, relatively late with the use of PTAs to extend its trade power. Its first PTA was an agreement with Canada in 1965 and its most famous one is NAFTA, concluded in 1994, which was also the first to include an entire environmental chapter. However, the real upsurge of US PTAs happened after the enactment of the Trade Promotion Authority in 2002 (Cooper, 2014). The trade act granted fast-track authority to the US President, meaning he could speed up the negotiations and signing of trade agreements, but it also requires all PTAs to include enforceable environmental provisions for them to be ratified by the US Congress (Bastiaens & Postnikov, 2017). This trade act ended in 2007, but in the same year President Bush reached a bipartisan trade deal with the Democrats (Weisman, 2007). This deal extended the scope of the EPs by mandating the US trade negotiators to demand trading partner countries to 'not only enforce their domestic environmental laws but also comply with signed MEAs for successful passage through Congress' and by enforcing all EPs in the same way as the commercial provisions in the agreements (Bastiaens & Postnikov, 2017, p. 4; Office of the United States Trade Representative, 2007).

The US has signed 22 PTAs with environmental provisions and included an average of 60 EPs per agreement (Berger, Brandi, Bruhn & Morin, 2017). Negotiations about the PTAs are

initiated and led by the Office of the United States Trade Representative but supported by the private sector committee set up by Congress to 'ensure that US trade policy and trade negotiation objectives adequately reflect US commercial and economic interests' (Office of the United States Trade Representative, n.d. - a). The US trade representative is the ultimate person responsible for the negotiations, although Congress does need to ratify all agreements and under President Trump the position is carried by Robert E. Lighthizer (Office of the United States Trade Representative, n.d. - b).

During the first decades of environmental politics, the US took a leadership role during the international environmental treaties negotiations but traded this position with the EU halfway the 1980s (Keleman & Vogel, 2010). Since then, the US took a more market-oriented position and claimed that market forces at the national level should be given a chance to operate to reduce CO2 emissions and therefore the country refused to take on binding emission reductions under the Kyoto protocol (McGuire & Smith, 2008). Under the Bush presidency, the US was reluctant to admit the existence of climate change. Yet, again, a significant position change in US climate governance occurred when President Obama took office in 2009 and he committed the US to a GHG emission reduction of 17% below 2005 levels by 2020 (Mehling & Frenkil, 2013). Even though President Obama appeared more supportive towards the environmental regime, he was still restricted by domestic institutions because he lacked a supportive majority in the Senate (Christoff, 2010). This restriction showed during the Copenhagen conference and was, together with the observation that negotiations were led by a China-US block, an indication for climate negotiations in the years to come. Indeed, this bilateral collaboration got confirmed by the US-China climate deal in 2013, which established a US-China Climate Change Working Group that was meant to foster cooperation and facilitate multilateral negotiations (Cole, 2015; Faiola, Eilperin & Pomfret, 2009). During the 2015 Paris negotiations the US demonstrated its constructive and cooperative stance but had to remain firmly against legally-binding commitments due to the right-wing composition of Congress (Clémençon, 2016, Dimitirov, 2016).

Therefore, even though the US is an active participant in the global trade regime and an advocate of the use of enforceable environmental provisions, its role in the environmental regime remains questionable.

5.1.1.3. China

China's accession to the global market took off with its accession to the WTO in 2002. The integration of China into the global economy opened a market existing of one-fifth of the total global population which, naturally, brought about many new challenges and

opportunities (Golley & Song, 2011). Even though increased competition directly infected neighbouring countries, increased regional integration was an important part of China's foreign policy. This regional integration implied building and maintaining good relations with neighbours and behaving as "a responsible great power" to strengthen its position and serve as a 'platform for broader political alliances and increased leverage in international institutions' (Snyder, 2009, p. 54). In line with this "regional first" strategy, the first PTAs China signed were with Hong Kong and Macao in 2003, followed by a regional PTA with the ASEAN states in 2004 (Berger, Brandi, Bruhn & Morin, 2017). Those first PTAs are characterized by their brevity and focus mainly on conventional WTO fields of trade in goods and services, while WTO-X areas are seemingly less important (Antkiewicz & Whalley, 2004). In total, China has signed 14 PTAs during 2003-2016, which each include 20 Eps on average.

With China's rise in the world economy it soon became clear that the US-China economic relationship is a special one, with the two being by far the largest individual economies, but also a complicated one due to great trade imbalances. Ever since China has opened up, the US experienced a trade deficit with the country that grew to become half of its total world trade deficit (Garrett, 2011). This imbalance has been the cause of many frictions between the two nations and without a solution on the trade matter, it is unlikely that China and the US can agree upon multilateral negotiation matters, which might be one of the reasons for China's passive role during the Doha round negotiations. Even though China gained a lot from its accession to the WTO and pursues a "responsible nation" role, it did not take an active stance in extending the WTO mandate, like India and Brazil did (Snyder, 2009; Woo, 2011).

Responsibility for the launch and the running of PTA negotiations is in the hands of the Ministry of Commerce (MOFCOM) and especially of the office of the International Trade Representative within MOFCOM, which is appointed to Mr. Fu Ziying (MOFCOM, n.d.; Qingjiang, 2012). The MOFCOM is part of the State Council, which is led by the Prime Minister who is the *de facto* trade policy decision-maker. Characteristic of China's trade policy is the "top down" instead of the "bottom up" approach. In contrast to developed countries, there is no formal and open interest group activity in China to influence trade policy, which causes inefficient decision making. Also, because of the lack of domestic interest groups, China's trade policy is highly susceptible to outside pressure, especially from other major economies (Luo & Zhang, 2010).

In the global climate regime, China for a long time held the position of a developing country, which released it from binding GHG emission reduction targets in the Kyoto

protocol (Dimitrov, 2010). However, China's economy grew to be the world's largest polluter in terms of emissions and the expectations were thus high for its role during the Copenhagen Conference; afterwards many accused China of being one of the reasons why the conference failed (Christoff, 2010). The years after the Copenhagen conference, China took a more active stance in the global climate regime with the US-China agreement in 2013 and its cooperative position during the Paris negotiations (Cole, 2015; Gao, 2016).

Table 4 shows additional basic trade statistics for all three trade markets. The data shows that the US is both the largest market in the world and has also signed the most MEAs. China has the largest emissions output, while the EU has signed the most PTAs. Concerning trade relations, the US imports most from China, while China's biggest import partner is the EU.

Table 4. Trade and environmental statistics.

Trade and Environmental statistics	***European Union***	***United States***	***China***
Market Size (GDP)*	$16.491 trillion	$18.624 trillion	$11.199 trillion
Total Exports *	$7.254 trillion	$2.214 trillion	$2.199 trillion
Total Imports*	$6.688 trillion	$2.735 trillion	$1.950 trillion
Trade with China**			
- **Imports**	$496.24 billion	$526.19 billion	-
- **Exports**	$221.22 billion	$130.37 billion	-
- **Balance**	-$275.01 billion	-$395.82 billion	-
Number of PTAs***	202	22	14
Number of MEAs******	118	147	91
CO2 Emission output*	3.241m kt	5.254m kt	10.291m kt
CO2 Emission output per capita*	6.4 metric tons	16.5 metric tons per capita	7.5 metric tons per capita

* Source: World Development Indicators (2018). The amounts are in 2016 current US$; imports and exports data comprise both goods and services; the emissions data is from 2014.
** Source: International Trade Center (2018). The data covers trade in goods statistics from 2017.
*** Source: "TREND analytics - Environmental Provisions in Preferential Trade Agreements" by Berger, Brandi, Bruhn & Morin, 2017, German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn, Germany, and Université Laval, Canada. Only PTAs which include environmental provisions.
**** Source: "International Environmental Agreements (IEA) Database Project" by Mitchell, 2018. The number reflects the membership status "ratification, accession, succession, or similar", because for MEAs ratification is needed in most cases before the agreement can enter into force and it also includes agreements to which the actor becomes a party that are already negotiated/signed by others.

5.1.1.4. Expectations

Whether diffusion is more likely to happen from the EU or from the US towards China is predicted by the hypotheses formulated in chapter 3. The first hypothesis states that diffusion happens between China and its largest trading partner, which is, according to Table 4, the US. The EU is China's biggest import trading partner, but the US the biggest export trading partner. Whereas importing causes money to flow out of the country, exporting causes inflows of money and therefore the largest export partner is more important than the largest import partner for China. Thus, the first hypothesis implies that China, through the competition mechanism of diffusion theory, takes the US PTAs as an example.

The second hypothesis specifies that diffusion is most likely to happen from the most effective design due to learning mechanisms. The provisions of both the EU and the US have proven to be effective, although the effectiveness and the timing of the effects is connected to the design of the PTAs (Bastiaens & Postnikov, 2017). The effect on the environmental situation in trading partner countries of the EU has proven to show *ex post*, because, due to its soft approach, the EU triggers environmental improvements over time through dialogue. The US PTAs cause *ex ante* improvements due to its hard approach by including strict implementation requirements which are enforced through sanctions. It must be noted that the EU has the benefits of its reputation in this regard. The country profile explains that the EU has a name as a "power through trade" and as the leader in the environmental regime. Moreover, out of the three largest markets it has the lowest emissions output (Table 4). Therefore, the EU has the validity to inspire environmental improvements through dialogue. China, on the other hand, has world's largest emissions output and has only recently become active in the environmental regime. Therefore, it lacks the validity and leverage to use dialogue and for China's context the US design will thus be most effective. This means that also according to hypothesis 2, diffusion most likely happens from the US towards China.

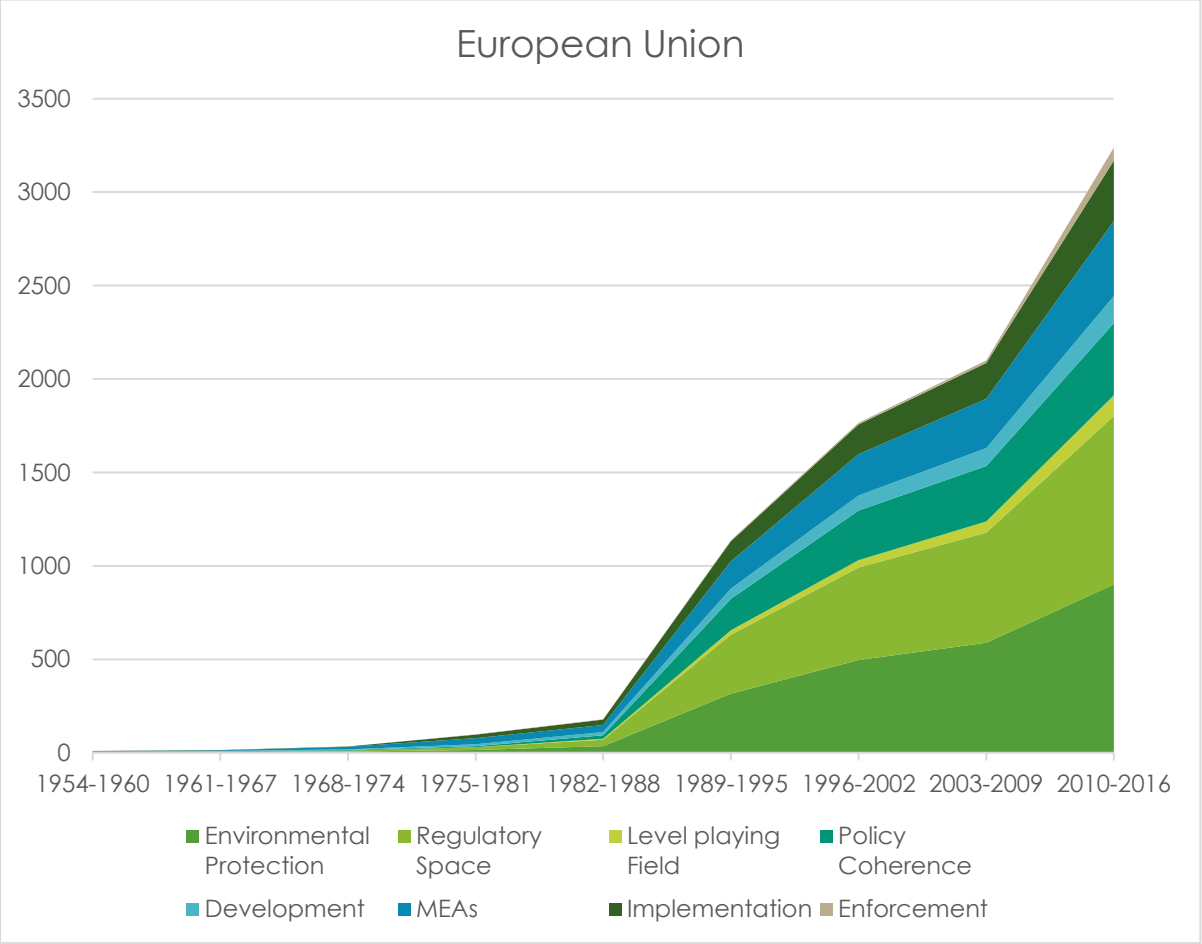
Hypothesis three stipulates that the design of EPs in the PTAs is presumed to diffuse from the most renowned environmental actor on the global stage. As mentioned before and explained in the country profiles, the EU has had the leadership role in the climate regime since the 1980s and is still the most progressive actor when it comes to multilateral commitments. Accordingly, hypothesis three expects diffusion to happen from the EU towards China.

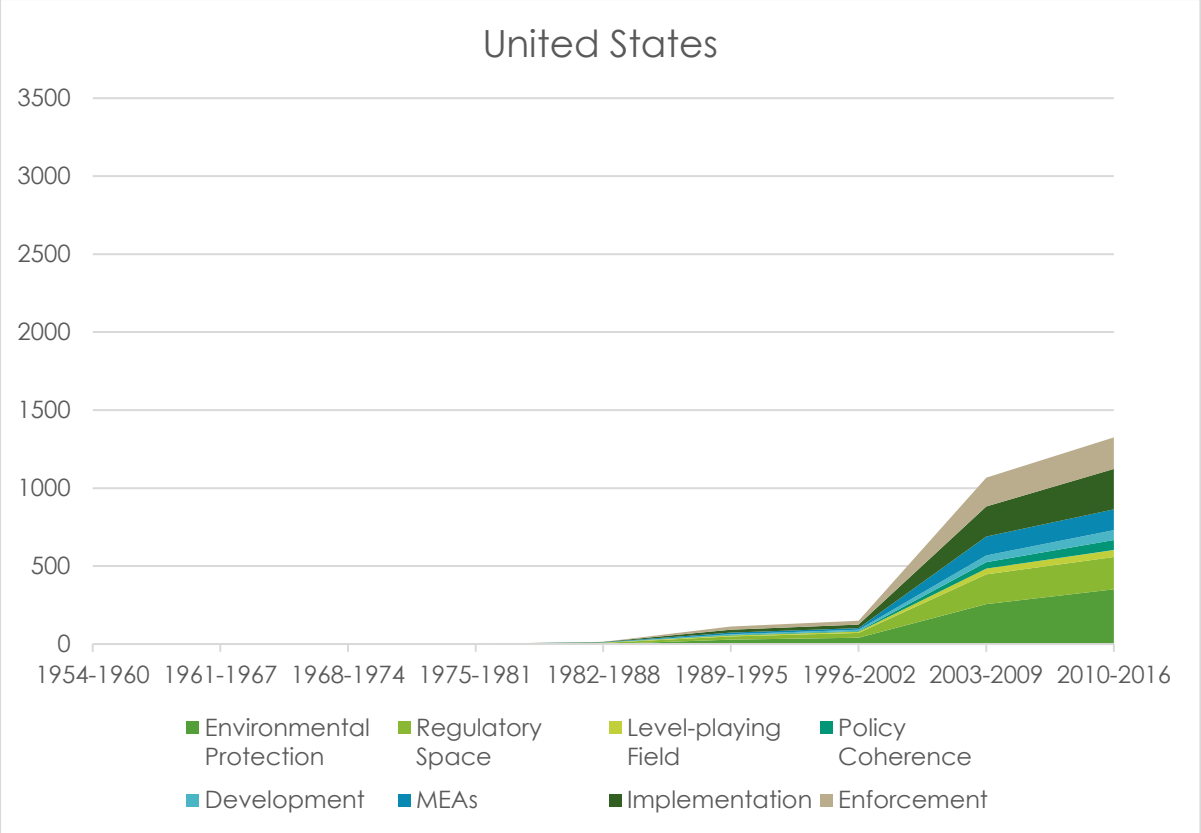
5.1.2. Environmental Provisions

Before turning to the direct comparison of the EPs in the PTAs that the three trade markets have signed with Chile, the analysis will first consider the overall inclusion of EPs by the three actors. To get a grip on the type of EPs commonly used by each of the markets, Figure 4 shows how often each of the categories of EPs recognized by the TREND database is used cumulatively per seven-year time-period. The tables containing the numerical data can be found in the appendix (see Appendix Table 3).

Whereas the EU started with the trend to include EPs in PTAs in the 1982-1988 period, the US followed about 15 years later. For both trade markets, provisions regarding *environmental protection* and *regulatory space* have composed the largest proportion of provisions in recent PTAs. The category *environmental protection* is the category most directly related to climate change action - note that all categories relate to environmental provisions, although their names might create confusion (see Table 3 in chapter 4) - which conforms with the trend indicated by the literature that the PTAs have become deeper in the past decades. Whereas the EPs in the early PTAs mostly referred to *regulatory space* and *MEAs*, which are relatively mild EPs that do not require much immediate environmental effort from the trading partner countries, the latter PTAs included more and more EPs that not only required, but also enforced environmental improvements. The largest difference between the EU and the US is the use of EPs regarding *implementation* and *enforcement*; the EU only included a few *enforcement* EPs in the most recent PTAs and the number of *implementation* EPs is also relatively small. The US on the other hand has included *enforcement* EPs from the 1980s onwards and the category *implementation* is their second most included category.

Figure 4. Use of EP categories for the EU and the US.

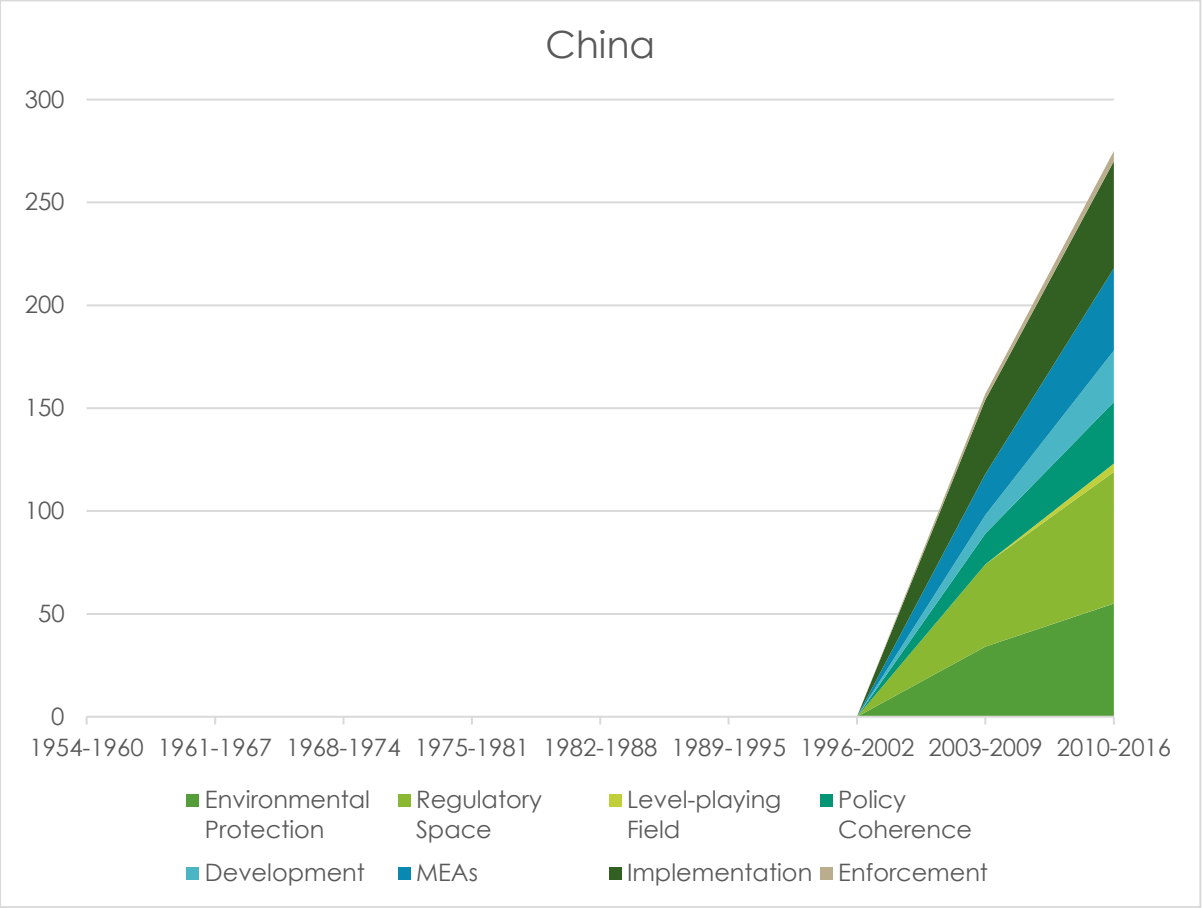




Note. Adapted from "TREND analytics - Environmental Provisions in Preferential Trade Agreements" by Berger, Brandi, Bruhn & Morin, 2017, German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn, Germany, and Université Laval, Canada.

Figure 5 shows the cumulative use of EPs for China. The category *regulatory space* is the most included category which is not surprising because that category stipulates arrangements for the regulatory authority the trading partners have regarding the environment, which was beneficial for China to maintain, especially in the early 2000s when China was still focusing more on developing economically than environmentally. The data also shows that EPs in the categories *enforcement* and *level playing field* have barely been added to PTAs by China, but that the country did include *environmental protection* EPs from its first PTA onwards.

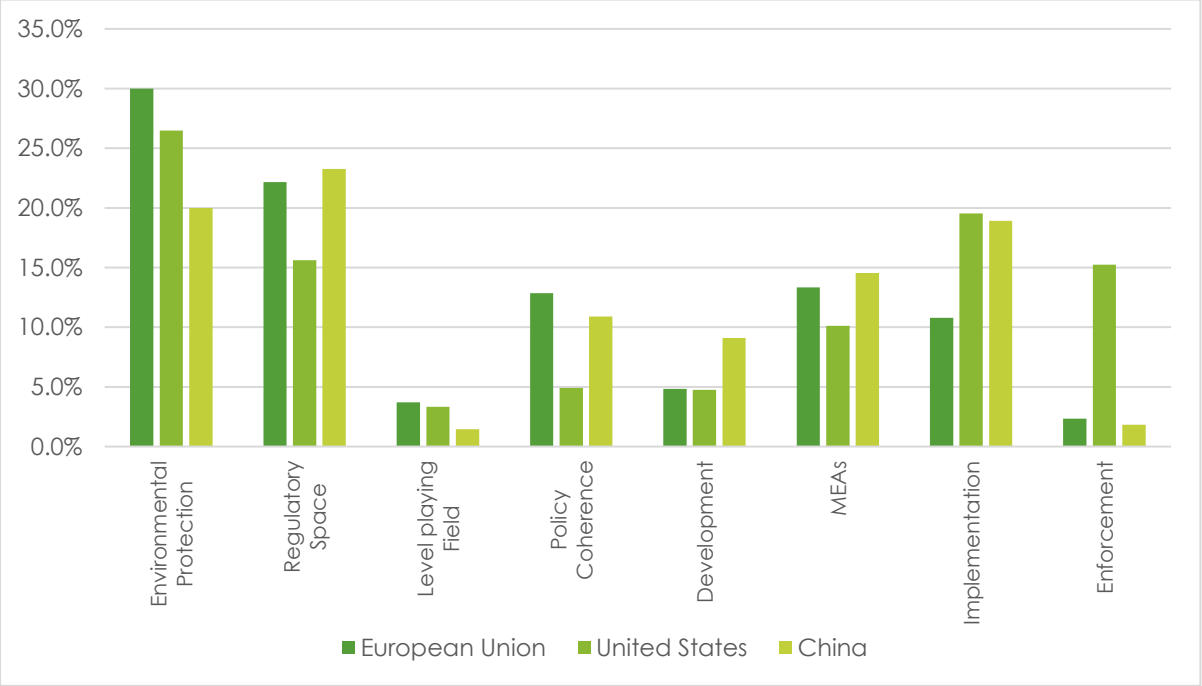
Figure 5. Use of EP categories for China.



Note. Adapted from "TREND analytics - Environmental Provisions in Preferential Trade Agreements" by Berger, Brandi, Bruhn & Morin, 2017, German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn, Germany, and Université Laval, Canada.

The overall composition of the EPs in the PTAs of China does not seem to follow a specific EU or US design, based on the percentages of EP category inclusion, depicted in Figure 6. It does not emphasize *environmental protection* just as much as the other two markets do, but that could still grow since both the EU and the US also included that category increasingly in subsequent PTAs (see Figure 4). China does match the US design with the inclusion of *implementation* EPs, but its lack of *enforcement* EPs is in line with the EU design. These observations could indicate differences in preferences or could be due to different circumstances. To gain a better insight, the next section will directly compare the PTAs of the three markets with the same trading partner country: Chile.

Figure 6. Inclusion percentages for each EP category.



Note. Adapted from "TREND analytics - Environmental Provisions in Preferential Trade Agreements" by Berger, Brandi, Bruhn & Morin, 2017, German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn, Germany, and Université Laval, Canada.

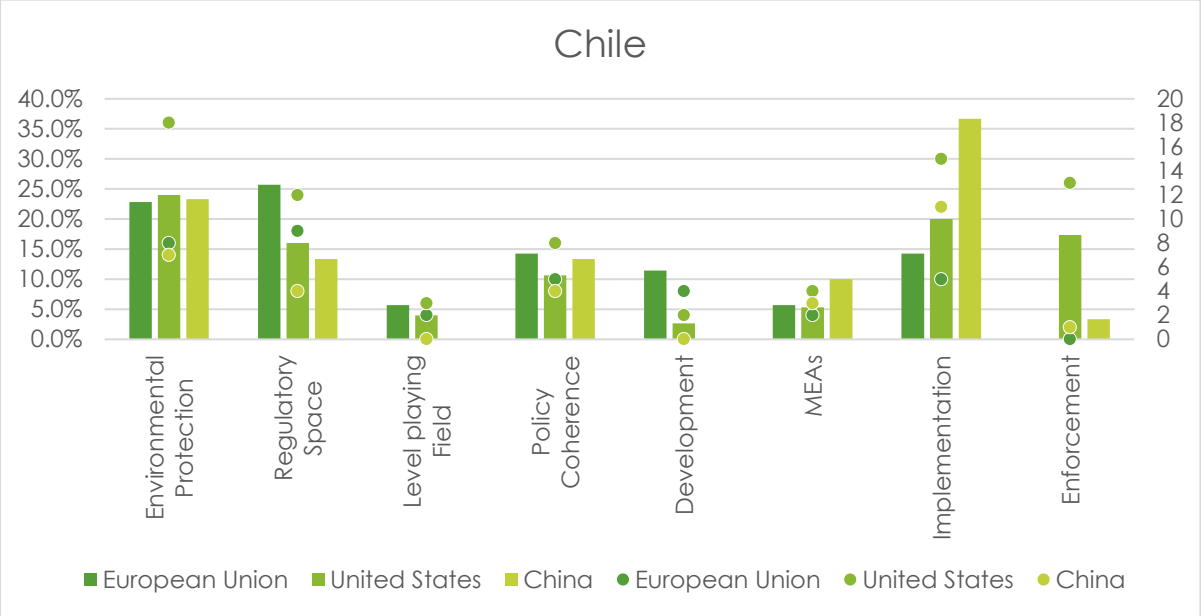
5.1.3. Chile PTAs

To overcome a spurious relationship as much as possible, this section compares the PTAs of all three areas with Chile, so the variables regarding the trading partner country remain equal. The frequency of EP categories included in the PTAs is depicted in Figure 7 (note that the columns represent percentages while the dots represent absolute numbers). The percentages do not differ substantially from the percentages in Figure 6 but compared to the other trade markets China does put an emphasis on *implementation* EPs, the US stands out due to the number of *enforcement* EPs and the EU has a relatively large number of *development* EPs.

The PTA of Chile with the US, concluded in 2003 includes a total of 75 EPs, while the PTA of the EU with Chile, signed in 2002, includes 35, and there were 30 Eps between Chile and China in 2005. It is outside the scope of this research to analyse why the Chile-China PTA includes the least number of EPs, but as it is the latest trading partner of the three trade markets to sign the least extensive PTA with Chile, China has had ample opportunities to choose provisions from the other two markets. The expectations at the beginning of this chapter point out that EPs from the US are most likely to diffuse to China, and since the US has included more EPs than China for each individual category, China could have, in theory, easily exploited the situation and copied its EPs from the US rather than innovate

new ones. This would be in line with the findings of Milewicz et al. (2016) who conclude that countries are more likely to add NTIs when other countries have included those already because it is cheaper to copy NTIs than to come up with new ones. To check whether this has happened in practice, the analysis will zoom in on an even lower level than the EP categories: the subcategories as indicated by TREND.

Figure 7. Frequency of EP category inclusion in PTAs with Chile.



*The dots represent the absolute number of EPs in the PTAs.

Note. Adapted from "TREND analytics - Environmental Provisions in Preferential Trade Agreements" by Berger, Brandi, Bruhn & Morin, 2017, German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn, Germany, and Université Laval, Canada.

Table 5 shows, per category, the number of EP subcategories in the Chile-China PTA and how many of these are also included in either one or both of the Chile-EU and/or Chile-US PTAs. The exact subcategories are written out in Appendix Table 4. As depicted, out of the 30 EPs included in the Chile-China PTA, 14 are also included in the Chile-EU PTA and 25 in the Chile-US PTA. Thus, the influence of the Chile-US PTA is most evident. Especially because in none of the cases has China used an EP from the Chile-EU PTA that has not been included in the Chile-US PTA. One has to consider that the Chile-US PTA was signed after the Chile-EU PTA, so it is possible that there has already been a certain degree of diffusion from the EU's to the US' PTA with Chile. Table 4 in the appendix shows that out of the 35 European EPs, 26 have been incorporated into the American PTA as well. This means that out of the 11 EPs that were only part of Chile-EU, none has been implemented in the Chinese PTA, while out of the 49 only-American EPs, 11 have been added to Chile-

China. Thus, the Chile-US PTA has a higher degree of diffusion towards Chile-China than the Chile-EU PTA.

Table 5. Diffusion of EPs in the Chile-China PTA.

Category	Number of EPs	Similar to EU	Similar to US
Environmental protection	7	3	4
Regulatory space	4	4	4
Level playing field	0	0	0
Policy coherence	4	2	4
Development	0	0	0
MEAs	3	1	2
Implementation	11	4	10
Enforcement	1	0	1
Total	*30*	*14*	*25*

Note. Adapted from "TREND analytics - Environmental Provisions in Preferential Trade Agreements" by Berger, Brandi, Bruhn & Morin, 2017, German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn, Germany, and Université Laval, Canada.

When taking a closer look at which subcategories have diffused, and which have not, a few things stand out. Regarding the category *environmental protection,* the four provisions that are included by both China and the US are relatively general provisions, such as a reference to the environment in the preamble, public awareness about the environment, and unspecified voluntary measures. However, the Chile-China PTA includes three provisions in the category that are not included in the other PTAs. Those are "other norms on water", "protection on coastal areas" and "protection of seas and oceans". Since all three of them refer to water/sea, it is likely that China has deliberately chosen to include them, even though the EU and US have not.

When looking at the EPs in the categories *level playing field* and *development* it is no surprise that China has not included them. The EPs refer to preventing protectionism through environmental regulation and capacity building for environmental regulation. Since the difference between China and Chile regarding environmental regulation was not as significant in 2005 as between the US and Chile or the EU and Chile, those provisions were less relevant for the Chile-China PTA.

China has added another provision not included by the other two in the category MEAs: "prevalence of other agreements related to the environment in case of inconsistency".

At the same time, China did not include the provision "negotiations of environmental agreements", which is the only provision in the category that both the EU and the US included while China did not. Since China at that time had not signed any MEA, it is not surprising it did not copy the exact same provision and arguably add another less rigorous provision to still include a reference to MEAs in general.

Out of the fifteen *implementation* EPs that have been included in the Chile-US PTA, ten have been added in the Chile-China PTA. The five provisions that have been left out refer to the conduct of joint research, funding of the implementation of the agreement, publication of environmental regulation, public communication about undertaken action and public participation in the implementation. For a country like China where trade policy is organized in a "top-down" structure without any room for suggestions from societal groups, it is expected to not include any provisions regarding public communication and publication. Also, the PTA includes less directly implementable provisions; they are more general, so a provision about the funding or organization of the implementation is not relevant either. China did add another EP in this category which is not included by either the EU and the US which is the "public participation in the adoption of environmental measures". Again, this EP can be interpreted as a toned-down version of the US EP "public participation in the implementation of the agreement".

5.1.4. Remarks

The analysis shows that there is no indication of straightforward "copy-paste" practices of EPs from either the EU or US by China. This means that all three of the hypotheses are rejected. However, the analysis also finds that the direction of the Chinese EP design points more toward the design of the US than of the EU, which shows mostly through the inclusion of *implementation* EPs by China. So, hypothesis three is completely rejected, but hypotheses one and two are partly true. This means that diffusion can happen through the competition and learning mechanism of diffusion theory, but in the case of the PTA design, it does not show that diffusion happens through the emulation mechanism.

The first sub question of this thesis is about whether diffusion of the EU/US PTAs into the Chinese PTAs happens. The answer is yes, to a certain degree. In the case of Chile – China, the included EPs have been deliberately added by China and have diffused through the competition and learning mechanism. At the same time, it seems that other EPs have been intentionally left out of the PTA. This indicates that China does not include EPs merely because the other major countries do so as well, but that they consciously adopt them.

5.2 PTA Compliance

With a certain degree of diffusion happening from the US PTAs into the Chinese ones, it surmises that trading partner countries are likely to comply with the provisions, because the US has been effective at inspiring environmental improvements in their trading partner countries, and that changes will be implemented *ex ante* (Bastiaens & Postnikov, 2017; Jinnah & Lindsay, 2016). To check whether this corresponds with reality, this section tests this assumption with the 2006 China-Pakistan PTA.

5.2.1. China-Pakistan PTA

On April 5, 2005, China and Pakistan launched the negotiations for a PTA which resulted in a signed agreement on the 24th of November 2006 (ARIC, 2015). The PTA was followed by a PTA for trade in services between the two countries in 2009 (Berger, Brandi, Bruhn & Morin, 2017). Whereas the 2006 PTA included 12 EPs, the 2009 only contains one EP in the category "regulatory space". Therefore, the analysis revolves around the 2006 PTA. Next, an in-depth description of the China-Pakistan relation will be given to set the expectations for the analysis, followed by a description of the EPs included in the PTA.

5.2.1.1. China-Pakistan relation

The fact that Pakistan was among the first trading partners to sign a PTA with China is not surprising; the ties between the two countries go way back. Pakistan was the first Muslim country to formally recognize the People's Republic of China, its national airline was the first to operate a service to and from China, together they constructed the Karakorum Highway in 1972, they established a Pakistan-China joint committee in 1982, and in terms of trade China is the second largest exporter to and largest importer from Pakistan (Kamal & Malik, 2017; Khwaja, Saeed & Urooj, 2018). Furthermore, the countries have also collaborated in the military field. China has long supported the Pakistani military as a buffer against India and has enabled the Pakistan missile project (Cooper & Forney, 2000). Additionally, the two countries share membership to 53 IOs; this means that out of the 62 IOs that Pakistan is member of, 85% is shared membership with China (Central Intelligence Agency, 2018).

On paper, Pakistan has been a democracy since its independence from the United Kingdom in 1947, but in practice the country has experienced a very instable political landscape (Niaz, 2018). Oftentimes, the democratically elected government had been dismissed by the strong military force before the end of the official term, as happened in 1999 (Hashim, 2013; Niaz, 2018). The leader of the military coup of 1999, Mr. Musharraf, won a referendum on his presidency in 2002 and, as such, remained in power until the elections of 2008, during which time President Arif Zardari got elected to become the first

democratically elected leader to remain in position until the next elections in 2013 (Banyan, 2013). Economically speaking, the years under military power were thriving, with an average GDP growth of seven percent (Husain, 2009). The increased trade liberalization of Pakistan has put a considerable pressure on the country's resource base and has significantly increased the country's pollution levels (Azhar, Khalil & Ahmed, 2007). In their study, Azhar, Kahlil & Ahmed (2007) analyse the Pakistani economy and various environmental indicators for the period 1972-2001 and conclude that economic growth has been accompanied by alarming increases in GHG emissions, being in 27th place in the global ranking of largest GHG emitters in 2000.

The contextual description of Pakistan, combined with hypotheses four to eight provided in chapter three, provide for the setting of expectations for the analysis. Hypotheses four to seven state that Pakistan complies with EPs when it is less powerful than China, a member of similar IOs, democratic and less environmentally friendly than China. Since China has supported the Pakistani military and sold missiles to Pakistan for their missile project, China is indeed a more powerful country. With a shared membership in 85% percent of the IOs Pakistan is member of, the countries have enough global "contact moments" for Pakistan to care about its reputation with China. Furthermore, Pakistan is recognized as a democracy. Therefore, hypotheses four, five and six expect that Pakistan complies with the EPs. Hypothesis seven, however, is less clear cut. In the early 2000s Pakistan's environmental situation was problematic due to increased economic activity. However, China struggled with the same issues and was the 2nd biggest GHG emitter at the time (Azhar, Khalil & Ahmed, 2007). So, hypothesis seven does not expect Pakistan to comply. Hypothesis eight specifies that Pakistan is expected to improve its environmental situation before the PTA enters effect. To test this hypothesis and consider data availability, the timeframe of the analysis covers the years 2002 – 2012 for the general databases and 2002 – 2007 for the governmental documents.

5.2.1.2. The environmental provisions

Table 6 provides an overview of the categories and sub categories of the EPs in the 2006 China- Pakistan PTA. The provisions regarding *environmental protection* are two general provisions, with the text in the preamble stating:

> 'recognizing that this Agreement should be implemented with a view toward raising the standard of living, creating new job opportunities, and promoting sustainable development in a manner consistent with environmental protection and conservation' (Pak-China FTA, 2006, p. 1).

According to the preamble, both countries are expected to improve their environmental situation and the EP referring to the WTO Sanitary and Phytosanitary Measures (SPS) Agreement mandates that this improvement is done in line with food safety and animal and plant health regulation (WTO, 1998). However, because Pakistan has been member of the WTO since 1995, the country must already respect the SPS agreement and no change in behaviour based on the PTA is expected regarding SPS measures. The *regulatory space, policy-coherence* and *development* EPs clarify the degree of authority each of the signatories has regarding environmental matters, meaning that each country remains responsible for its own policy. At the same time, with the *implementation* EP, increased cooperation and/or contact between China and Pakistan regarding environmental matters is expected to be seen, while the *MEA* EPs predict a change in Pakistani membership to MEAs.

The next section will start with the analysis of extensive data regarding the environment, where Pakistani data is compared to the control group Bangladesh. Afterwards, the analysis turns into an in-depth, qualitative analysis of policy reports, government documents and expert assessments.

Table 6. EPs in China-Pakistan PTA.

Category	Provision
Environmental protection	Preamble refers to the environment SPS measures and the environment
Regulatory space	Conservation of natural resources as a general exception for trade in goods Right to prepare, elaborate, adopt or apply technical barriers to trade measures related to the environment Right to derogate from the regular adoption procedure of a technical barrier to trade measure in case of emergency General exceptions for trade in goods necessary for the protection of life and health of flora or fauna
Policy coherence	Coherence with domestic trade and/or investment policies
Development	Sovereignty over hydro biological and fishery resources Sovereignty over other specific resources
MEAs	References to other institutions related to the environment Implementation of other agreements related to the environment
Implementation	Provision of information when taking measures to protect the environment

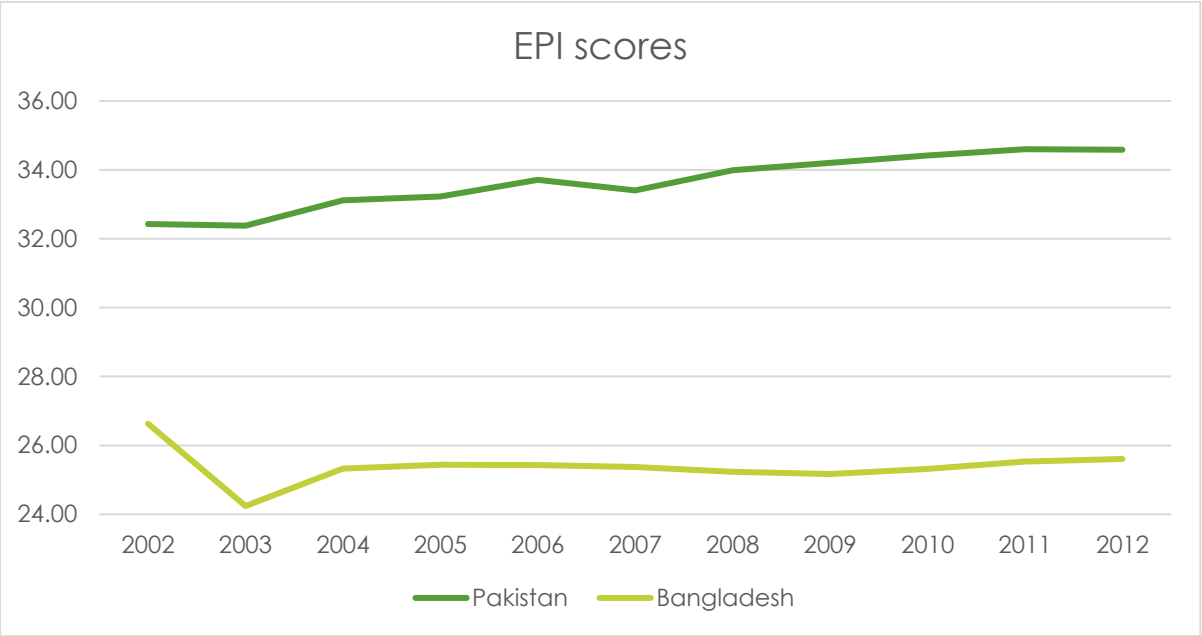
Note. Adapted from "TREND analytics - Environmental Provisions in Preferential Trade Agreements" by Berger, Brandi, Bruhn & Morin, 2017, German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn, Germany, and Université Laval, Canada.

5.2.2. Environmental situation analysis

5.2.2.1. Extensive data analysis

As mentioned before, the most straightforward way to assess improvements in a country's environmental situation is by looking at the development of its EPI score. Figure 8 depicts the trend of EPI scores for the years 2002 -2012 for both Pakistan and Bangladesh. Over the entire time period, the EPI score has roughly increased by two points, meaning that Pakistan got two points closer to its set policy target on a scale of 0 – 100. This seems like a small number, but during the same time the EPI of Bangladesh has decreased by one point, thus relative to Bangladesh, Pakistan has improved its environmental situation.

Figure 8. EPI scores.

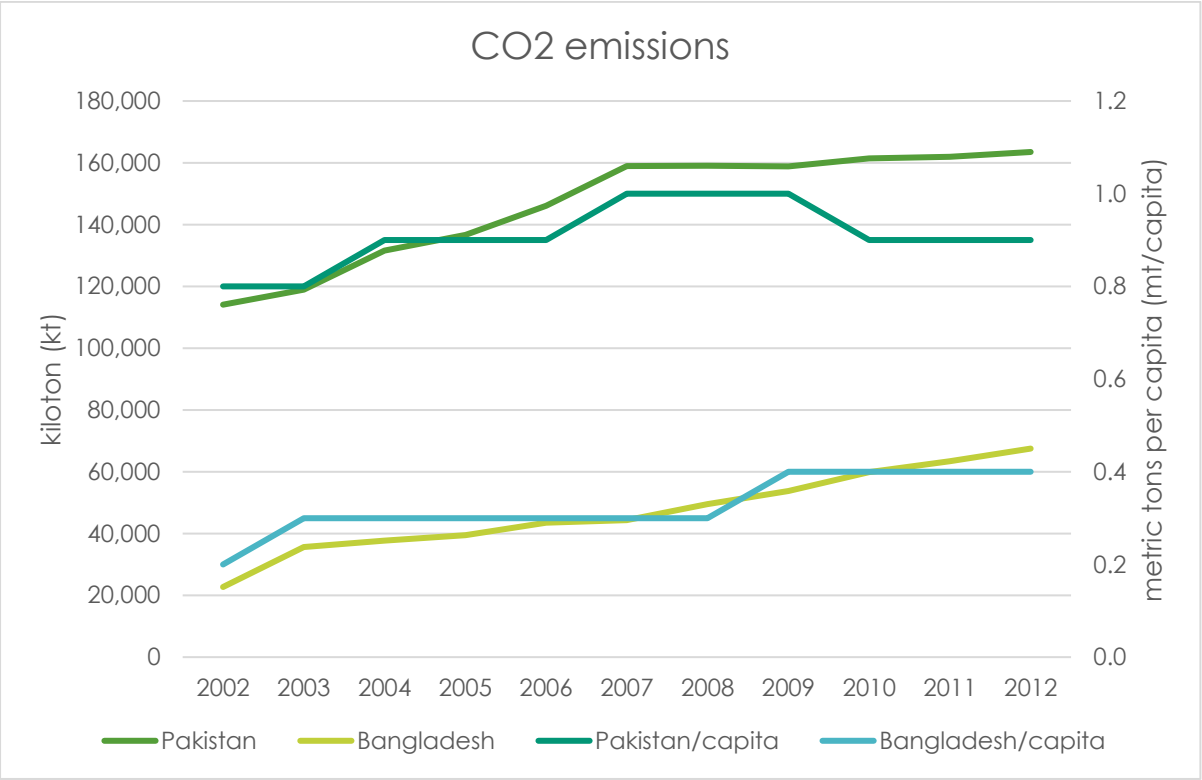


Note. Adapted from "The 2014 environmental performance index" by Hsu et al., 2014, Yale Center for Environmental Law and Policy, New Haven, CT.

Figure 9 depicts the CO2 emission of both countries. Both Pakistan and Bangladesh increased their CO2 output. For Pakistan the data shows a sharp increase from 114,000 kt in 2002 to roughly 159,000 kt in 2007, an increase of 40% in five years. However, from 2007 to 2012, the emission output remains stable, while the emission output per capita even decreases in 2009. Bangladesh's increase in CO2 output is not as sharp as the first five years in Pakistan but does not stabilize either. There is a steady increase from 27,000 kt in 2002 to 67,500 kt in 2012. Also, the output per capita increases slowly but steadily.

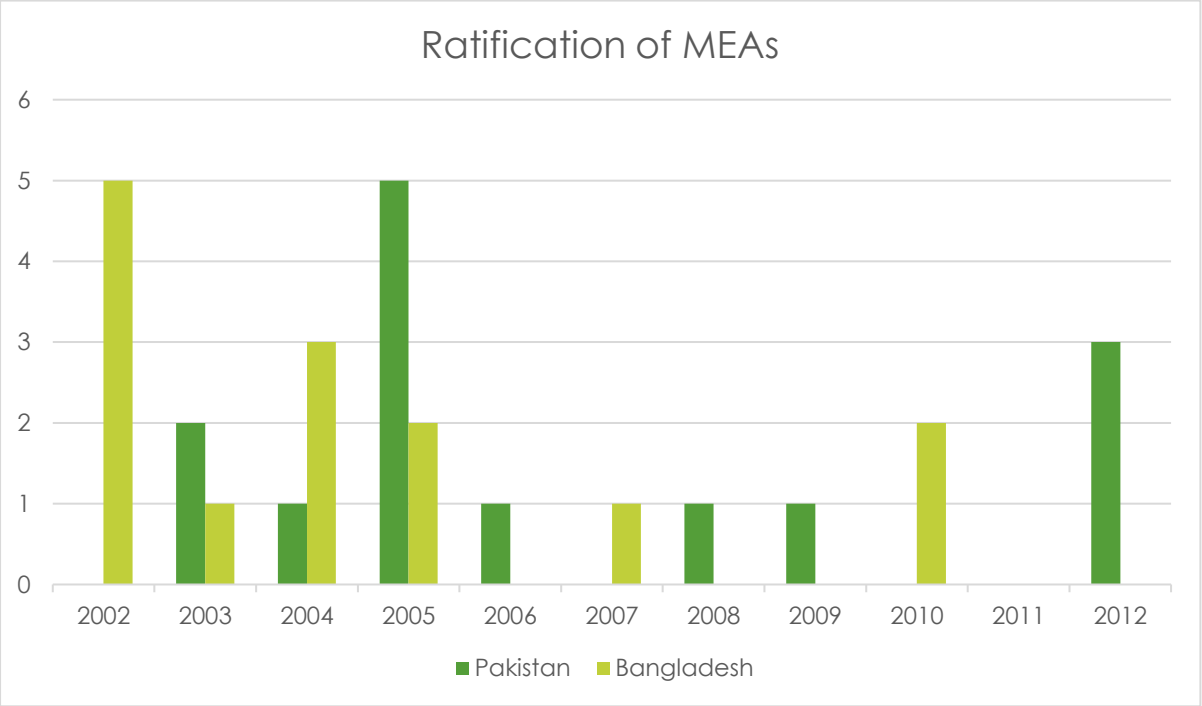
Regarding the ratification of MEAs, both Pakistan and Bangladesh ratified 14 MEAs in the period from 2002-2012 (Mitchell, 2018). The division of ratifications over the years is shown in Figure 10. There does not appear to be a clear trend, because both countries have years in which they ratified five MEAs and both have years in which no MEA was ratified. However, for Pakistan it is remarkable that in 2005, the year in which the negotiations for the PTA with China started, it ratified significantly more MEAs than in any other year. To check whether the timing could possibly be related to the China-Pakistan PTA, the analysis will next zoom in on the specific MEAs Pakistan ratified in 2005.

Figure 9. CO2 emissions output.



Note. Adapted from "World Development Indicators" by World Bank, 2018.

Figure 10. MEAs ratified by Pakistan and Bangladesh.



Note. Adapted from "International Environmental Agreements (IEA) Database Project" by Mitchell, 2018.

Out of the five ratified MEAs by Pakistan in 2005, only one has been ratified by China before 2005 and another in the same year, meaning that the other three MEAs had not been ratified by China at the time. Therefore, the five MEAs ratified in 2005 do not seem connected to the China-Pakistan PTA. Appendix Table 5 shows all the MEAs ratified by Pakistan during the 2002-2012 period and the years in which those MEAs have been ratified by China and Bangladesh. Out of the 14 MEAs ratified by Pakistan, six have been ratified by China before that date and one in the same year. There are also no matching ratification dates with Bangladesh meaning that there is no indication that there was a "trend" among developing South-Asian states to ratify certain agreements. Thus, Pakistan independently and consciously chose to ratify those specific agreements. It is worthwhile mentioning that in 2012 Pakistan ratified three MEAs which all had been ratified by China before, but because there is no indication of any other influence than China on Pakistan concerning the ratification of MEAs between 2006 and 2012, this analysis does not assume a connection between those MEAs and the China-Pakistan PTA.

To check whether the China-Pakistan PTA has triggered an impactful change in the behaviour of civil society, the analysis considers the NGOs on the list of accredited environmental organizations provided by the UNEP. For Pakistan, the list contains 10 NGOs out of which three had been established during the 2002-2012 timeframe. The Bangladeshi list of NGOs contains two NGOs, in comparison, and only one of which – the Environmental and Societal Development Foundation – refers to Pakistan on its website and does not seem connected to Bangladesh. Table 7 shows the names and founding years of the NGOs.

Table 7. NGO data.

Pakistani NGOs	***Founding year***
Community Initiatives for Development in Pakistan	2007
Huqooq-ul-Ebad Development Foundation	2010
LEAD Pakistan - climate action program	2007
New World Hope Organisation	1996
Nippon Marks	2000
Rural Educational Development and Welfare Organization	1999
Sindhica Reforms Society	1993
Society for Conservation and Protection of Environment	1988
The National Forum for Environment and Health	1999
World Muslim Congress	1926
Bangladeshi NGOs	**Founding year**
Environmental and Social Development Organization	1990
Environmental and Societal Development Foundation	N/A

Note. Adapted from "List of accredited organizations" by United Nations Environment Programme, 2018.

Three of the UNEP-accredited NGOs might relate to the 2006 China-Pakistan PTA. These are the Community Initiatives for Development in Pakistan (CIDP) and LEAD Pakistan established in 2007 and the Huqooq-ul-Ebad Development Foundation (HEDF) established in 2010. CIDP was 'established by the group of ambitious young and dynamic friends who were well concerned over the absence of the basic amenities of life at gross root level' (CIDP, 2011, para. 1). The organization is active in Sindh, which is the most Southern province of Pakistan and thus furthest away from China. Furthermore, there is no mention of China or the PTA on their website, so a connection between CIDP and the PTA is rejected. LEAD Pakistan is 'an independent policy think tank that focuses on policy research, public policy engagement, and leadership development in the public, private and not-for-profit sector' LEAD, 2018a, para. 1). It started as a leadership development programme in 1995 and grew by adding more programmes over the years, such as its Climate Action Programme in 2007. According to its website, LEAD is a broad organization, active in many areas and a big network of partners. The list of partners includes IOs and international development agencies from various countries, such as the US and the Netherlands. The LEAD website also mentions various networks, including the bilateral Indo-Pak Medio Group on Climate Change (LEAD, 2018b). On neither page, nor on the rest of the website is China mentioned, and thus there is also no connection found between LEAD and the China-Pakistan PTA. HEDF was established in 2010 with the aim of 'strengthening and empowering […] communities to perceive their own problems / needs and to solve them through collective action and participation' (HEDF, 2018, para. 2). This applies not only to the environment, but also to areas such as health, education and justice. After careful review of the website, no collaboration with China could be established for any of the areas HEDF is active in as China is mentioned nowhere.

5.2.2.2. Government documentation analysis

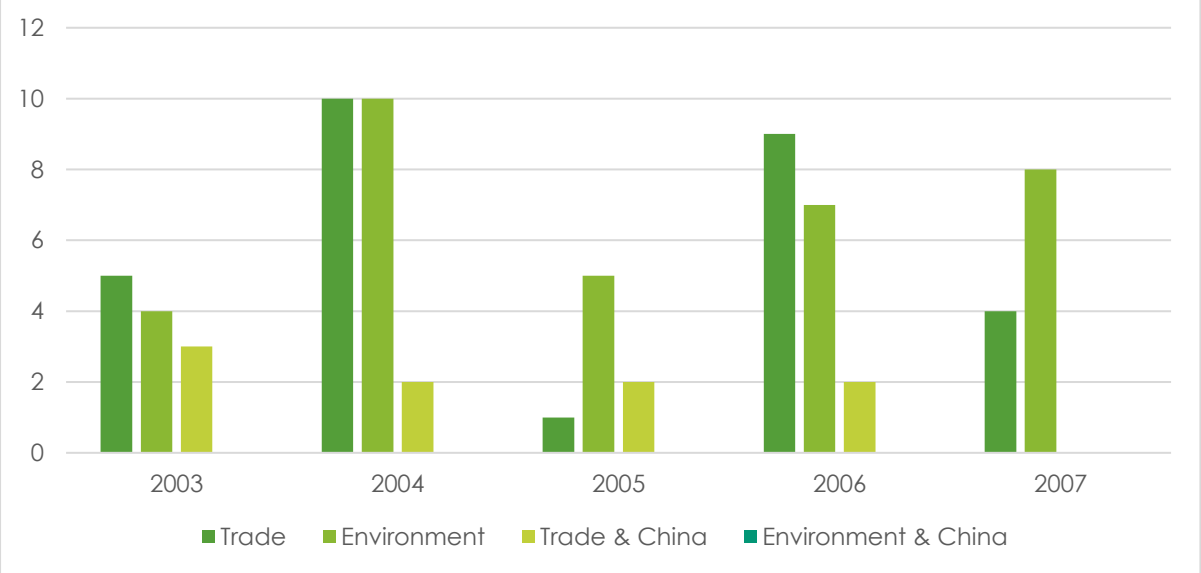
The NA debates cover the period November 16, 2002 – November 15, 2007 which is one government cycle and amounts to a total of 385 documents. During that period, 71 questions have been asked regarding the concepts trade and environment, as described before, and one question covers both concepts, which is why the data included in Figure 11 totals 72. Figure 11 shows how many questions about each concept are asked during the years 2002 – 2007 and whether these questions include China. In the NA debates in November and December of 2002, no questions regarding trade and environment have been asked and none of the questions about the environment related to China or the 2006 China-Pakistan PTA. Furthermore, for none of the categories is there a trend visible in the data. The most questions regarding environmental matters were asked between 2004

and 2006, occurrences that show no indication of a connection with the 2006 PTA, which was negotiated primarily in 2005 and has been effective as of January 2007.

One remarkable observation is that on June 29, 2004, Mrs. Inayat Begum – a member of Pakistani Parliament – enquired about the number of trade agreements signed with foreign countries and the value of those agreements. The answer to the first part of the question involved the 'Pak-China Preferential Trade Agreement signed on 03-11-2003 in Beijing China' (National Assembly of Pakistan, 2004, p. 1073) and the answer to part of the question about the value of the agreement stated 'Preferential Trade Agreement with China was operationalised with effect from 0l-01-2004. Pakistan's exports to China since the Agreement have increased by 35.4% as compared to the same period last year' (National Assembly of Pakistan, 2004, p. 1074). It is the only question that mentioned the China – Pakistan PTA; however, the PTA under analysis in this thesis was signed in 2006 according to various sources (ARIC, 2015) (Berger, Brandi, Bruhn & Morin, 2017). Therefore, the question cannot refer to the same trade agreement. It is possible that China and Pakistan signed another less extensive trade agreement in 2003 which is not registered by other sources. However, since the question does not mention the environment, the observation does not affect the analysis.

Apart from the abovementioned observation, there has not been a direct mention of or reference to the 2006 China-Pakistan PTA in the NA debates, nor is there any indication that the EPs triggered any discussion or action regarding the environment in the Pakistani government.

Figure 11. National Assembly debate questions categories.



Note. Adapted from "National Assembly debates" by National Assembly of Pakistan, 2018b.

5.2.2.3. Expert assessment

On 06-06-2018 an interview was held with Prof. Dr. Muhammad Irfan Khan who – as specialist in Environmental Governance – was willing to share his opinion about whether and how Pakistan had reacted to the EPs in the China-Pakistan PTA and whether the two countries have collaborated on environmental matters after the PTA. His conclusion was that no government instrument has been established based on the PTA and that even though environmental policies have increasingly been implemented over the past few years, those were made irrespective of the PTA (Khan, 2018). Many recent and current politicians are not aware of the existence of the PTA and their main objective for policy implementation have been the SDGs.

Prof. Dr. Khan did recognize that, on paper, Pakistan has one of the best governance structures in the world, but the implementation lags, especially in the environmental area. 'In Pakistan, the environment remains a supply-driven agenda, not a demand-driven agenda' (Khan, 2018, n.d.). He mentioned that environmental policies that have been implemented in the past decade are mainly driven by the demand of international donors, through the inclusion of environmental requirements in project criteria. However, those donor countries are primarily Western countries such as the United Kingdom, the Netherlands and the US. China is not part of this donor coalition. Improvements in environmental governance have been made from 2012 onwards, the year in which each province got their own environmental legislation. This initiative was followed by the implementation framework for national climate change policy in 2013 and a national sustainable development strategy for the implementation of the SDGs in 2016. However, as mentioned above, these improvements relate to the SDGs and the process towards the 2015 Paris conference, rather than to the PTA. Also, civil society has become progressively active on environmental matters and universities offer more and more environment-related courses. Again, these trends are not connected to the PTA, according to Prof. Dr. Khan, but more to the increased awareness of civil society through the rise of social media.

Collaboration between China and Pakistan on the environment is non-existent, Prof. Dr. Khan says, but economic cooperation has increased in recent years. This resulted in the establishment of the China Pakistan Economic Corridor (CPEC) in 2015. CPEC is a framework of regional connectivity and is meant to improve economic regionalization through the implementation of bilateral projects for the improvement of infrastructure, energy and trade (CPEC, 2017). However, the objectives of CPEC are solely economic and social, not environmental.

In addition to the interview with Prof. Dr. Khan, Mrs. Khadija Amir provided written information about the Pakistani environmental governance and China Pakistan relations. According to her, Pakistan has – as a developing country – set economic development as its priority, and not the environment. She is also not aware of any collaboration with China on environmental matters but does point out that Pakistani civil society has become more environmentally aware and an increasing number of academics are conducting research on various environmental issues.

The opinion of both experts is that the 2006 China-Pakistan PTA did not cause any change in the behaviour of Pakistan towards the environment. Both government priorities and the cooperation between China and Pakistan are focused on improving the economy rather than the environmental status. Improvements have been made after 2012, but those are due to the UN SDGs and are not an effect of the EPs in the PTA.

5.2.3. Remarks

The data triangulation of extensive data analysis, government documentation analysis and expert assessment provides the necessary information to assess the degree of compliance with the EPs and whether this has improved the environmental situation in Pakistan. Figure 8 and Figure 9 show that the Pakistani EPI score has slightly increased while there is no clear improvement in the CO2 emission output. As such there is not enough evidence to state that Pakistan has actively employed measures to improve environmental protection and conservation as stipulated in the preamble and hence Pakistan did not comply with the *environmental protection* EPs. Additionally, there is also no evident compliance with the *MEAs* EPs since the analysis already concluded that there is no connection between the PTA and the ratification of MEAs in general. The *Regulatory Space* and *Policy Coherence* EPs all refer to trade and the degree of authority Pakistan has on measures to counteract on the negative effects of trade on the environment. The government documentation analysis does not indicate a connection between the topics environment and trade with China during the NA debates, meaning that on a policy level Pakistan has not taken account of the PTA regarding environmental matters triggered by trade and hence does not comply with the EPs. The same goes for the *implementation* EP because there is also no indication of information provision regarding the environment when China is never affiliated with the environment. Compliance with the *Development* EPs is harder to examine, yet, Prof. Dr. Khan mentioned that even though collaboration on the environment between Pakistan and China is not evident, increased economic activity is apparent. With the launch of CPEC in 2015 China has invested significantly in Pakistani infrastructure and industry, affecting the guarantee of Pakistani sovereignty over its resources.

Thus, these observations conclude that there is no compliance with the EPs. As such, hypotheses 4, 5 and 6 are rejected. Even though Pakistan was expected to comply because it was a less-powerful country than China, a member of the same IOs as China and a democratic country, compliance did not occur. Hypothesis 7 is not rejected, as the hypothesis expected Pakistan not to comply because, at the time of the conduct of the PTA, China was not considered a more environmentally friendly country than Pakistan. Hypothesis 8 is again rejected because the analysis clearly shows no environmental improvements have occurred before the PTA entered effect. Thus, only the hypothesis that reflects the normative approach to compliance is accepted.

The proof that Pakistan has not complied with the EPs strongly suggests that the environmental situation has not improved, however, as mentioned in chapter 3, due to the versatility of environmental problems, non-compliance with international agreements can still be accompanied by positive environmental effects. One of the reasons is that compliance does not include non-regulated behaviour. To provide a more complete answer to the second sub question the analysis has considered behavioural changes of civil society by including a segment about environmental NGOs. However, none of the established NGOs can be accredited to the PTA.

The second sub question revolves around whether Pakistan improves its environmental situation based on the EPs in the 2006 China-Pakistan PTA. Compared to Bangladesh, the Pakistan EPI score has slightly improved, but the CO2 emission output and MEA ratification show no evidence for an improvement in the Pakistani environment during the period 2002-2012. Pakistani civil society is more involved with the environment than the Bangladeshi equivalent, but this cannot be accredited to the PTA, and the government has also not implemented any policy, nor held any discussion based on the EPs in the PTA. To complete the data triangulation process, the expert assessments confirm these findings.

6. Conclusion

This research contributes to existing PTA research in the area of emerging markets, using China as its subject of research. The aim of the research was to structurally analyse whether the EPs in China's PTAs positively affect the environment in its trading partner country. To do so, an exploratory methodology was chosen, one that extends the complete array of PTA research to emerging markets. This means that the research was set up in such a way that it included both the design of the PTAs regarding EPs and the direct effect the EPs have, which reflects the two areas of existing EPs in PTA research. The two sub questions gave structure to the research and complemented each other to provide an answer to the research question: *What is the effectiveness of the environmental provisions in the preferential trade agreements of China?*

China was chosen as the subject because the country plays an important role in both the international trade regime and the international environmental regime: two regimes that are connected through EPs in PTAs. However, China as the subject also imposed the challenge of data limitation. The number of PTAs and particularly the number of EPs included in the existing PTAs is too small to perform a quantitative analysis. Therefore, in-depth, qualitative research has been performed, which limits the generality of the findings but allowed for the extension of the research to concepts which cannot be captured in numbers, such as the design of the PTAs and the implementation of government policies.

The first sub question that considers the design of the PTA was *Do EU and/or US environmental provision design elements diffuse into Chinese PTAs?* The literature review showed that there are three types of PTA design; an EU, a US and a third, so-called "Southern" design that includes several smaller PTAs. Analysing whether China follows the EU or the US design does not only confirm or reject the existence of global templates, but it also provides a context to the effect of the EPs. Existing literature has already proven the effectiveness of EU and US PTAs and, by comparing the Chinese design to them, the expected effectiveness of the Chinese EPs can be inferred. The theory of diffusion predicts that existing practices in one country influences practices in other countries, a process that can occur through three different mechanisms: competition, learning and emulation. The analysis does not give an indication of the existence of a clear-cut template which is simply copy-pasted, but it does appear that the diffusion of US EP design elements into the Chinese PTA has happened in the case of the PTAs with Chile. This diffusion happened through either or both the competition and learning mechanism. Based on the literature review, this finding of the first sub question hints at a positive environmental effect in China's trading partner countries that occurs *ex ante* to the conclusion of the PTAs.

The second sub question builds upon the finding of the first sub question by asking *Does Pakistan improve its environmental situation based on the EPs in the PTA signed with China?* This sub question uses the various perspectives of compliance theory and the enforcement mechanisms used by US and EU PTAs to set the expectations for the analysis. The unit of analysis is the 2006 China-Pakistan PTA because Pakistan has not signed an agreement with the EU nor the US and thus the effect of the PTA with China can be isolated. The analysis uses the methodology of data triangulation to perform systematic, in-depth research and cannot establish Pakistani compliance with the EPs. Also, the analysis finds that only the hypothesis reflected by the normative approach to compliance is accepted. After considering non-regulated behaviour the conclusion is that no changes in Pakistani behaviour towards the environment can be accredited to the EPs in the China-Pakistan PTA.

The central question in this thesis is about the effectiveness of EPs in PTAs, which is ultimately answered with the straightforward reply that the EPs do not appear to have an effect. The design of the EPs in the PTAs seems to be deliberately chosen, but do not trigger a change in the behaviour of the trading partner country. However, the research approach adopted in this thesis does provide certain limitations one has to consider. Due to the specificity of the research, the ability to generalize the findings is low, meaning that in the case of Chile, China seemed to adopt PTA elements from the US, but that does not mean that diffusion also occurs with other trading partner countries. The same applies to the case of Pakistan. Therefore, this research is more exploratory than conclusive and only the availability of more data on China's PTAs will be able to increase the ability to generalize. Furthermore, both cases, the Chile-China PTA and the China-Pakistan PTA, have been conducted more than a decade ago. China's position in both the trade regime and the climate regime has changed significantly in the time that has passed, meaning that observations of China's practices in this research might not represent China's behaviour nowadays. Lastly, the 2006 China-Pakistan PTA includes 12 EPs, while some of the major PTAs of the EU and the US include over 100 EPs. The conclusion that the EPs have no effect can therefore also be due to the mere fact that the number of EPs at 12 is too low to trigger an observable change.

6.1. Relevance

6.1.1. Social relevance

'Socially relevant research furthers the understanding of social and political phenomena which affect people and make a difference regarding explicitly specified evaluative

standards' (Lehnert, Miller & Wonka, 2007, p. 27). This thesis adds to the understanding of the phenomenon of China's use of EPs in its PTAs, which provides insights for policy makers from various countries and IOs.

One of the most-affected actors is China. Being aware of the effect that their EPs have allows trade policy makers to make deliberate decisions regarding PTA design. Information about China's EPs is also valuable for European and American policymakers. The EU is an established power in and through trade and is known for its ambition to spread the European model of society to the rest of the world through the negotiation of trade agreements (Meunier & Nicolaidis, 2005). The US at the same time has proven to be an advocate of deep PTA designs (Jinnah & Morgera, 2013). Both areas may want to step up and actively advocate their own PTA design to China to increase their influence and strengthen ties.

The research outcome is also interesting for the UN, particularly the UNFCCC. As mentioned before, the academic community is doubtful whether the voluntarily committed national contributions of the 2015 Paris Agreement are enough to curb climate change, but obligatory GHG emissions reductions are not acceptable for some major countries (Clémençon, 2016). For this reason, PTAs can be a valuable addition to the international environmental regime, which is also what Leal-Arcas (2013) argues: 'a bottom-up approach to climate change mitigation via the insertion of climate-related provisions in PTAs may help overcome some of the political obstacles which slow down the multilateral climate change negotiations process' (p. 42). At the same time, he also asserts that the benefits will be strongest if the major economies and major GHG emitters are part of the trade agreements. So, EPs in the PTAs of China are a reason for the UNFCCC to reconsider its role in the global climate regime, from initiator to coordinator, because good coordination will be necessary to manage the different elements of the environmental governance structure (Van Asselt & Zelli, 2014).

The last affected societal body is the WTO. Just as the UNFCCC struggles with efficient multilateral agreements in the climate regime, the WTO struggles with reaching consensus on including WTO-X issues into its existing mandate. The WTO is the most influential player of the international trade regime, which in turn is unique in its ability to attract members and discipline them (Eckersley, 2004). Thus, the challenge remains to address the rising societal concerns about the environment, but at the same time maintain the power of the WTO, which is undermined by the fragmentation of the trade regime (Hartman, 2013). Crawford and Laird (2001) conclude in their research that there is little doubt that the economic benefits of a PTA on a regional scale would be even better if they are extended

to the multilateral level, but regional PTAs are the second-best option. The question remains, however, whether this also counts for the environmental benefits of the included EPs. Therefore, this thesis adds to the discussion about the role of the WTO in a fragmented international trade regime.

6.1.2. Scientific Relevance

'Theoretical relevance refers to the analytical value a research question adds to the scientific discourse of the sub discipline it addresses' (Lehnert, Miller & Wonka, 2007, p. 21 – 22). Therefore, it is of utmost importance to link the research question to the existing literature and to indicate the addition to the body of research.

PTAs and the effects and possibilities of their EPs have been increasingly subject to research, but this has mainly focused on the PTAs conducted by the EU and US. Research into PTAs from the perspective of emerging economies, such as the BRICS countries, has been lacking. These countries take on an increasingly significant role on the international stage but have a completely different context than either the EU or the US. Thus, this thesis adds to the scientific body of literature by contributing to the existing research on trade and environment linkage in PTAs involving China as a first step to evaluating the EPs in PTAs of emerging economies.

6.2 Future research

As mentioned above, in addition to finding an answer to the question as to whether EPs in the PTAs of China are effective, this research also revolved around expanding existing PTA research into new areas in various respects. The foremost contribution was the shifting of focus from developed markets to an emerging market. Furthermore, new theories have been used to build the framework around the research question and a new qualitative, in-depth methodology has been applied. Each of these contributions is an opportunity for future research, using quantitative data or large-N research. What would the outcome of the same in-depth research for other emerging markets be or how can diffusion theory explain the PTA design of developed countries?

The analysis of the first sub question in this thesis has shown that the Chile-China PTA does show similarities to the Chile-US PTA, but diffusion only happens to a certain extent and the Chile-China PTA does not appear to copy EP design elements from the Chile-EU PTA. This implies that China has consequently chosen to include certain EPs and exclude others. Why does a latecomer to the "EPs in PTAs" market forgo an opportunity to learn from experienced practitioners? Furthermore, the finding of this research that the EPs in the Chinese PTAs are not effective is remarkable given the increased prevalence of EPs in the PTAs by China. In both the area of trade and the area of the environment, China has

become more active and is catching up with the developed world. However, if the EPs do not trigger any effect in its trading partner countries, the question remains as to why China feels the need to include EPs in its trade agreements in the first place. Does it mean that EPs have the sole purpose of sending a message, rather than having an actual effect? Is China sending a message by adopting a PTA design more like the US' than like the EU's? Further research into why a country like China includes the EPs it has in the PTAs can show the political motives of using EPs and provide insight into a country's ambitions on the world stage. Knowing this is the way forward to exploring whether including EPs in PTAs has the potential to serve as a bilateral approach to tackling environmental degradation instead of using multilateral negotiations, given that this research has shown that EPs do not improve the environmental status of a trading partner country of China.

References

Ahmed, I. & Shabbir, J. (2014). The changing face of Pakistan's economic relations with India and Bangladesh: Prospects and challenges. *The Round Table, 103*(3), 311-321.

Antkiewicz, A. & Whalley, J. (2011). *China's new regional trade agreements.* (Working Paper 10992). Cambridge: National Bureau of Economic Research.

Asia Regional Integration Center. (2015). People's Republic of China-Pakistan free trade agreement. Retrieved from https://aric.adb.org/fta/peoples-republic-of-china-pakistan-free-trade-agreement

Aslanidis, N. (2009). Environmental Kuznets curves for carbon emissions: A critical survey. *FEEM Working Papers, no. 336.*

Azhar, U., Khalil, S. & Ahmed, M. H. (2007). Environmental effects of trade liberalisation: A case study of Pakistan. *The Pakistan Development Review, 46*(4), 645-655.

Baccini, L., Dür, A. & Haftel, Y. Z. (2015). Imitation and innovation in international governance: The diffusion of trade agreement design. *Trade cooperation: The purpose, design and effects of preferential trade agreements* (pp. 167-194). Cambridge: Cambridge University Press.

Baghdadi, L., Martinez-Zarzoso, I. & Zitouna, H. (2013). Are RTA agreements with environmental provisions reducing emissions? *Journal of International Economics, 90*(2), 378-390.

Baier, S.L., Bergstrand, J. H., Egger, P. & McLaughlin, P. A. (2008). Do economic integration agreements actually work? Issues in understanding the causes and consequences of the growth of regionalism. *The World Economy, 31*(4), 461-497.

Baier, S.L., Bergstrand, J. H. & Feng, M. (2014). Economic integration agreements and the margins of international trade. *Journal of International Economics, 93*(2), 339-350.

Baldwin, R.E. (1997). The causes of regionalism. *The World Economy, 20*(7), 865-888.

Banyan. (2013, March 18). Democracy in Pakistan; A first. *The Economist.* Retrieved from https://www.economist.com/banyan/2013/03/18/a-first

Bastiaens, I. & Postnikov, E. (2017). Greening up: The effects of environmental standards in EU and US trade agreements. *Environmental Politics, 26*(5), 847-869.

Batabyal, A.A. & Beladi, H. (2001). *The economics of international trade and the environment.* Boca Raton, Florida: CRC Press.

Bechtel, M.M. & Tosun, J. (2009). Changing economic openness for environmental policy convergence: When can bilateral trade agreements induce convergence of environmental regulation? *International Studies Quarterly, 53*(4), 931-953.

Berger, A., Brandi, C., Bruhn, D. & Chi, M. (2017). *Towards" greening" trade? Tracking environmental provisions in the preferential trade agreements of emerging markets*. Bonn: Deutsches Institut für Entwicklungspolitik.

Berger, A., Brandi, C., Bruhn, D. & Morin, J. F. (2017). *TREND analytics - environmental provisions in preferential trade agreements*. Bonn, Germany: German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE) and Université Laval, Canada.

Biermann, F., Pattberg, P., Van Asselt, H. & Zelli, F. (2009). The fragmentation of global governance architectures: A framework for analysis. *Global Environmental Politics,* 9(4), 14-40.

Blatter, J. & Haverland, M. (2012). Co-variational analysis. *Designing case studies: Explanatory approaches in small-N research* (pp. 33-78). Houndmills: Palgrave Macmillan.

Böhringer, C. (2003). The Kyoto protocol: A review and perspectives. *Oxford Review of Economic Policy, 19*(3), 451-466.

Busch, P. & Jörgens, H. (2005). The international sources of policy convergence: Explaining the spread of environmental policy innovations. *Journal of European Public Policy, 12*(5), 860-884.

Central Intelligence Agency. (2018). The World Factbook. Retrieved from https://www.cia.gov/library/publications/the-world-factbook/index.html

Chauffour, J. & Maur, J. (2011). *Preferential trade agreement policies for development, a handbook*. Washington D.C.: The World Bank.

China Pakistan Economic Corridor. (2017). Introduction. Retrieved from http://cpec.gov.pk/introduction/1

Christoff, P. (2010). Cold climate in Copenhagen: China and the United States at COP15. *Environmental Politics, 19*(4), 637-656.

Clémençon, R. (2016). The two sides of the Paris climate agreement: Dismal failure or historic breakthrough? *Journal of Environment & Development, 25*(1), 3-24.

Cole, D.H. (2015). Advantages of a polycentric approach to climate change policy. *Nature Climate Change, 5*(2), 114-118.

Cole, M.A. (2003). Development, trade, and the environment: How robust is the environmental Kuznets curve? *Environment and Development Economics, 8*(4), 557-580.

Community Initiatives for Development in Pakistan. (2011). Introduction & structure. Retrieved from https://www.cidp.org.pk/About%20us.html

Cooper, H. & Forney, M. (2000, July 03). Politics & economy: U.S. and China to revive talks on arms issues. *Wall Street Journal.* Retrieved from https://search.proquest.com/docview/398722890/fulltext/14678896B1AF4C77PQ/1?accountid=13598

Cooper, W.H. (2014). Free trade agreements: Impact on US trade and implications for US trade policy. *Current Politics and Economics of the United States, Canada and Mexico, 16*(3), 425-445.

Copeland, B.R. & Taylor, M.S. (2004). Trade, growth, and the environment. *Journal of Economic Literature, 42*(1), 7-71.

Crawford, J. & Laird, S. (2001). Regional trade agreements and the WTO. *The North American Journal of Economics and Finance, 12*(2), 193-211.

Dawar, K. (2010). Assessing labour and environmental regimes in regional trade arrangements. *Legal Issues of Economic Integration, 37*(4), 339-373.

Delreux, T. (2012). The EU as an actor in global environmental politics. In A. Jordan, & C. Adelle (Eds.), *Environmental policy in the EU. Actors, institutions and processes* (3rd ed., pp. 287-305). London and Sterling: Earthscan.

Dimitrov, R.S. (2010). Inside Copenhagen: The state of climate governance. *Global Environmental Politics, 10*(2), 18-24.

Dimitrov, R.S. (2016). The Paris agreement on climate change: Behind closed doors. *Global Environmental Politics, 16*(3), 1-11.

Dong, L. (2017). Bound to lead? Rethinking China's role after Paris in UNFCCC negotiations. *Chinese Journal of Population Resources and Environment, 15*(1), 32-38.

Eckersley, R. (2004). The big chill: The WTO and multilateral environmental agreements. *Global Environmental Politics, 4*(2), 24-50.

Elkins, Z. & Simmons, B. (2005). On waves, clusters, and diffusion: A conceptual framework. *The Annals of the American Academy of Political and Social Science, 598*(1), 33-51.

Eskeland, G. S. & Harrison, A. E. (2003). Moving to greener pastures? Multinationals and the pollution haven hypothesis. *Journal of Development Economics, 70*(1), 1-23.

European Commission. (2006). *GLOBAL EUROPE competing in the world.* Retrieved from http://trade.ec.europa.eu/doclib/docs/2006/october/tradoc_130376.pdf

European Commission. (n.d.). Cecilia Malmström. Retrieved from https://ec.europa.eu/commission/commissioners/2014-2019/malmstrom_en#responsibilities

European Council. (2017). Promoting EU values through trade. Retrieved from http://www.consilium.europa.eu/en/policies/trade-policy/promoting-eu-values/

European Union. (2016). *Official journal of the European Union.* (No. C 202). Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:C:2016:202:TOC

Faiola, A., Eilperin, J. & Pomfret, J. (2009, December 20). Copenhagen climate deal shows new world order may be led by US, China. *Washington Post* Retrieved from http://pbble.com/WashingtonPost-CopenhagenClimateDealShowsNewWorldOrderMayBeLedByU.S.-China.pdf

Falkner, R. (2016). The Paris agreement and the new logic of international climate politics. *International Affairs, 92*(5), 1107-1125.

Fischer, S. & Geden, O. (2015). The changing role of international negotiations in EU climate policy. *The International Spectator, 50*(1), 1-7.

Frankel, J.A., & Rose, A.K. (2005). Is trade good or bad for the environment? Sorting out the causality. *Review of Economics and Statistics, 87*(1), 85-91.

Frankel, J.A., Stein, E. & Wei, S. (1997). *Regional trading blocs in the world economic system*. Washington, DC: Institute for International Economics.

Gao, Y. (2016). China's response to climate change issues after Paris climate change conference. *Advances in Climate Change Research, 7*(4), 235-240.

Garrett, G. (2011). Chinese–US economic relations after the global financial crisis. In J. Golley, & L. Song (Eds.), *Rising china: Global challenges and opportunities* (pp. 149-172). Canberra: ANU E Press.

Goldsmith, B. (2003). Imitation in international relations: Analogies, vicarious learning, and foreign policy. *International Interactions, 29*(3), 237-267.

Golley, J., & Song, L. (Eds.). (2011). *Rising China: Global challenges and opportunities*. Canberra: ANU E Press.

Grossman, G. M. & Krueger, A. B. (1995). Economic growth and the environment. *The Quarterly Journal of Economics, 110*(2), 353-377.

Gschwend, T. & Schimmelfennig, F. (2007). Introduction: Designing research in political science - A dialogue between theory and data. *Research design in political science: How to practice what they preach* (pp. 1-10). Houndmills: Palgrave Macmillan.

Hafner-Burton, E.M. (2005). Trading human rights: How preferential trade agreements influence government repression. *International Organization, 59*(3), 593-629.

Hanson, G.H. (2012). The rise of middle kingdoms: Emerging economies in global trade. *Journal of Economic Perspectives, 26*(2), 41-64.

Harris, P.G., Chow, A.S.Y. & Karlsson, R. (2013). China and climate justice: Moving beyond statism. *International Environmental Agreements: Politics, Law and Economics, 13*(3), 291-305.

Hartman, S.W. (2013). The WTO, the Doha round impasse, PTAs, and FTAs/RTAs. *The International Trade Journal, 27*(5), 411-430.

Hashim, A. (2013, April 30). Pakistan: A political timeline. *Al Jazeera.* Retrieved from https://www.aljazeera.com/indepth/interactive/2012/01/20121181235768904.html

He, J. (2006). Pollution haven hypothesis and environmental impacts of foreign direct investment: The case of industrial emission of sulphur dioxide (SO2) in Chinese provinces. *Ecological Economics, 60*(1), 228-245.

He, L. (2010). China's climate-change policy from Kyoto to Copenhagen: Domestic needs and international aspirations. *Asian Perspective, 34*(3), 5-33.

Hix, S. & Høyland, B. (2011). *The political system of the European Union* (3rd ed.). Croydon: Palgrave Macmillan.

Horn, H., Mavroidis, P.C. & Sapir, A. (2010). Beyond the WTO? An anatomy of EU and US preferential trade agreements. *The World Economy, 33*(11), 1565-1588.

Hsu, A., Emerson, J., Levy, M., De Sherbinin, A., Johnson, L., Malik, O. & Jaiteh, M. (2014). *The 2014 environmental performance index*. New Haven, CT: Yale Center for Environmental Law and Policy.

Huqooq-ul-Ebad Development Foundation. (2018). About us. Retrieved from http://www.hedfpk.com/about-us/

Husain, I. (2009). The role of politics in Pakistan's economy. *Journal of International Affairs, 63*(1), 1-18.

Hussain, Z. (2017). The China-Pakistan economic corridor and the new regional geopolitics. *Asie Visions, 94*.

Ianchovichina, E., & Walmsley, T. (2005). Impact of China's WTO accession on East Asia. *Contemporary Economic Policy, 23*(2), 261-277.

International Islamic University. (2018). Faculty & staff. Retrieved from http://www.iiu.edu.pk/?page_id=2282

International Trade Center. (2018). Trade map. Retrieved from https://www.trademap.org/Index.aspx

Jackson, G. (2010). Actors and institutions. In G. Morgan, J.L. Campbell, C. Crouch, O.K. Pedersen & R. Whitley (Eds.), *The oxford handbook of comparative institutional analysis* (pp. 63-86). New York: Oxford University Press.

Jaffe, A. B., Peterson, S. R., Portney, P. R. & Stavins, R. N. (1995). Environmental regulation and the competitiveness of US manufacturing: What does the evidence tell us? *Journal of Economic Literature, 33*(1), 132-163.

Janssens-Maenhout, G., Crippa, M., Guizzardi, D., Muntean, M., Schaaf, E., Olivier, J.G.J. & Schure, K.M. (2017). *Fossil CO2 & GHG emissions of all world countries.* (No. EUR 28766 EN). Luxembourg: European Commission.

Jetschke, A. & Lenz, T. (2013). Does regionalism diffuse? A new research agenda for the study of regional organizations. *Journal of European Public Policy, 20*(4), 626-637.

Jinnah, S. & Lindsay, A. (2016). Diffusion through issue linkage: Environmental norms in US trade agreements. *Global Environmental Politics, 16*(3), 41-61.

Jinnah, S. & Morgera, E. (2013). Environmental provisions in American and EU free trade agreements: A preliminary comparison and research agenda. *Review of European, Comparative & International Environmental Law, 22*(3), 324-339.

Kaika, D. & Zervas, E. (2013). The environmental Kuznets curve (EKC) theory—Part A: Concept, causes and the CO2 emissions case. *Energy Policy, 62*, 1392-1402.

Kamal, J. & Malik, M. H. (2017). *Dynamics of Pakistan's trade balance with china.* (No. 04/17). State Bank of Pakistan.

Kelemen, R.D., & Vogel, D. (2010). Trading places: The role of the United States and the European Union in international environmental politics. *Comparative Political Studies, 43*(4), 427-456.

Khan, Muhammad Irfan. (2018, June 6). Personal Interview.

Khwaja, M. A., Saeed, S. & Urooj, M. (2018). *Preliminary environmental impact assessment (EIA) study of China-Pakistan economic corridor (CPEC) northern route road construction activities in Khyber Pakhtunkhwa (KPK), Pakistan.* (No. 59). Islamabad, Pakistan: Sustainable Development Policy Institute.

Kim, S.Y. & Manger, M.S. (2017). Hubs of governance: Path dependence and higher-order effects of preferential trade agreement formation. *Political Science Research and Methods, 5*(3), 467-488.

Koh, H.H. (1997). Why do nations obey international law? *Yale Law Journal, 106*(8), 2599-2659.

Konisky, D. M. (2007). Regulatory competition and environmental enforcement: Is there a race to the bottom? *American Journal of Political Science, 51*(4), 853-872.

Lau, L.C., Lee, K.T. & Mohamed, A.R. (2012). Global warming mitigation and renewable energy policy development from the Kyoto protocol to the Copenhagen Accord—A comment. *Renewable and Sustainable Energy Reviews, 16*(7), 5280-5284.

LEAD. (2018a). Background. Retrieved from http://www.lead.org.pk/lead/Pages/Page-Aboutus.aspx

LEAD. (2018b). Indo-Pak media group on climate change (IPMGCC). Retrieved from http://www.lead.org.pk/lead/Pages/ipmgcc.aspx

Leal-Arcas, R. (2013). Climate change mitigation from the bottom up: Using preferential trade agreements to promote climate change mitigation. *Carbon & Climate Law Review, 7*(1), 34-42.

Lechner, L. (2016). The domestic battle over the design of non-trade issues in preferential trade agreements. *Review of International Political Economy, 23*(5), 840-871.

Lehnert, M., Miller, B. & Wonka, A. (2007). Increasing the relevance of research questions: Considerations on theoretical and social relevance in political science. In T. Gschwend, & F. Schimmelfennig (Eds.), *Research design in political science: How to practice what they preach* (pp. 21-33). Houndmills: Palgrave Macmillan.

Leuffen, D., Shikano, S. & Walter, S. (2013). Measurement and data aggregation in small-n social scientific research. *European Political Science, 12*(1), 40-51.

Li, Y., Fu, J., Ma, Z. & Yang, B. (2014). Sources and flows of embodied CO2 emissions in import and export trade of China. *Chinese Geographical Science, 24*(2), 220-230.

Limão, N. (2016). Preferential trade agreements. *Handbook of commercial policy* (pp. 279-367) Elsevier.

Liu, Z., Davis, S. J., Feng, K., Hubacek, K., Liang, S., Anadon, L. D. & Guan, D. (2016). Targeted opportunities to address the climate–trade dilemma in China. *Nature Climate Change, 6*(2), 201-206.

Luo, C. & Zhang, J. (2010). China trade policy review: A political economy approach. *The World Economy, 33*(11), 1390-1413.

Luolin, W. (2015). *China's WTO accession reassessed.* New York: Routledge Ltd.

Mahoney, J. & Goertz, G. (2006). A tale of two cultures: Contrasting quantitative and qualitative research. *Political Analysis, 14*(3), 227-249.

Manger, M.S., Pickup, M.A. & Snijders, T. A. (2012). A hierarchy of preferences: A longitudinal network analysis approach to PTA formation. *Journal of Conflict Resolution, 56*(5), 853-878.

Mani, M., & Wheeler, D. (1998). In search of pollution havens? Dirty industry in the world economy, 1960 to 1995. *The Journal of Environment & Development, 7*(3), 215-247.

McGuire, S. & Smith, M. (2008). World order. *The European Union and the United States; competition and convergence in the global arena* (pp. 226-260). New York: Palgrave Macmillan.

Mehling, M. & Frenkil, D.J. (2013). Climate law in the United States: Facing structural and procedural limitations. In E.J. Hollo, K. Kulovesi & M. Mehling (Eds.), *Climate change and the law* (pp. 473-488). Dordrecht: Springer.

Meunier, S. & Nicolaïdis, K. (2005). The European Union as a trade power. In C. Hill, M. Smith & S. Vanhoonacker (Eds.), *International relations and the European Union* (pp. 247-269). Oxford: Oxford University Press.

Meunier, S. & Nicolaïdis, K. (2006). The European Union as a conflicted trade power. *Journal of European Public Policy, 13*(6), 906-925.

Meyer, J.W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology, 83*(2), 340-363.

Milewicz, K., Hollway, J., Peacock, C. & Snidal, D. (2016). Beyond trade: The expanding scope of the nontrade agenda in trade agreements. *Journal of Conflict Resolution, 62*(4), 743-773.

Mitchell, R.B. (1996). Compliance theory: An overview. In J. Cameron, J. Werksman & P. Roderick (Eds.), *Improving compliance with international environmental law* (pp. 3-28). London: Earthscan Publications.

Mitchell, R.B. (2018). *International environmental agreements database project.* Available at https://iea.uoregon.edu/

MOFCOM. (n.d.). Biography. Retrieved from http://fuziying2.mofcom.gov.cn/article/biography/

Molle, W. (2014). Trade. *Governing the world economy* (pp. 77-104). Abingdon, Oxon: Routledge.

Morgan, G., Campbell, J.L., Crouch, C., Pedersen, O.K. & Whitley, R. (2010). *The Oxford handbook of comparative institutional analysis*. New York: Oxford University Press.

Morgenthau, H.J. (1985). *Politics among nations: The struggle for power and peace* (6th ed.). New York: Knopf.

Morin, J.F., Pauwelyn, J. & Hollway, J. (2017). The trade regime as a complex adaptive system: Exploration and exploitation of environmental norms in trade agreements. *Journal of International Economic Law, 20*(2), 365-390.

National Assembly of Pakistan. (2004). *The National Assembly of Pakistan debates, 17*(4).

National Assembly of Pakistan. (2018a). Observance of the rules of procedure. Retrieved from http://www.na.gov.pk/en/content.php?id=1

National Assembly of Pakistan. (2018b). National assembly debates. Retrieved from http://www.na.gov.pk/en/debates.php

National University of Sciences and Technology. (2017). Khadija Amir. Retrieved from http://www.nust.edu.pk/INSTITUTIONS/Schools/SCEE/Institutes/IESE/Departments/Environmental-Science/Faculty/Pages/KhadijaAmir.aspx

Niaz, I. (2018). History. *Europa world online*. London: Routledge. Retrieved from http://www.europaworld.com/entry/pk.hi

Oberthür, S. & Groen, L. (2017). The European Union and the Paris agreement: Leader, mediator, or bystander? *Wiley Interdisciplinary Reviews: Climate Change, 8*(1).

Office of the United States Trade Representative. (2007). *Bipartisan trade deal.* Retrieved from https://ustr.gov/sites/default/files/uploads/factsheets/2007/asset_upload_file127_11319.pdf

Office of the United States Trade Representative. (2018). Free trade agreements. Retrieved from https://ustr.gov/trade-agreements/free-trade-agreements

Office of the United States Trade Representative. (n.d. - a). Mission of the USTR. Retrieved from https://ustr.gov/about-us/about-ustr

Office of the United States Trade Representative. (n.d. - b). United States trade representative, Robert E. Lighthizer. Retrieved from https://ustr.gov/about-us/biographies-key-officials/united-states-trade-representative-robert-e-lighthizer

Pak-China FTA. (2006). *Free trade agreement between the government of the Islamic republic of Pakistan and the government for the People's Republic of China.*

Perroni, C. & Wigle, R.M. (1994). International trade and environmental quality: How important are the linkages? *The Canadian Journal of Economics / Revue Canadienne d'Economique, 27*(3), 551-567.

Postnikov, E. (2018). Unravelling the puzzle of social standards' design in EU and US trade agreements. *New Political Economy,* 1-16.

Qingjiang, K. (2012). China's uncharted FTA strategy. *Journal of World Trade, 46*(5), 1191-1206.

Schreurs, M.A. & Tiberghien, Y. (2007). Multi-level reinforcement: Explaining European Union leadership in climate change mitigation. *Global Environmental Politics, 7*(4), 19-46.

Scott, R. W. (2014). *Institutions and organizations: Ideas, interests and identities* (4th ed.). Thousand Oaks, CA: SAGE.

Seabrooke, L. (2010). Transnational institutions and international regimes. In G. Morgan, J.L. Campbell, C. Crouch, O.K. Pedersen & R. Whitley (Eds.), *The Oxford handbook of comparative institutional analysis* (pp. 253-274). New York: Oxford University Press.

Senate of Pakistan. (2018). Questions answers (archived). Retrieved from http://www.senate.gov.pk/en/questions_archived.php?id=-1&catid=186&subcatid=284&cattitle=Questions/%20Answers

Shrybman, S. (1990). International trade and the environment: An environmental assessment of the general agreement on tariffs and trade. *Ecologist, 20*(1), 30-34.

Shukla, A. (2015). Pakistan - Bangladesh relations. *Himalayan and Central Asian Studies, 19*(1/2), 211-235.

Simmons, B.A. (1998). Compliance with international agreements. *Annual Review of Political Science, 1*(1), 75-93.

Simmons, B.A. & Elkins, Z. (2004). The globalization of liberalization: Policy diffusion in the international political economy. *American Political Science Review, 98*(1), 171-189.

Snyder, F. (2009). China, regional trade agreements and WTO law. *Journal of World Trade, 43*(1), 1-57.

Strang, D. (1991). Adding social structure to diffusion models: An event history framework. *Sociological Methods & Research, 19*(3), 324-353.

Suri, V. & Chapman, D. (1998). Economic growth, trade and energy: Implications for the environmental Kuznets curve. *Ecological Economics, 25*(2), 195-208.

Susskind, L. & Ali, S. (2014). The advantages and disadvantages of issue linkage. *Environmental diplomacy: Negotiating more effective global agreements* (pp. 93-113). New York: Oxford University Press.

United Nations. (2018). The sustainable development agenda. Retrieved from https://www.un.org/sustainabledevelopment/development-agenda/

United Nations Environment Programme. (2018). List of accredited organizations. Retrieved from https://www.unenvironment.org/civil-society-engagement/accreditation/list-accredited-organizations

United Nations Framework Convention on Climate Change. (2014). Kyoto protocol. Retrieved from http://unfccc.int/kyoto_protocol/items/2830.php

United Nations Framework Convention on Climate Change. (2018). The big picture: How do the UNFCCC sessions work? Retrieved from http://bigpicture.unfccc.int/content/negotiations/the-big-picture-how-do-the-unfccc-sessions-work.html#content-understanding-the-un-climate-change-regime

Van Asselt, H. & Zelli, F. (2014). Connect the dots: Managing the fragmentation of global climate governance. *Environmental Economics and Policy Studies, 16*(2), 137-155.

Victor, D.G. (2011). *Global warming gridlock: Creating more effective strategies for protecting the planet*. Cambridge: Cambridge University Press.

Wang, Z. (2003). The impact of China's WTO accession on patterns of world trade. *Journal of Policy Modeling, 25*(1), 1-41.

Weisman, S.R. (2007, May 11). Bush and democrats in accord on trade deals. *The New York Times.* Retrieved from https://www.nytimes.com/2007/05/11/business/11trade.html

Weiss, E.B. & Jacobson, H.K. (1999). Getting countries to comply with international agreements. *Environment: Science and Policy for Sustainable Development, 41*(6), 16-20.

Whalley, J. (1998). Why do countries seek regional trade agreements? In J. A. Frankel (Ed.), *The regionalization of the world economy* (pp. 63-90). Chicago: University of Chicago Press.

Woo, W.T. (2011). The importance of being earnest in defusing US–China trade tensions. In J. Golley, & L. Song (Eds.), *Rising china: Global challenges and opportunities* (pp. 173-180). Canberra: ANU E Press.

World Bank. (2018). World development indicators. Retrieved from http://databank.worldbank.org/data/home

World Trade Organization. (1998). Understanding the WTO agreement on sanitary and phytosanitary measures. Retrieved from https://www.wto.org/english/tratop_e/sps_e/spsund_e.htm

World Trade Organization. (2018a). The Doha round. Retrieved from https://www.wto.org/english/tratop_e/dda_e/dda_e.htm

World Trade Organization. (2018b). Regional trade agreements and preferential trade arrangements. Retrieved from https://www.wto.org/english/tratop_e/region_e/rta_pta_e.htm

World Trade Organization. (2019). Understanding the WTO agreement on sanitary and phytosanitary measures. Retrieved from https://www.wto.org/english/tratop_e/sps_e/spsund_e.htm

Yamagata, Y., Yang, J. & Galaskiewicz, J. (2013). A contingency theory of policy innovation: How different theories explain the ratification of the UNFCCC and Kyoto protocol. *International Environmental Agreements: Politics, Law and Economics, 13*(3), 251-270.

Yoo, I.T. & Kim, I. (2016). Free trade agreements for the environment? Regional economic integration and environmental cooperation in East Asia. *International Environmental Agreements: Politics, Law and Economics, 16*(5), 721-738.

Zheng, D. & Shi, M. (2017). Multiple environmental policies and pollution haven hypothesis: Evidence from China's polluting industries. *Journal of Cleaner Production, 141*, 295-304.

Zito, A.R. (2005). The European Union as an environmental leader in a global environment. *Globalizations, 2*(3), 363-375.

Appendix

Table 1. Preferential trade agreement data.

YEAR	EU	US	CHINA
1954	Canada Portugal (2*)		
1955	France Tunisia (2)		
1956			
1957	EC (5)		
1958			
1959			
1960	EFTA (5)		
1961	EC Greece Association Agreement (1) EFTA Finland (2)		
1962			
1963	Yaounde I (4)		
1964			
1965	Ireland UK Free Trade Area (1)	Canada US (2)	
1966			
1967			
1968	Arusha Agreement (1)		
1969	EC Tunisia Association Agreement (1) EC Morocco Association Agreement (1) Arusha Agreement II (2) Yaounde II (4)		
1970	EC Spain (1) EC Israel (1) EC Malta (1) EC Turkey (2)		
1971			
1972	Austria EC (1) Cyprus EC (1) EC Egypt Agreement (1) EC enlargement (4) EC Finland (2) EC Portugal (2) EC Switzerland Liechtenstein (2) EC Island (2) EC Sweden (2) EC Lebanon (1)		
1973	EC Norway (3)		

1974	Bulgaria Finland (2) Czechoslovakia Finland (2) Finland Hungary (2)	
1975	EC greece additional protocol (1) Finland German (2) EC Israel (2) Lome I (3)	
1976	EC Morocco (3) Algeria EC (4) Tunisia (4) Finland Poland (5)	
1977	EC Lebanon (2) EC Egypt (3) EC Jordan (3) EC Syria (3)	
1978		
1979	EFTA Spain (2) EC Enlargement (6) Lome (22)	
1980	EC Yugoslavia (5)	
1981		
1982		
1983		
1984	Lome III (36)	
1985		Israel US (3)
1986	EC Single European Act (24)	
1987	EC enlargement (4)	
1988	Global System of Trade Preferences (1)	Canada US (8)
1989	Lome IV (66)	
1990	Andorra EC (1)	
1991	Lithuania Sweden (1) EC Faroe Islands (2) EFTA Turkey (7) EC San Marino (7) EC Poland (37) EC Hungary (43)	

1992	Estonia Finland (2) Czech Republic Slovakia (3) Finland Lithuania (2) Lithuania Switzerland (4) EFTA Romania (5) Czech and Slovak Republic EFTA (5) CEFTA (4) Latvia Switzerland (4) Latvia Sweden (4) Finland Latvia (4) Estonia Switzerland (4) Latvia Norway (4) EFTA Israel (5) Faroe Islands Finland (6) Lithuania Norway (6) EFTA Poland (10) EC Maastricht (30) European Economic Area (43)	NAFTA (99)
1993	Slovakia Slovenia (4) EC Slovenia (4) BAFTA (4) Czech Republic Slovenia (4) Bulgaria EFTA (9) EFTA Hungary (11) Czech Republic EC (17) EC Slovakia (43) EC Romania (45) Bulgaria EC (50)	
1994	EU Estonia (2) EU Lithuania (2) EU Latvia (2) Moldova Romania (4) Romania Slovakia (4) Hungary Slovenia (5) EU Maastricht enlargement (34)	

1995	EU Turkey (3) Czech Republic Lithuania (4) Estonia Ukraine (4) Bulgaria Czech Republic (4) Bulgaria Slovakia (4) EFTA Lithuania (7) EFTA Slovenia (11) EFTA Estonia (11) EU Tunisia (13) EFTA Latvia (14) EU Israel (16) EU Estonia (50) EU Lithuania (52) EU Latvia (57)	
1996	EU Faroe Islands (2) Latvia Slovenia (4) Baltic Free Trade Area (4) Lithuania Poland (5) Macedonia Slovenia (5) Lithuania Slovakia (4) Bulgaria Slovenia (4) Czech Republic Israel (4) Israel Slovakia (4) Estonia Slovakia (5) Latvia Slovakia (5) Czech Republic Latvia (6) Czech Republic Estonia (6) Lithuania Slovenia (6) Estonia Slovenia (7) EU Morocco (13) EU Slovenia (50)	

1997	Hungary Turkey (1) Lithuania Turkey (2) Estonia Turkey (3) Czech Republic Turkey (5) Latvia Poland (5) Slovakia Turkey (5) Estonia Faroe Islands (5) Hungary Israel (4) Romania Turkey (4) Croatia Macedonia (5) Israel Poland (6) Croatia Slovenia (6) BAFTA (9) EU Jordan (16) EU Amsterdam (39)	
1998	Latvia Turkey (3) Faroe Island Poland (4) Slovakia Turkey (5) Israel Slovenia (6) Bulgaria Turkey (6) Estonia Hungary (7) Hungary Lithuania (7)	
1999	Poland Turkey (6) Hungary Latvia (8) Bulgaria Macedonia (9) EU Switzerland (26) EU South Africa (37)	
2000	EU Mexico (6) Bosnia and Herzegovina Croatia (8) Cotonou Agreement (48)	US Vietnam (7) Jordan US (30)
2001	Croatia EU (4) Israel Romania (6) Bulgaria Israel (7) Bosnia and Herzegovina Slovenia (7) Croatia EFTA (7) Bulgaria Lithuania (10) Bulgaria Estonia (11) EU Egypt (20) EU Macedonia (36) EU Nice (37)	

2002	Croatia Serbia Montenegro (4) Armenia Estonia (4) Croatia Turkey (5) Croatia Macedonia, amended (5) Croatia Lithuania (6) Albania Croatia (7) Bulgaria Latvia (8) EU Lebanon (25) Algeria EU (25) Chile EU (35)		
2003	Albania Bulgaria (7) Bosnia and Herzegovina Bulgaria (8) Bulgaria Serbia (8) Bosnia and Herzegovina Romania (8) Macedonia Romania (10) Albania Romania (10) Romania Serbia (11)	Singapore US (55) Chile US (75)	China Hongkong (4) China Macao (4)
2004	Croatia Moldova (5) Bulgaria Moldova (9)	Bahrain US (58) Morocco US (66) Australia US (73) CAFTA (74) CAFTA Dominican Republic (89)	Association Southeast Nations China (3)
2005	EU Nice enlargement (13)		Asia Pacific Trade Agreement (1) Chile China (30)
2006	CEFTA (8) Albania EU (17)	Oman US (75) Colombia US (78) Peru US (105)	China Pakistan (12)
2007	EU Lisbon (17) EC Montenegro (35)	Panama US (83) Korea US (87)	Association Southeast Nations China (2)
2008	Bosnia and Herzegovina EU (30) EU Serbia (32) CARIFORUM EU EPA (84)		China Singapore (13) China New Zealand (51)
2009	Cote d'Ivoire EU (18)		China Pakistan (1) China Peru (44)
2010	EU Korea (82)		China Costa Rica (48)
2011			
2012	Colombia Peru EU (98) Central America EU (133)	US-PA (36) US-CO (38) US-KR (47)	
2013			China Switzerland (49)

2014	EU Georgia (101) EU Ukraine (116) EU Moldova (120)		
2015	EU Singapore (84)	TPP (137)	Australia China (21)
2016	CETA (115) EU Vietnamn (122)		

**The numbers between brackets indicate the number of EPs included in the PTA.*

Note. Adapted from "TREND analytics - Environmental Provisions in Preferential Trade Agreements" by Berger, Brandi, Bruhn & Morin, 2017, German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn, Germany, and Université Laval, Canada.

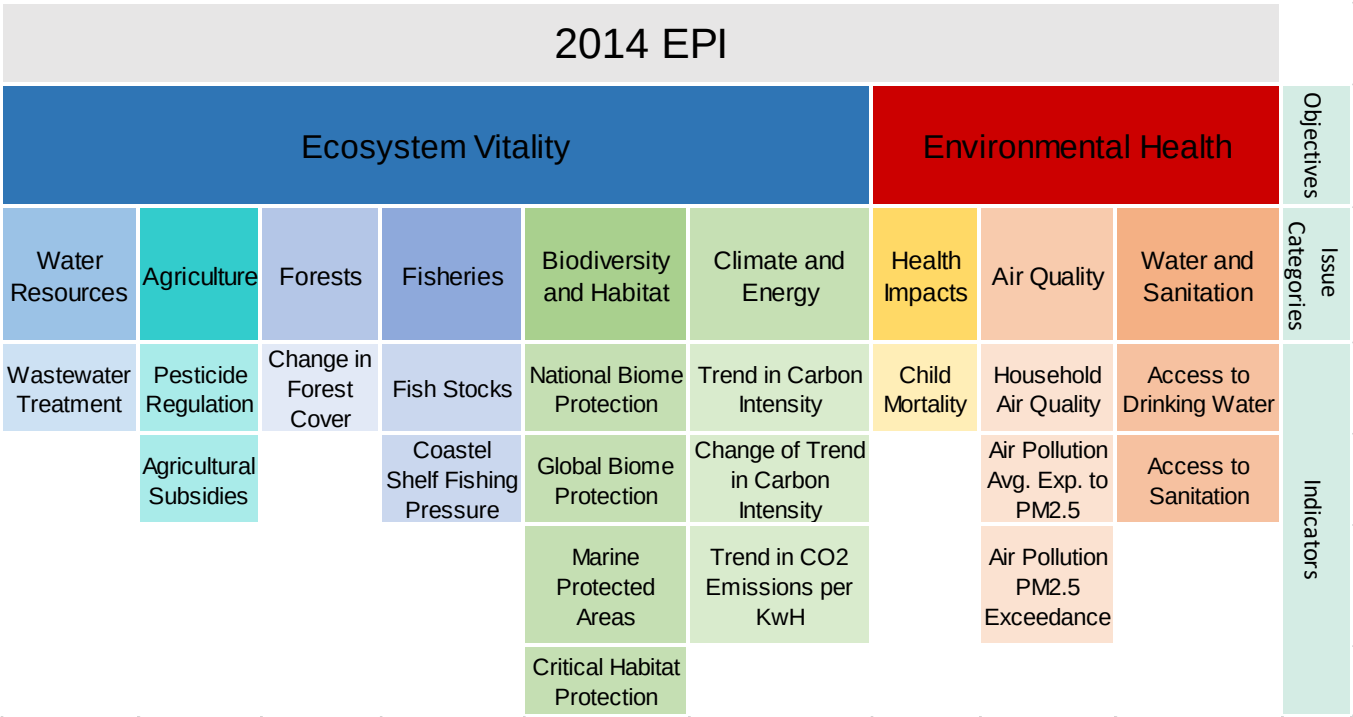
Table 2. PTAs conducted by China.

YEAR	*PARTICIPANTS*	*NAME OF AGREEMENT*	*NO. OF EPs*	*PTA WITH EU/US*
2003	China, Hong Kong	-	4	-
2003	China, Macao	-	4	-
2004	Association of Southeast Asian Nations*	-	3	-
2005	Bangladesh, China, India, South-Korea, Laos, Sri Lanka	Asia Pacific Trade Agreement	1	-
2005	Chile, China	-	30	EU, US
2006	China, Pakistan	-	12	-
2007	Association of Southeast Asian Nations* (services)	-	2	-
2008	China, New Zealand	-	51	US
2008	China, Singapore	-	13	EU, US
2009	China, Pakistan (services)	-	1	-
2009	China, Peru	-	44	EU, US
2010	China, Costa Rica	-	48	US**
2013	China, Switzerland	-	49	EU
2015	Australia, China	-	21	US

* Brunei, China, Indonesia, Cambodia, Laos, Myanmar, Malaysia, the Philippines, Singapore, Thailand and Vietnam.
** Costa Rica has not signed a bilateral trade agreement with the US, but is part of the Dominican Republic – Central America trade agreement which is the trade agreement between the US and a number of smaller economies (Office of the United States trade representative, 2018).

Note. Adapted from "TREND analytics - Environmental Provisions in Preferential Trade Agreements" by Berger, Brandi, Bruhn & Morin, 2017, German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn, Germany, and Université Laval, Canada.

Figure 1. EPI objectives and issue categories.



Note: Adapted from "Our Methods" by Yale University, 2018, retrieved from: http://epi2012.yale.edu/our-methods

Table 3. Environmental provisions data.

European Union

Period	*Nr. of PTAs*	Environmental Protection	Regulatory Space	Level playing Field	Policy Coherence	Development	MEAs	Implementation	Enforcement	**Total EPs**	Average Eps
1954-1960	*4*	2	7	-	-	1	3	1	-	**14**	4
1961-1967	*4*	1	4	-	1	1	1	-	-	**8**	2
1968-1974	*23*	3	23	-	2	1	10	1	-	**40**	2
1975-1981	*16*	9	15	-	3	6	19	17	1	**70**	4
1982-1988	*4*	20	4	4	13	8	6	10	-	**65**	16
1989-1995	*57*	281	126	20	148	38	107	78	5	**803**	14
1996-2002	*67*	180	254	14	99	25	75	53	3	**703**	10
2003-2009	*18*	93	89	22	30	16	43	32	5	**330**	18
2010-2016	9	312	144	51	90	49	137	132	56	**971**	108
Total	*202*	901	666	111	386	145	401	324	70	**3004**	15
Percentage		30.0%	22.2%	3.7%	12.8%	4.8%	13.3%	10.8%	2.3%		

United States

Period	*Nr. of PTAs*	Environmental Protection	Regulatory Space	Level playing Field	Policy Coherence	Development	MEAs	Implementation	Enforcement	**Total EPs**	Average Eps
1954-1960	-	-	-	-	-	-	-	-	-	**0**	-
1961-1967	*1*	-	2	-	-	-	-	-	-	**2**	2
1968-1974	-	-	-	-	-	-	-	-	-	**0**	-
1975-1981	-	-	-	-	-	-	-	-	-	**0**	-
1982-1988	*2*	-	6	1	-	-	2	2	-	**11**	6
1989-1995	*1*	28	12	6	4	4	8	16	21	**99**	99
1996-2002	*2*	12	11	2	-	4	-	5	3	**37**	19
2003-2009	*12*	217	158	29	36	36	112	170	160	**918**	77
2010-2016	*4*	94	18	6	25	19	12	66	18	**258**	65
Total	*22*	351	207	44	65	63	134	259	202	**1325**	60
Percentage		26.5%	15.6%	3.3%	4.9%	4.8%	10.1%	19.5%	15.2%		

China

Period	*Nr. of PTAs*	Environmental Protection	Regulatory Space	Level playing Field	Policy Coherence	Development	MEAs	Implementation	Enforcement	**Total EPs**	Average Eps
1954-1960	-	-	-	-	-	-	-	-	-	**0**	-
1961-1967	-	-	-	-	-	-	-	-	-	**0**	-
1968-1974	-	-	-	-	-	-	-	-	-	**0**	-
1975-1981	-	-	-	-	-	-	-	-	-	**0**	-
1982-1988	-	-	-	-	-	-	-	-	-	**0**	-
1989-1995	-	-	-	-	-	-	-	-	-	**0**	-
1996-2002	-	-	-	-	-	-	-	-	-	**0**	-
2003-2009	*11*	34	40	-	15	9	20	36	3	**157**	14
2010-2016	*3*	21	24	4	15	16	20	16	2	**118**	39
Total	*14*	55	64	4	30	25	40	52	5	**275**	20
Percentage		20.0%	23.3%	1.5%	10.9%	9.1%	14.5%	18.9%	1.8%		

Note. Adapted from "TREND analytics - Environmental Provisions in Preferential Trade Agreements" by Berger, Brandi, Bruhn & Morin, 2017, German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn, Germany, and Université Laval, Canada.

Table 4. EPs in PTAs with Chile.

Category	Provision	Chile-US	Chile-EU	Chile-China
Environmental protection	Commitment to enhance, strengthen, improve levels of environmental protection	yes	no	no
	Contaminated land	yes	no	no
	Definition of environmental law, environmental governance etc.	yes	no	no
	Domestic waste	yes	no	no
	Endangered species and their illegal trade	yes	no	no
	Environmental education or public awareness	yes	yes	yes
	General encouragement to invest and trade in environmental goods and services	yes	no	no
	Laws and regulation should provide for high levels of environmental protection	yes	no	no
	Other environmental norms	yes	yes	no
	Other norms on biodiversity	yes	yes	no
	Other norms on water	no	no	yes
	Ozone layer and CFC	yes	no	no
	Pesticides, fertilizers, toxic or hazardous products and chemicals	yes	no	no
	Preamble refers to the environment	yes	yes	yes
	Promotion of energy efficiency	no	yes	no
	Promotion of renewable energy	no	yes	no
	Promotion of specific voluntary measures regarding the environment	yes	yes	no
	Promotion of unspecified voluntary measures regarding the environment	yes	no	yes
	Protected areas, parks and natural reserves	yes	no	no
	Protection of coastal areas	no	no	yes
	Protection of seas and oceans	no	no	yes
	SPS measures and the environment	yes	yes	yes
	Unspecified economic or market instruments meant to promote environmental protection	yes	no	no
Total		*18*	*8*	*7*
Regulatory space	Conservation of natural resources as a general exceptions for trade in goods	yes	yes	yes
	Exception on services linked to conservation of natural resources	no	yes	no
	Exception on services linked to life or health of flora or fauna	yes	yes	no
	Exclusion of environmentally harmful inventions from patentability	yes	yes	no
	General exceptions for trade in goods necessary for the protection of life and health of flora or fauna	yes	yes	yes
	General exceptions on procurement and the environment	yes	yes	no
	General trade related measure on investment	yes	no	no
	Right to derogate from the regular adoption procedure of a technical barrier to trade measure in case of emergency	yes	yes	yes

	Right to prepare, elaborate, adopt or apply technical barriers to trade measures related to the environment	yes	yes	yes
	Sovereignty in determining the level of protection according to State priorities	yes	no	no
	Specific trade related measure on establishment	yes	yes	no
	Specific trade related measure on expropriation	yes	no	no
	Technical specification or restriction in tender procedure	yes	no	no
Total		*12*	*9*	*4*
Level playing field	Alignment of a Party's environmental legislation to the other Party's	no	yes	no
	Inappropriate to encourage investment by relaxing environmental measures	yes	no	no
	Inappropriate to encourage trade by relaxing environmental measures	yes	no	no
	Measures against a high level of environmental protection set for protectionist purposes	yes	no	no
	Mutual recognition of national environmental measures	no	yes	no
Total		*3*	*2*	*0*
Policy coherence	Coherence in general	yes	yes	yes
	Coherence with domestic trade and/or investment policies	yes	no	yes
	Cost-benefit analysis in regard to environmental measures	yes	no	yes
	Interaction between agriculture and the environment	yes	yes	no
	Interaction between energy policies and the environment	yes	no	no
	Interaction between land-use planning and the environment	no	yes	no
	Interaction between mining and the environment	yes	yes	no
	Interaction between social issues and the environment	yes	yes	yes
Development	Reference to mutual supportiveness between environment and trade or development	yes	no	no
Total		*8*	*5*	*4*
Development	Technical assistance, training or capacity building provided to another Party	yes	yes	no
	Technical assistance, training or capacity building provided to non-state actors	yes	yes	no
	Technology transfer in the field of environment	no	yes	no
		no	yes	no
Total		*2*	*4*	*0*
MEAs	Implementation of a specific part of the Montreal Protocol	yes	no	no
	Implementation other agreements related to the environment	yes	no	yes
	Negotiations of environmental agreements	yes	yes	no
	Prevalence other agreements related to the environment in case of inconsistency	no	no	yes

	References to other institutions related to the environment	yes	yes	yes
Total		*4*	*2*	*3*
Implementation	Conduct joint scientific research on the environment	yes	yes	no
	Creation of an intergovernmental committee	yes	no	yes
	Direct contact between non-state actors of both Parties	yes	no	yes
	Each party must fund its implementation of the agreement	yes	no	no
	Establishment of a contact point on environmental matters	yes	no	yes
	Funding of cooperation activities	yes	no	yes
	General obligation to exchange information related to the environment	yes	yes	yes
	Joint environmental assessment and study or monitoring of environmental concern	yes	yes	yes
	Provision of information when taking measures to protect the environment	yes	no	yes
	Publication of environmental laws, regulations and administrative rulings	yes	no	no
	Public communication of actions undertaken pursuant to the agreement	yes	no	no
	Public participation in the adoption of environmental measures	no	no	yes
	Public participation in the implementation of the agreement	yes	no	no
	Specific means to conduct scientific cooperation	yes	no	yes
	Specific means to exchange information	yes	yes	yes
	Vague commitments to cooperate	yes	yes	yes
Total		*15*	*5*	*11*
Enforcement	Binding obligations	yes	no	no
	Consent to use the dispute settlement mechanism of multilateral environmental agreements	yes	no	no
	Cooperation on enforcement	yes	no	no
	Dispute Settlement Mechanism: monetary enforcement assessments for failure to enforce environmental measures	yes	no	no
	Dispute Settlement Mechanism: non-jurisdictional mechanism for failure to enforce environmental measures	yes	no	no
	Dispute Settlement Mechanism: suspension of benefits in case of failure to enforce or to pay	yes	no	no
	Environmental experts as panellists or mediators for state-state dispute over failure to enforce environmental measures or provisions of the trade agreement	yes	no	no
	Explicit mention of the illegality of extraterritorial enforcement activities	yes	no	no
	Private access to remedies, procedural guarantees and appropriate sanctions	yes	no	no

	Production of an environmental report in investor-state dispute	yes	no	no
	Production of an environmental report in state-state dispute over failure to enforce environmental measures or provisions of the trade agreement	yes	no	no
	Sovereignty in the enforcement of environmental measures	yes	no	no
	Specific non-jurisdictional dispute settlement mechanism	yes	no	yes
Total		*13*	*0*	*1*
Total		**75**	**35**	**30**

Note. Adapted from "TREND analytics - Environmental Provisions in Preferential Trade Agreements" by Berger, Brandi, Bruhn & Morin, 2017, German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn, Germany, and Université Laval, Canada.

Table 5. Ratification MEAs Pakistan.

Year	*MEA*	*Ratification China*	*Ratification Bangladesh*
2003	International Plant Protection Convention (1997 Revised Text)	2005	1998
	International Treaty On Plant Genetic Resources For Food And Agriculture	-	2003
2004	World Health Organization Framework Convention On Tobacco Control	2005	2004
2005	Amendment To The Montreal Protocol On Substances That Deplete The Ozone Layer	2010	2001
	Protocol To The United Nations Framework Convention On Climate Change	2002	2001
	Convention On The Prior Informed Consent Procedure For Certain Hazardous Chemicals And Pesticides In International Trade	2005	-
	Amendment To The Montreal Protocol On Substances That Deplete The Ozone Layer	2010	2010
	Agreement For The Establishment Of The Global Crop Diversity Trust	-	-
2006	Protocol of Amendments to the Convention On The International Hydrographic Organization	2014	2013
2008	Convention On Persistent Organic Pollutants	2004	2007
2009	Cartagena Protocol on Biosafety to the Convention On Biological Diversity	2005	2004
2012	Antarctic Treaty	1983	-
	Convention On The Conservation Of Antarctic Marine Living Resources	2006	-
	Protocol On Environmental Protection To The Antarctic Treaty	1994	-

Note. Adapted from "International Environmental Agreements (IEA) Database Project" by Mitchell, 2018.