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Trade Structures between Mexico, China and the European Union with Impact on the Trade of WHR Systems

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Abstract

With this thesis the researcher was aiming to identifying the differences between Mexico-China and Mexico-EU trade and export to make conclusions about whether consisting trade structures in these relationships have an impact on WHR technology trade. Thereby, a special emphasis was put on the identification of possible incentives that might additionally enhance the trade with WHR technology. This research has been done on behalf of a case company.

To familiarize the reader with the spectrum of topics which had to be combined in order to cover the facets of the research problem, theoretical background on international trade, sustainability and regional integration, as well as a PESTLE analysis of Mexico has been provided. In the empirical part of the research, semi-structured face-to-face interviews have been conducted with employees of the case company to add a nonabstract perspective beyond the theory to the research. The statements from these interviews have been analysed, compared to the theoretical findings and rounded out by additional secondary data for the formulation of the research findings and the resulting recommendations.

The data and interview statements suggest that the main difference between Mexico-China and Mexico-EU trade lies in the existence of a free trade agreement between Mexico and the EU which offers preferential tariffs for WHR technology, whereas no such agreement currently exists between China and Mexico. China's position in the WTO also has the potential for future trade disputes with Mexico. Minor differences have been identified between the duration of shipping voyages and export documentation. Product-specific incentive programmes could not be identified. Furthermore, the data suggested that trade barriers as well as incentives and cooperations depend heavily on geopolitical factors and national interests, this shows especially in Mexico's relationship with the United States of America, while national approaches on sustainability and climate change are strong determinators of a country's ambition to enhance clean energy technology.

Key words
International Trade, Mexico, China, European Union, WHR, Export, Regional Integration, Sustainability

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1 INTRODUCTION

Over the years, the growing energy demand and growing awareness for sustainability both fueled the discussion over how a reliable energy supply can be enabled while making power plants also more efficient and cleaner. Waste heat recovery (WHR) has been identified by companies on one hand and by governments on the other as one suitable technology to reach these goals, but incentives and an advantageous framework of trade structures are key to enhance the willingness to invest in clean technologies.

In the context of global efforts fortified by international agreements to minimize greenhouse gas emissions, this research examines to what extend the international trade with WHR technology can benefit from or is hindered by trade structures. The focus import market at this is Mexico with the exporting markets being China and the European Union (EU); the research explores the existing differences in trade structures between the Mexico-China and the Mexico-EU trade. As trade structures are a sensitive result of diplomatic relationships, economic and political interests, and global trends, the present trade structures between Mexico and China and Mexico and the EU which also impact the WHR trade have to be seen in the context of Mexico's economic past and present, and with special respect to Mexico's strong ties with the United States of America and the interests resulting from that. Mexico's regional integration and how it could develop in the future have therefore been a mayor point of interest in this research since international partnerships, but especially free trade agreements (FTAs) remove tariff and non-tariff barriers. Depending on the importance these regional integrations see in sustainability, special promotive initiatives can exist to offer additional incentives to the energy sector to invest in clean technology; the research analysed whether such programmes or initiatives existed in the Mexican-Chinese and the Mexican-European trade.

Mexico's national ambitions and whereabouts towards sustainability needed to be addressed as well, as did current political and social realities, legal changes and

environmental threats the country is likely face in the future, which led to the inclusion of a PESTLE analysis into the research. Given the versatility of the topic, the researcher after having collected secondary data covering the research questions conducted interviews for the empirical part of the research with employees of the case company this research is intended for; each interviewee having special expertise on a different topic which helped assembling a larger picture during the evaluation phase.

2 PURPOSE, OBJECTIVES AND CONCEPTUAL FRAMEWORK

2.1 Purpose of the Research

The topic of this research has originally been suggested by the Regional Business Manager (Global Sales) of case company and its content-related details have been agreed upon together with the researcher.

The purpose of this research is to analyze the trade policies between Mexico and China and Mexico and the European Union (EU) – with Mexico being the importing country in both cases – in order to identify beneficial trade policies such as trade reliefs and agreements, financial incentives and guidelines that have a positive impact on the sales of WHR systems and which the case company can make use of in future projects for Mexican customers. The case company is especially interested in the differences between importing WHR systems from the EU and importing them from China.

The two main objectives of the research are therefore the analysis of trade policies between Mexico and the EU and Mexico and China on one hand, which includes identifying trade agreements, current trade relationships between importing and exporting nation, and possible trade barriers. The second objective is a close look at sustainability policies inside Mexico that benefit the purchase and installment of WHR systems; energy efficiency and climate change-related policies are included in this objective.

2.2 Research Problem and Objectives

The research problem is

- Which financial incentives in Mexico, and which trade policies between Mexico as importing country and China and the European Union as production countries can impact the company's WHR sales?

Connected to the research problem, the following research objectives will be analysed:

- How to identify trade policies and legal changes?
- How are the current trade policies between Mexico and China and the EU influencing their trade with each other and how does import into Mexico from China differ from import from the EU?
- How is the availability of financial incentives for WHR systems linked to Mexico's approach on sustainability and climate change?
- What status does WHR technology have in Mexico?

The identification of existing financial incentive programmes and beneficial trade policies such as agreements advocating for less trade restrictions and low import taxes are the core interest the company has in this research. To add a deeper level of understanding as to why the focus country acts the way it does, the three research problems have been developed and will prevent a superficial analysis of the topic that would only look at the answer to the research problem rather than including the underlying controversies that are responsible for the answer.

As a consequence of the complexity of the topic, the data sources used for answering the research problem and objectives have to likewise cover a number of areas. Academical literature issuing international business, international trade policies, and trade agreements with their impact are studied to cover the trade policy aspect. These academical sources are primarily books, however journal and newspaper articles are seen as likewise suitable as long as the text itself and the journal or newspaper they have been published in stand up to the academical standards. The same academical requirements need to be met by the mentioned books in order to be considered as reliable sources. Additional secondary data from intergovernmental organisations,

governmental agencies, and research institutes is collected to gather information on trade, the climate political impact on decision making, the status of WHR technology and, resulting from that, incentives to promote its purchase and installation.

2.3 Conceptual Framework

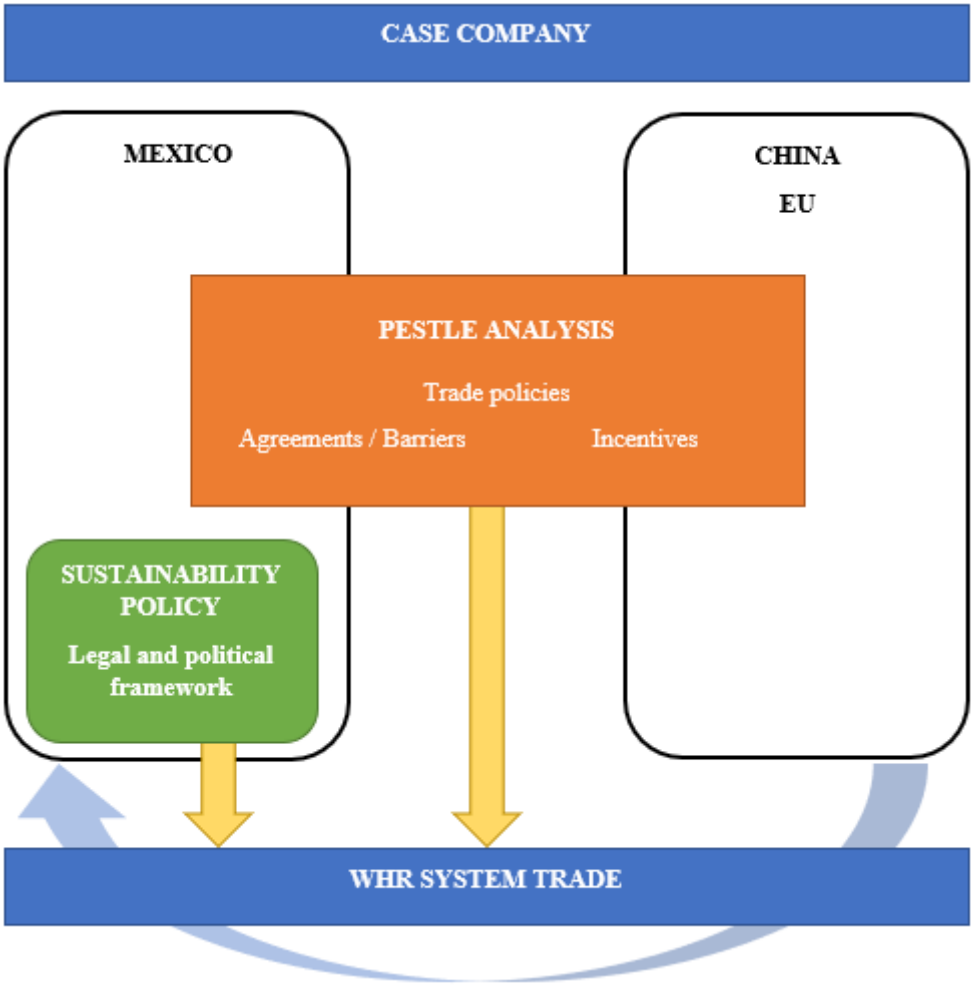

Figure 1. Conceptual Framework for this research

The conceptual framework for this research as presented in Figure 1 above outlines the terminology, the scope and therefore also the limitations of the research and shows how the concepts are related to one another. The framework is introduced to the reader as a compass to understand the structure of the thesis and the choice and importance of the concepts.

The case company has production facilities in the Peoples' Republic of China and in the European Union (EU), from where goods are exported. Among the countries in which the case company has customers are countries of special interest where the case company wants to increase the number of projects; among these are the nations of Northern America – especially Mexico, on which this this research is focussing.

The trade policies – including economic and political relationships as well as the question of power – between China and Mexico, and the EU and Mexico define the way in which trade between these countries is handled. Free Trade zones, trade agreements lowering barriers and financial incentives for certain product types can stimulate and therefore benefit international trade, while penalties such as higher import taxes and reinforced trade barriers are imposed by a nation to restrict the trade with another nation, possibly to force them to act in a way that benefits only the imposing nation. The way trade policies change also affects the overall relationship between the nations; they may consider each other as trade partners or as opponents and so trade policies are changing constantly – with impact on WHR systems as well. Although these products are usually not the focus of trade agreements or penalties, they can benefit from favourable trade policies and may suffer from unfavourable ones such as high import taxes resulting in higher purchase prices for the case company's customers.

Apart from the trade policies between the production countries China and the EU and the importing country Mexico, a second factor influences WHR system trade: The status of sustainability policies on which legal and political frameworks concerning climate change action depend. As WHR systems aim at saving fuel and limiting greenhouse gas emissions in industrial processes making them cleaner and more efficient, this technology finds recognition in incentive programmes supporting their installation. These incentive programmes are designed to financially support the transformation of industries to cleaner and environmentally less harmful processes. The transformation usually includes the installation of modern technology to increase efficiency and limit emissions, or the shift from fossil fuels to renewable fuels. Whether or not WHR is viewed as eligible technology for these programmes varies between nations and programmes and goes back to legal definitions of green technology. The geographical realities of a nation may also affect the focus of the

incentive programmes and which technology benefits from them. States benefitting from a high number of sun hours may focus their financial support stronger on the installation of solar panels to use the natural resources they have instead considering other technologies. Generally, the political mindset regarding sustainability and climate change plays a larger role in the existence and broadness of incentive programmes for green technology, and also in the definition of green technology. If a state views climate change as a core challenge for the future, or if the state is already facing the impact of climate change and air pollution, it is more likely that they introduce financial incentive programmes for the industry. A customer from one of the focus countries importing a WHR system from the case company may than benefit from tax reliefs, grants, investment bonusses or cheap bank loans to finance the investment. The case company can therefore benefit from the knowledge about these programmes and use them in their sales strategy.

2.4 Limitations

As presented in the conceptual framework, sustainability policies are an important concept for the research. However, this research will not include an in-depth analysis of a nation's climate and sustainability action plan. The research will focus on current climate political standpoints and legal definitions that build the fundament for the existence or non-existence of financial incentives for WHR technology.

North America is the third largest of all seven continents (Statista, 2020a) and holds two of the three largest nations on earth, Canada and the US (Statista, 2020b). Considering that the US consists of over 50 states and territories (Library of Congress, 2020), all of which have their own state or territorial authorities which can decide over a number of political matters in their state or territory instead of acting under one nationwide approach. Decisions over climate politics and incentive programmes that have an impact on WHR for industries are among the states' affairs; an agenda on federal level does currently not exist (Men, Schunz & Freeman, 2020, p. 199). This factor would affect this research as it would add immensely to the complexity and the research time because each state would need to be viewed individually to understand what value they give to WHR. To nevertheless keep the research findings detailed and

valuable for the case company, this research therefore concentrates solely on Mexico as focus market in North America. However, the US and Canada will be included into the research only in connection to international cooperations between Northern American countries that could impact the trade of WHR within North America, as for example the North American Free Trade Agreement (NAFTA) and its successor the United States-Mexico-Canada-Agreement (USMCA).

Apart from trade agreements or penalties there are other concepts in trade influencing the final purchase price for the importing customer, such as the Incoterms as defined by the International Chamber of Commerce (ICC). The meaning of the Incoterms on the purchase price will not be subject to this research as they do not have an impact on WHR systems specifically but rather determine general terms, documentation and responsibilities for transportation costs for all traded goods apart from national interests and agendas.

3 INTERNATIONAL TRADE

According to Cavusgil et al. (2013), international trade summarizes all those activities done by a company or other entity, such as a government, that include investments and the trade of products and services across country borders. A number of promising factors can motivate companies to engage in international trade: While some may seek for proximity to their customers abroad to offer them better services, the exploitation of cheaper production countries can be the key motivator as well, and yet other companies internationalise start their journey with the goal to start valuable relationships with new business partners and increase their profits through serving new markets. The result of this internationalisation is a globalisation of markets in which the economy of one nation will not remain unaffected by the economic changes happening in another market abroad (pp. 2-3, pp. 10-11.)

3.1 Development of market globalisation

Decades of market globalisation developments brought us to the globalised world as it is today. Although early global supply chains go back centuries, the fastest developments have been reached during the 20th and 21st century and especially after the Second World War when global supply chains became an even more attractive tool to survive in increasingly competitive markets. While sugar plants during colonial times simply could not grow in Western climate zones, the main reason for outsourcing production to overseas nations from the 1950s onwards was the availability of cheap labour and generally more advantageous production factors in these nations. Production has been moved preferably to Asian nations such as Japan, South Korea or Taiwan during the 1960s, and also to China in the course of their economic reforms in the late 70s. As a result, while international trade expanded and intensified between 1950 and 2008, with the amount of manufacturing output decreasing in the US and Europe from 75% in the time between the wars to no more than 50% by the end of the century (Christoff & Eckersley, 2013, pp. 46-47.)

The removal of trade barriers, changes in political ideologies and the emergence of trade unions and agreements created a strong tailwind for international trade. Only three years after the end of the Second World War, in 1948, the General Agreement on Tariffs and Trade (GATT) was established, aiming to reducing tariffs and non-tariff barriers that hinder trade in order to fight unemployment and improve the living standards of all member states (WTO, 1986, p. 1). This framework found early use in trade negotiations in 1986, when the Uruguay round met with the goal to agree upon freer trade for agriculture and textile products (Christoff & Eckersley, 2013, p. 48). During the 1980s, also the political ideology of neoliberalism emerged and with it the arguments that protectionism and governments acting protective are inefficient (Christoff & Eckersley, 2013, p. 57), whereas globalisation, which inevitably will introduce capitalism to all nations on earth, can be the foundation of new social structures. Those new ideas are to be based on the Western approach of capitalism, which, to some representatives of neoliberalism such as Mandelbaum, is necessary if the world wants to be free (Rosow & George, 2014, p. 96).

Needless to say, the global South and nations not considered as Western do not silently consent to this always-winning, dominant Western approach anymore in the 21st century as this reminds especially former colonies of methods from the time of colonialism and imperialism, when the most powerful players simply enforced their politics on those they saw as inferior. Instead, positions have changed to a more democratic perspective on globalisation that brings with it for example the installation of Human Rights Courts which any nation can approach if they feel that fundamental harm has been done to them (Rosow & George, 2014, p. 97.)

3.2 Trade and Sustainability

International trade has also been criticised for its impact on the environment, the degree of its sustainability has been questioned. The impact international trade by ship, road and air reaches from animal and plant species entering foreign ecosystems by being accidentally transported in boxes or bilge water in ships, to coastal pollution and increased fuel emissions (Christoff & Eckersley, 2013, pp. 54-55). The global supply chains of internationally trading and producing companies brought with them an increase of greenhouse gas emissions in transportation. Fuels used for transportation still come up for one quarter of CO_2 emissions with road transportation being the main source of transport emissions, followed by aviation and shipping. Not all emissions originating from road vehicles result from road freight vehicles, on the contrary, while passenger traffic is responsible for around 3.6 gigatons of CO2, freight transport causes 2.4 gigatons (IEA, 2020a.)

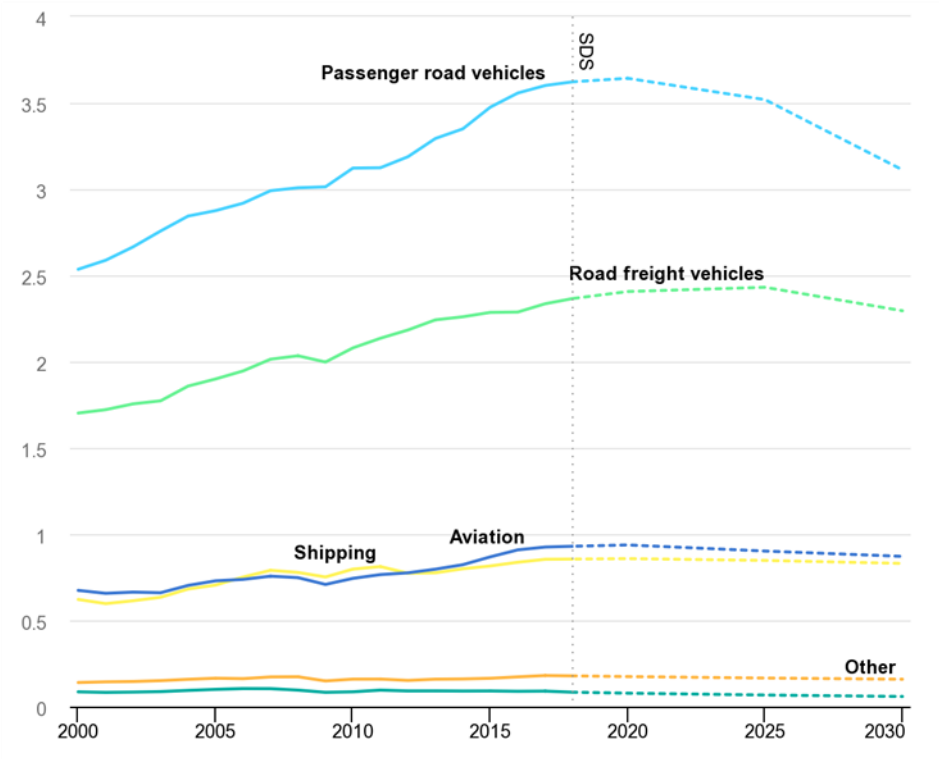

Figure 2. Annual CO_2 emissions in gigatons by mean of transportation (IEA, 2020a).

While this controversy is not new and has been going on since the 1960s with the emergence of environmental movements and political parties, it is a discussion topic still today as governments have difficulties finding an environmentally effective yet economically bearable consensus for new regulations and sustainability standards for trade, transportation, or even consumption that could negatively affect the market globalisation and international trade as commonly only the reduction of trade barriers can make it more dynamic (Christoff & Eckersley, 2013, pp. 48-54.)

Other factors encouraging international trade include technological innovations and the modernisations and industrialisations of economies in general (Cavusgil et al., 2013, pp. 12-13), which are again two contentious issues in the environmental protection controversy as both higher technological standards and increasing industrialisation also increase the demand for and use of energy. Globally, around 81,3% of the total energy supply still goes back to fossil fuels (IEA, 2020b). Here again, a disparity between the global North and global South appears to exist. Although a peak in greenhouse gas emissions and the achievement of higher energy efficiency – to be achieved also through the international trade of clean technology and help

programmes between nations – has been agreed upon for example in the Paris Agreement (UNFCCC, 2020a) which 189 countries from both global North and South have joined so far (UN, 2020), the scepticism against a dictating North trying to hinder developing countries to achieve the economic status of a developed country through trade and industrialisation exists (Christoff & Eckersley, 2013, p. 57) and has been an important aspect of international agreements on climate action for a long time. As it shows, international trade in the 21st century is hard to disconnect from unsolved problems around sustainability, environmental protection, and the claims of developing nations to economic growth. Already during the negotiations for the Kyoto Protocol, which took place in the late 1990s until coming into force in 2005 (UNFCCC, 2020b), countries like China insisted on being viewed as developing countries as they saw their economic development endangered by the ideas for a more sustainable future as expressed by already wealthy countries (Men et al., 2020, p. 194).

However, there are opponents to the theory that international trade is automatically joined by low sustainability. Their argument is that only free trade and the removal of trade barriers can enable a fair global distribution of technologies needed to bring the desired success in the fight against climate change (Christoff & Eckersley, 2013, p. 75) – technologies which would include well-established technology for renewable energy such as solar panels, but could also include, in respect to the case company for this research, energy efficiency technology such as WHR. As mentioned, the Paris Agreement even mentions this fair distribution of technology as one key aspect of the agreement under the title "Finance, technology and capacity-building support" (UNFCCC, 2020a), although the Agreement does not imply that international trade itself would benefit the climate.

Research has been done in the past questioning this argument, finding evidence that either invalidates the argument completely, or disproved it as a false hope especially for the global South: The majority of data which has been analysed showed a link between the increase in CO2 emissions and open trade. However, they also found data implying that, in fact, there could be a more positive influence on emissions through trade but only for already developed nations, whereas undeveloped and developing nations would only experience a worsening of their current situation (WTO-UNEP, 2009, p. 53.)

4 PESTLE ANALYSIS

The PESTLE analysis is a tool used for identifying business opportunities as well as threats in a market. These, together with identified changes and trends in the economy can help a business preparing for market entry or developing their business strategy in the particular market. The name PESTLE is an acronym formed by the initial letters of each parameter of the tool: Political, Economic, Social, Technological, Legal and Environmental factors are taken into consideration for the analysis creating a multidimensional, objective view on a market (Rastogi & Trivedi, 2016, p. 385-386.)

While other versions of PESTLE exist – as for example the PEST (also known as STEP) which analyses only political, economic, social and technological parameters while excluding the legal and environmental viewpoints – an examination of the Mexican market for WHR trade using all six parameters appears most sensible to the researcher as legal and environmental influences play a key role for future opportunities in the business.

The current President of Mexico is Andrés Manuel López Obrador, who announced on 21 January 2021 that he is sick with Covid-19 bringing Mexico's political stability to a critical point as the country under his leadership has currently no vice president and no functioning cabinet as Obrador concentrated power mainly on himself. As President Obrador is in his late 60s, his infection could turn severe. His government has not been very successful against the pandemic with record death numbers and feeble hygienic guidelines not even the President himself is following; Bloomberg even ranked Mexico last in a comparison of 54 nations in its Covid Resilience Ranking. (De Haldevang, 2021.)

López Obrador's party, the National Regeneration Movement (MORENA) can be described as a hodgepodge of ideologies held together mainly by Obrador rather than their political convictions. MORENA started as a movement born after the 2006 elections in which Felipe Calderón was declared winner against Obrador whereafter Obrador questioned the electoral legitimacy and called on his followers to start public protesting (Jorgic & Paul, 2020; McKinley Jr. & Thompson, 2006). However, since he took office in 2018, the country has been unable to solve its long-known problems

under his leadership, problems including the power of drug cartels and Mexico's economic problems. López Obrador, who can be classified as a member of the political left, broke with the strategy of his predecessor Enrique Peña Nieto to open the markets for foreign investors and weaken state-owned monopolies such as in the energy sector; instead, López Obrador seeks to return to a centralised economy, strengthening the power of state-owned companies again, much to the anger of business owners and investors from abroad for whom Mexico began to be a promising market. With Covid-19 also being added to the list of national problems, López Obrador's government is losing public approval: 55% are unhappy about the way public security issues are being handled, 47% are disappointed with the nation's economy (Bremmer, 2021.)

One issue Mexico struggled with for decades, and for which López Obrador is blaming the opposition, is the remaining high level of corruption. He did put a lot of emphasis on this topic when he got elected, promising to exterminate corruption from top-level politics and from all lower political levels. Unfortunately, little has changed since 2018: In the latest Corruption Perceptions Index published in early 2021, Mexico ranked 124th of 179, between Kyrgyzstan and Pakistan (Transparency International, 2021, p. 3). One of the latest examples was the claim of former PEMEX head Emilio Lozoya in 2020, accusing former Mexican presidents – including Enrique Peña Nieto – of giving lucrative contracts to the company against handouts. López Obrador did call out for a referendum back in September 2020 which, if voted for in favour, would make it possible to indict former Mexican presidents against which evidence has been found proving their participation in criminal activities. The referendum could coincide with the mid-term elections in 2021, therefore critics are still suspicious whether the referendum is only a tool for MORENA's election campaign (Grillo, 2020.)

Economically, Mexico can still be considered an emerging market. While developing nations suffer from small economic growth, the economy of emerging markets is prospering and their annual GDP growth rates often surpass those of advanced economies (World Bank, 2020a). Other typical characteristics of emerging markets include the reduction of trade barriers, growing trade volume, government support including the market entry for foreign competitors, but also the availability of low-cost labour, moderate infrastructure, and political uncertainties bearing risks for investors and trade partners. Emerging markets also experience social changes, their middle

class is growing and experiences better living standards than earlier generations – as a result, consumption is growing and citizens can afford new goods and services which makes emerging markets very attractive target markets for companies and investors (Cavusgil et al., 2017, p.236-239.)

Mexico fulfils these characteristics, although its GDP growth has already slowed down to some extend since 2010 when the annual growth was at 5.1% (World Bank, 2020a). The OECD (2020) predicts a growth of 3.6% in 2021 resulting at large from the export of manufacturing goods for companies that belong to global supply chains. The still ongoing Covid-19 pandemic is still causing new changes in global trade. While many Western economies are still struggling under the uncertainties arising from ever changing infection rates and restrictions, the Chinese economy has recovered well already with effects also in the shipping and container markets. During the lockdown spring of 2020 between March and April many European shipping companies reduced their capacities for freight transports from China to the EU drastically to save costs arising from potential empty runs. Although China's pandemic and economic situation has changed since spring 2020, several shipping companies have not re-adjusted their capacities while the demand has been growing again. As a result, the number of available containers for freight transport from Chinese harbours is low and the prices for a standard 40-foot container have risen dramatically; the 40-foot container can cost up to USD 8,000 for the route from China to Europe, when previously the price was at about a sixth of this sum. Apart from higher prices for containers and as an effect of the container scarcity in China, delivery delays of four to six weeks can still occur over the course of this spring and early summer (Leonhartsberger, 2021.)

The country's population is currently at about 127,7 million and is expected to grow to 150 million by 2050, although Mexico's population growth is by now closer to that of many Western nations and reached an all-time low of 1.09% annual growth in 2019 (World Bank, 2020b; IEA, 2020c). Naturally, Mexico, like the rest of the world, has been and still is affected by the Covid-19 pandemic. Their current status, on 29 January 2021, is a seven-day average of 16,319 new cases per day. The country is in the midst of a new peak although with a short-term downward tendency which may or may not develop into a permanent decrease of new infections. Especially affected is the capital Mexico City and its surrounding states the State of Mexico and Puebla, and the state

Guanajuato northwest of Mexico City. Other states with particularly high infection rates are currently Neuvo Léon, Sonora and Coahuila in the North, Jalisco in the West, and Veracruz and Tabasco in the South (Allen et al., 2021). The national currency, the Mexican Peso, has fallen since April 2020 from 24.9490 down to 20.2105 per US Dollar (CNBC, 2021) and the unemployment rate in 2020 increased the second year in a row to 3.6% of the labour force (Worldbank, 2021).

The trend for urbanisation in Mexico is strong with about 80% of the population living in an urban environment where infrastructure and access to social systems is better than in the rural areas. The disparities between rural and urban areas are growing with rural areas becoming increasingly segregated in terms of mobility, opportunities and service provision. Nevertheless, the amount of people in rural areas living below the poverty line has decreased: In 1994, about 27.5% of rural population lived below the poverty line, twenty years later this number almost has been cut in half to 14.6%. Between 2010 and 2016 alone, over two million Mexicans were able to escape extreme poverty in rural areas (Villagómez Ornelas, 2019, pp.1-6.)

One factor that will further influence demographic trends and urbanisation in the upcoming years is climate change as models predicting dryer and warmer climate in Mexico would inevitably affect the rural population which depends strongly on their harvests, in many cases maize. As the amount of suitable acreage would decrease, rural farmers would lose a substantial part of their livelihood (Hellin et al., 2014, p. 486.)

The sustainability problem emerging markets such as Mexico are facing at the moment is created by these societal changes in connection to the economic situation: As the society is expected to continue its growth and experiences more wealth and consumption, the energy demand will grow as well and at large, the energy supply in emerging markets is secured by fossil fuels and the industry consumes a large part of this fossil fuel energy. In Mexico, the three most important energy sources remain oil, natural gas, and coal. Renewable energy sources such as biofuels, solar energy and hydro energy account for only a small amount of the overall supply; little has changed since the 1990s in that regard, while coal and natural gas as energy sources even gained importance during the past thirty years. The industry accounted for most of the coal and natural gas consumption, although the transportation sector is the largest energy user when all energy sources are taken into account (IEA, 2020c.)

Legally relevant for the energy sector where the important changes back in 2013 under President Enrique Peña Nieto. He introduced extensive reform package for Mexico's energy sector, called the Energy Reform. Background of this Reform was a decline in Mexico's oil production. Prior to the Energy Reform, the monopolistic national oil company PEMEX had been state-owned and generated between 30-40% of government revenues. A decline in oil production for Mexico therefore also meant a decline in money available for public investments with long-term impact for Mexico's future. Hence, it was in the government's interest to open the energy sector for the creation of new income sources for government revenues. The Reform was to include an attractive framework for private investments and create effective and trustworthy authorities as well as efficient bidding processes (Samples, 2016, pp. 606-608.)

Under the Energy Reform the PEMEX and the Federal Electricity Commission had been liberalized and opened for competitors. However, the idea behind the liberalization of the energy market went beyond economic reasons; the government wanted to promoted other, cleaner energy sources. The reforms included also numerous laws introduced between 2012 and 2015 targeting clean energy and sustainability. One of them, the Energy Transition Law from 2015, defines the term Clean Energy and thereby builds a foundation for the formulation of criteria to decide which technology would qualify for incentives. The law also defines the country's ambitious energy sustainability goals: By 2021, 30% of energy should come from clean energy sources (Nolasco & López-Portillo, 2019). Previously, incentives had already been created and implemented under the General Law on Climate Change, enacted in 2012 under Nieto's predecessor Felipe Calderón. Among these incentives are the Clean Energy Certificates (CEL), other motivational factors are the carbon tax that applies to a number of fuels which are commonly used for energy production, among them gasoline and diesel – the carbon tax, however, excludes natural gas and biofuels (Armstrong et al., 2018, pp. 1-4; Wood, 2017.)

Apart from legal changes, the Mexican government found additional ways of acting against climate change and protecting the environment. As one of the nations that signed the Paris Agreement, it took initiative as the first of the emerging markets to define its Intended National Determined Contributions (INDCs). According to them, it is Mexico's goal to reduce its GHG and SLCPs by 25% to 40% compared to

business-as-usual levels by the year 2030. The INDCs would then result in a peak in net emissions in 2026. Currently, Mexico is the country in Latin America recording the highest investments in renewable energy sources, the two largest benefitting sources being hydropower and geothermal energy (Banacloche et al., 2020, p. 4; IEA, 2017; OECD 2013.)

Outside the Paris Agreement, Mexico volunteered to let its energy efficiency efforts be evaluated by the APEC's Peer Review of Energy Efficiency (PREE) in 2017; the report highlighted Mexico's strong engagement in international programmes and working groups with focus on clean energy, clean technology, and energy efficiency, and praised the Mexican government for recognising the importance of energy efficiency which showed for example in the National Program for Sustainable Energy Use (PRONASE) which was effective from 2014 to 2018. PRONASE, consisting of six main objectives, focused on the development, strengthening and promotion of programmes, government agencies and technology supporting and developing energy efficiency. The report furthermore identified a number of challenges the government must face but have, in some cases, decreased their motivation to reach their efficiency targets; underdeveloped infrastructure meeting increased mobility and increased energy demand due to population growth were specifically highlighted as reasons (APEC Energy Working Group, 2017, pp. 15-47.)

Mexico has every reason to be active in the fight against climate change, given the impact its consequences would have on the country if predictions from previous studies prove to be correct: Mexico would suffer from a drier and warmer climate causing problems in water supply, hydropower and agriculture and impact local ecosystems (Liverman & O'Brien, 1991, pp. 351-365; Hellin et al., 2014, p. 486).

Using the climatic categories of Troll and Paffen, Mexico's northernmost states are part of the Class IV Subtropical Zone, and South of the Tropic of Cancer the climate belongs into Class V Tropical Zone. Both Class IV and V comprise multiple sub-categories specifying the climatic conditions of the area. The sub-category of Class IV found in North Mexico is IV5 semi-desert and desert climate. The sub-categories of Class V relevant for Mexico are V1 tropical rain climate on the Yucatán Peninsula, V3 semi-humid tropical climate and V4 tropical drying climate in Central Mexico, and V5 tropical semi-desert and desert climate on the Baja California Peninsula (Diercke

Westermann, 2021; Freie Universität Berlin, 2021). As the names of each category suggest, Mexico is already experiencing dry periods in nearly all states except those on and directly connected to the Yucatán Peninsula, and always in combination with warm temperatures. If the projections of an even drier and warmer future climate are correct, states with particularly tight water availability would become even drier whilst those that used to be humid year-round will experience arid climate conditions.

5 REGIONAL INTEGRATION

Regional Integration, also called regional economic integration, takes place under the umbrella of globalisation whenever a group of countries that wish to intensify and simplify trade between each other forms a bloc. These countries usually share one geographical territory; in case of the EU all members are located on the European continent; NAFTA was created to enable free trade on the North American continent, and CPTPP assembles only those countries which have direct access to the Pacific Ocean. These alliances use attractive incentives to make the membership more attractive and depending on the nature and power of the member countries the alliance can focus on trade politics only or aim at political interdependence as well. Those incentives can therefore be the elimination of import taxes and quotas within the alliance to avoid a competitive disadvantage among members, a common trade policy for the entire alliance with non-member countries, the establishment of a common currency for the entire alliance, or the creation of common political organs acting in place of separate national institutions. To what extend these incentives are used depends on the alliance's level of integration and which achievements they are aiming at with the alliance. (Cavusgil et al., 2013, pp. 15-20.)

Table 1. The five levels of regional integration and their characteristics (alter Cavusgil et al., 2013, p. 17).

Level of Integration	Free Trade Area	Customs Union	Common Market	Economic and (sometimes) Monetary Union	Political Union
Elimination of tariffs and non-tariff barriers; members maintain own trade barriers with non-members					
Common external tariffs					
Free movement of products, labour, and capital					
Unified monetary and fiscal policy by a central authority					
Perfect unification of all policies by a common organisation; submersion of all separate national institutions					

NAFTA is a level-one free trade area solely focused on regional trade and the expansion of each member country's market size and the exploitation of new, attractive production locations within the area. Free trade areas like NAFTA are common – perhaps also because they are easier to organise than the other four levels of integration and require the lowest level of interdependence. Tariff and non-tariff barriers are eliminated for the trade between the members. Especially tariffs may be eliminated in their entirety, only partly, or tied to specific demands a product has to fulfil to be granted preferential tariffs. In a free trade area, the members do not unify their trade policies for countries outside their alliance. This is a specific feature of the customs union, such as Mercado Común del Sur (MERCOSUR), a customs union in South America, which installed common rules for the trade with non-members. Starting with the third level of regional integration, the Common Market, also all companies and residence can make use of their new right to move, invest and operate freely among the member countries. The EU is a level-four economic union with the long-term ambition of developing into a form of political union. The EU does have its own currency which most but not all members use, it has political organs which make

decisions for the entire EU and suggestions such as the development of a European army have been demanded and discussed more than once (European Parliament, 2019; Bundesakademie für Sicherheitspolitik, 2015). That is because the EU does not only want to focus its purpose on trade, but also has the aspiration to become a geopolitical power in both defensive and in pro-active terms that is stronger together than each of its 27 members could be if standing alone. However, while the EU has the ambition to grow into a political union, it has to be said that never before in history a political union of this kind has been achieved (Cavusgil et al., 2013, pp. 15-19.)

Given the existing national interests of each EU member country, EU-critical movements, and scepticism between individual members it remains to be seen whether the political union will continue to be an idealistic goal or can become reality.

5.1 The Regional Integration of Mexico and its Free Trade Agreements

For countries who join an economic bloc their membership will have a direct impact on their trade policies. For Mexico, the Foreign Trade Information System SICE (2020) lists a total of 14 free trade agreements (FTAs), including NAFTA and USMCA, and the EU-Mexico Economic Partnership, Political Coordination and Cooperation Agreement (European Commission, 2020), which is also referred to as the Global Agreement.

The trade structures between Mexico and China is currently not defined by an FTA (Rajagopal, 2011, p.43). Although both Mexico and China are members of APEC, this organisation cannot be understood as either of the five forms of regional integration but as regional economic forum that is working on the removal of trade barriers (APEC, 2020; Rajagopal, 2011, p. 57). Hence, APEC could lead to an FTA between Mexico and China, but a more intensive engagement to make use of APEC's possibilities would be necessary also to prove Mexico's interest in better relationships with the Asian members as previous incidents such as the absence of the Mexican president during the meeting in Hanoi in 2006 made a negative impression (Rajagopal, 2011, pp. 53-58).

This raises the question whether the non-existence of a Mexican Chinese, or an APEC FTA can partly be explained with the tense relationship between the United States and China, but also with a general scepticism against China on the part of Mexico. North American FTAs between Canada and the United States already started to form in 1987 with the Canada-United States FTA (Government of Canada, 2020), until Mexico was included into North American free trade and NAFTA came into effect in 1994 (Rajagopal, 2011, p.34), which has been replaced in July 2020 by the USMCA agreement under US President Donald Trump (Office of the United States Trade Representative, 2020). APEC on the other hand was established in 1989 (APEC, 2020), therefore North American free trade policies and Trans-Pacific ambitions for barrier-free trade were shaped around the same time. As China is not part of the Trans-Pacific Partnership Agreement (TPP) and none of the North American countries are member of the Regional Comprehensive Economic Partnership (RCEP), APEC remains the only regional economic forum that brings all four nations to the same table, which more clearly than not demonstrates how unrelaxed their relationship is, given how much more determined NAFTA and RCEP appear next to APEC. Especially the signing ceremony of RCEP in November 2020 was perceived as a power demonstration of the Southeast Asian nations, especially towards the United States and its Western trade allies, as all member countries of RCEP put together cover around one third of the global GDP (ASEAN, 2020).

5.1.1 NAFTA

The North American Free Trade Agreement, called NAFTA, created a free trade area between its three members, Canada, the United States and Mexico. The agreement was based on four fundamental objectives, namely (1) to intensify trade relationships and increase investments in North America, (2) bring prosperity and better working environments to the people of the member nations, (3) be the foundation of future trilateral cooperation, and (4) encourage the setup of stricter employment and environmental laws (Boyd et al., 2018, p. 116.)

From the Mexican perspective, NAFTA came at an advantageous time for their economy. Between 1983 and 1988, Mexico was in a financial crisis with their average

GDP almost stagnating. In the past thirty years, little had been done by the government to open the Mexican market to foreign investors and products and services, while domestic industries such as the car parts manufacturing industry received exclusive protection from foreign competitors and financial subsidies. This protectionist strategy is said to be one of the important reasons for the crisis in the 1980s, and politicians came to a similar conclusion, as the back then Mexican President Salinas de Gortari decided in 1988 to change Mexico's strategy. He started to dismantle trade restrictions and simultaneously started the negotiations with Canada and the United States for the FTA that would later become NAFTA. By the time NAFTA had been signed and put into effect in the mid-90s, Mexico was in the recovery stage from their crisis and able to make use of their access to the US market, and the rules set by NAFTA to overcome a financial crisis (Boyd et al., 2018, pp. 113-120.)

Nevertheless, NAFTA has been criticised, and not only by former US President Donald Trump who famously called the agreement the "worst trade deal maybe ever signed anywhere" during his presidential debate against Hillary Clinton in 2016 (Gillespie, 2016). Trump's point of view was that especially Mexico could not been considered a friend of the US but rather resembles an enemy who wishes to harm the American economy and that NAFTA is responsible for the loss of manufacturing jobs in the US (Calderón Martínez, 2019, p. 1; Gillespie, 2016). It is certainly true that US companies made use of the free trade zone and their new access to Mexican markets, including labour markets. *Maquiladonas* is the term for the manufacturing plants that have been built along the Mexican side of the US-Mexican border, where US-American companies where able to produce their products for lower staff costs than in their domestic market and yet in close proximity to the United States to keep transportation costs as low as possible. These *maquiladonas* brought economic growth and high employment rates to Northern Mexico, but less to the South of the country where poverty and a lack of jobs trigger migration (Boyd et al., 2018, pp. 114-115).

As for the power balance between the three NAFTA nations, the agreement has been criticised for being very asymmetric to the disadvantage of Canada and Mexico, not the United States. Prior to NAFTA, Canada and Mexico had little to do with each other in terms of trade, and Canada had started diplomatic relationships with countries further away than Mexico decades earlier. Trade statistics from the 21st century still

reflect the unequal trade balance between the three NAFTA members: In 2005, more than three quarters of Mexican and Canadian trade was within the NAFTA area – but, in case of Mexico, only 1,98% of all exports went to Canada, and close to 86% to the United States. In 2018, thirteen years later, 77% of Mexican exports went to the United States and only 4,14% to Canada (Calderón Martínez, 2019, p. 71; OEC, 2020.) The United States are as a market and trade partner much more important for Canada and Mexico than Canada and Mexico are for each other.

Table 2: Comparison of import and export trade volume in 2018 between NAFTA members (OEC, 2020a).

NAFTA Member	**Export/Import Market**					
	United States		*Canada*		*Mexico*	
	Export to	Import from	Export to	Import from	Export to	Import from
United States			13,2%	13%	16,4%	14,1%
Canada	72,8%	51,5%			1,62%	4,95%
Mexico	77%	56,9%	4,14%	1,68%		

In fact, Mexico's imports from, for example Germany alone accounted for 4,08% of the entire annual import volume of 2018, which equals 2,4 times more goods than what has been imported from NAFTA partner Canada. Additionally, data reveals that Canada has dramatically lost value as export market for Mexico between 2017 and 2018, the export value growth shrunk by -16,8%. In the same time span, the United States' export to Mexico have gained value as export by 10,6%. A very similar picture arises for import growth. Here, imports from Canada have suffered an import value loss of -13,6% between 2017 and 2018, while the import value growth of US imports to Mexico increased by a stunning 30,4% during the same time span (OEC, 2020a.)

Table 3. Market growth rates for the NAFTA partners from Mexico's perspective between 2017 and 2018 (OEC, 2020a).

Mexico	**Mexico's NAFTA Partners**	
	Canada	*United States*
Export Value Growth	-16,8%	10,6%
Import Value Growth	-13,6%	30,4%

This trade imbalance is the reason why NAFTA appears more like two bilateral FTAs – one between Mexico and the United States, the other between Canada and the United States – instead of one trilateral FTA, as Calderón Martínez concludes (2019, p. 71). In his opinion, the three nations evaluate one another rather differently: From a US perspective, Martínez sees the United States at the centre of the NAFTA trade axis where Canada's role is that of the supplier of raw materials and Mexico's role that of the low-cost manufacturing facility for US companies. Canada and Mexico on the other hand both see the most attractive market within the NAFTA area in the United States, but since both economies are also considerably smaller than the US economy and given former US President Trump's tit-for-tat approach of handling multilateral relationships, including trade matters, Canada's and Mexico's sluggish import and export activities can also be read as a strategic move to prevent penalization from the United States (pp. 71-73.)

5.1.2 NAFTA in the Trump era and the USMCA

Alongside NAFTA, other established and not yet established FTAs faced testing times during the presidency of Donald Trump. Shortly after his inauguration in January 2017 President Trump brought the US out of the Trans-Pacific Partnership Agreement (TPP), an agreement the United States joined by signature only eleven months earlier during the last months of the presidency of Trump's predecessor Barack Obama who wanted to bring the United States a better access to Asian Pacific markets (European

Parliament, 2017; Office of the United States Trade Representative, 2017; Council on Foreign Relations, 2020.)

President Trumps also suggested to withdraw from the US-Korea Free Trade Agreement (KORUS), a threat that until this day did not become true (Men et al., 2020, p. 133). However, he also declared to replace NAFTA – one can also use the verb renegotiate as NAFTA's successor, the US-Mexico-Canada Agreement (USMCA) does not differ from NAFTA for most of its content. The Trump administration promoted the USMCA to be the mutually beneficial and rebalancing agreement that would improve for example the rules of origin (for example in the car industry), benefit American farmers as Canada agreed to import more US dairy products, and protect well-paid jobs in America, responding to President Trump's main criticism of NAFTA to destroy American jobs (Office of the United States Trade Representative, 2020; Ponnuru, 2019, pp. 16-17.)

The largest change was the inclusion of a digital trade framework into USMCA, an update that most likely would have been necessary under any circumstances because back in the 1990s, when NAFTA negotiations where in their final stages, e-commerce was yet too new and undeveloped to require regulations in an FTA. Interestingly, the rule set for digital trade that got implemented in the USMCA equals at large that of the TPP, the same agreement Trump left with the argument that it would severely damage the United States. Uncertain are also the effects of the new rules for the car industry, not only concerning their origin but also their production: Under the USMCA, employees in the Mexican car manufacturing industry would receive higher wages – critics of this decision say this could lead to a cut in jobs in car manufacturing, higher car prices and a production decline. However, the interest in making USMCA work was high because of the not unrealistic possibility that President Trump might withdraw from NAFTA and all surrounding negotiations altogether and therefore initiate the end of the North American free trade zone. This scenario would have brought back all import tariffs prior to NAFTA (Ponnuru, 2019, pp. 16-17.)

This more or less forced renegotiation was not the only reason why the relationship between NAFTA members was put under huge pressure during Trump's presidency. The relationship between Mexico and the United States in particular worsened from the moment President Trump was inaugurated. Already during his campaign described

Mexicans and Mexican immigrants as rapists and murderers and used this accusation as justification for his plan to build a wall along the US-Mexican border to end all illegal immigration from Mexico, and most likely also from the Central American nations El Salvador, Guatemala and Honduras. The most prominent migration routes run through whole Mexico and end at the US border, close to the Californian cities of San Ysidro and Lukeville (California), and the Texan cities of El Paso and McAllen (Mayers & Freedman, 2019, p. 15).

Trump continued damaging the US's relationship with Mexico after he was elected: Traditionally, a newly elected US President visits the Presidents of Canada and Mexico first as those are the geographic neighbours of the United States. This is no strict rule, but Trump's deviation from this curtesy did get attention as no US President since Jimmy Carter in 1977 spend his first visit in another country than Canada or Mexico. Donald Trump's first visits however brought him to Saudi Arabia, Israel and the West Bank, Belgium, and the Vatican (Mackintosh, 2017; John, 2017.)

The insults continued as President Trump did not let go of his plan to build a wall along the US-Mexican border. After his famous statement that Mexico will pay for the wall, he also threatened Mexico in the midst of USMCA negotiations with tariffs if it does nothing against the flow of illegal immigration. Critics say with Trump's strategy of using tariffs as threats to get his political will, as also China had to experience, will eventually damage the United States' credibility in all the trade agreements it is part of, with long-term damage for these trade areas (Law, 2019; Walcott, 2019.)

5.1.3 North American free trade under Joe Biden

Joe Biden has been inaugurated as 46th President of the United States on January 20, 2021 after his win in the Presidential Election in November 2020. A lot of hope for a more consistent, reliable and cooperative leadership style is put in the Biden administration as Trump's zero-sum politics and contradictory, often false statements irritated diplomatic partners worldwide. Little can be told yet about Joe Biden's actions on North American free trade. His campaign programme did not include a specific vision for this aspect of US politics, but he did state that his administration will restore

the United States' leadership which includes new border politics on the nation's south border (Joe Biden, 2021).

The return to multilateral politics and a different handling of the dispute with China was part of his campaign and positioned himself as a President who would not do trade politics to the disadvantage of US workers – however, being campaign content, the real outcome on these matters remains to be seen over the next years and cannot be foreseen at this point. He did support NAFTA and voted in its favour back in 1993, as he supported TPP during his time as Obama's Vice President, which shows that Joe Biden displayed a positive attitude towards FTAs in the past. However, it must not be forgotten that the United States remain a deeply divided nation, and Joe Biden cannot afford to repel those citizens living from mining and manufacturing jobs, those who are sceptical or support Trump's protectionist ideals. That would explain his hesitation to become concrete about China or trade during the campaign and his statement that the United States will not join other trade agreements until investments inside the United States have taken place (Elliott, 2020, pp. 1-4.)

5.1.4 Global Agreement and EU-Mexico Trade Agreement

Free trade between the European Union and Mexico had its 20th anniversary in 2020 with the Global Agreement coming into force aiming to reduce tariffs to the point where over 90% of all trade between EU and Mexico would be free of barriers by 2007 (EU-Mexico Free Trade Agreement enters into force, 2000). As a result, the trade volume between both parties has more than tripled since the FTA came into force (European Commission, 2020a). Twenty years later, the Global Agreement was planned to be replaced by the EU-Mexico Trade Agreement which is a revised version of the old Global Agreement. The three most important differences between the old and the new FTA are as follows:

- European food and drinks imported to Mexico will be freed from high tariffs.
- More services offered by EU companies will be allowed to be sold to Mexico.
- A stronger emphasis on environmental protection and workers' rights (European Commission, 2020b).

In October 2020, half a year after negotiations had been completed, representatives of both parties met to review the progress on the new FTA. With these steps done, the FTA will only need to be signed to replace the Global Agreement (European Commission, 2020c).

Although little is heard about trade between the EU and Mexico and few articles have been written about the developments of their relationship, other than updates on the EU-Mexico Trade Agreement, the EU is in fact one of Mexico's most important trade partners and investor, even if this is not quite the case the other way around. Mexico is not among the EU's most important trade partners, for both import and export the three largest trade partners are the United States, China, and the United Kingdom (Damen, 2020). In 2018 and 2019, the EU was Mexico's second-largest export market and it's third-largest source of imports; the United States remain the country's most important export and import market, China ranks second as origin of Mexico's imports. The US is also Mexico's largest investor in Mexico, directly followed by the EU (European Commission, 2020a.)

Hence, the relationship between Mexico and the EU can be described as an important one in terms of trade, especially for Mexico, and given the undramatic and successful development and implementation of first the Global Agreement and the negotiations for the EU-Mexico Trade Agreement, the development of their trade structures can be described as stable. The FTA has not been surrounded by fierce debates and controversies on both sides, even though the trade between the two parties is far from balanced. In 2019, the EU exported goods worth EUR 37,6 billion to Mexico and imported Mexican goods worth EUR 24,3 billion. That is a trade deficit of EUR 13,3 billion from Mexico's perspective. The export and import goods values have remained mostly stable, with an increase of imported goods from Mexico worth EUR 2,6 billion between 2017 and 2019 (European Commission, 2020a.)

5.2 Trade between Mexico and China

Similar to the Mexicans who opened their markets to foreign competitors and investors after the 1980s' financial crisis, China's economy underwent economic liberalisation around the same time and opened its market for international trade. China set up Export

Process Zones (EPZs) and Special-Economic Zones (SEZs) comparable to the Mexican phenomenon of the *maquiladoras* build to establish investor-friendly, duty free areas predestined for the cheap manufacturing of export goods and uncomplicated import to the Chinese market (Carrillo Garcia et al., 2011). Having different economic laws from the rest of China, these EPZs and SEZs are geographically limited to single, yet important cities (Topno, 2005).

The results of both countries efforts, however, were somewhat different: Between 1981 and 2019, China's average annual GDP growth was at +9.49%, the Mexican average annual GDP growth rate was +2.33% (World Bank, 2020c), underlining the different economic results achieved by their liberalisation strategies.

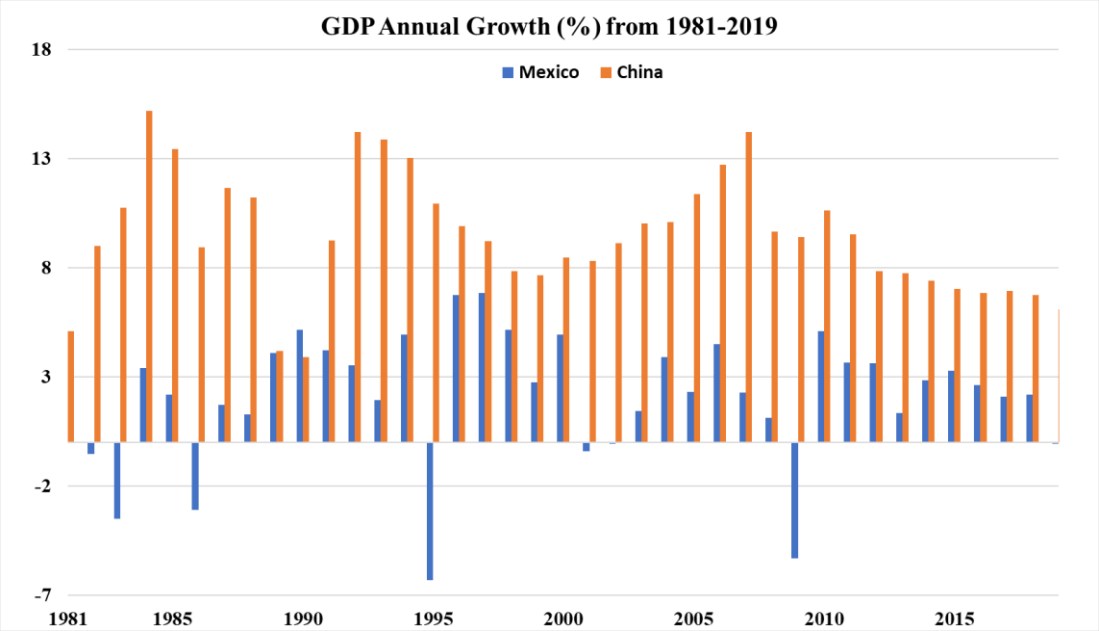

Figure 3. GDP annual growth rates from 1981 to 2019 of Mexico (blue) and China (orange) (World Bank, 2020c).

While China could record annual growth rates of up to 15% in 1984 and not once in these 38 years fell below the 3% mark, Mexico struggled repeatedly with shrinking GDP growth, stagnation or even a decline below 0. This development is multicausal; Hernández (2012, p. 62) lists the domestic economy's lack of competitiveness and Mexico's dependency on external factors, and in this context highlights the importance of the United States: Currently around 77% of Mexican exports go to the United States

and more than 50% of imports are coming from there. The United States also remain the largest investor in Mexico. Although their trade results in a massive trade surplus for Mexico, it also means that Mexico's economy and trade hinge on the economic health of the US and their political goodwill (Calderón Martínez, 2019, p. 71; OEC, 2020).

Interestingly, Mexico's efforts to diversify its trade by signing trade agreements and join cooperative groups such as APEC did not change much about their dependency, which made the government hesitant to join new FTAs, for example with Asian or Oceanian nations (Hernández, 2012, p. 63). Scepticism against China can be particularly high given the different levels of success. China in 2018 was the second most important trader worldwide in the WTO's top 20 ranking, Mexico occupied rank 14 (WTO, 2019, p. 11). Carrillo et al. (2011) recognise a certain hostility on China from Mexico's side in the competition for investors, corporations searching for manufacturing locations, and market share. A sign of this resentment showed during negotiations for China's accession to the WTO; here, Mexico hesitated to give its consent (Hernández, 2012, p. 83).

While both nations did to some degree try to establish frameworks for their trade, for example through APEC or the establishment of the High Level Group (HLG) made specifically to solve disputes and strengthen bilateral trade, a negative opinion about Chinese imports, and the perceived threat for domestic manufacturing industries remain strong in Mexico. The relationship suffers furthermore from unbalanced trade. Analysing both China's and Mexico's trade profile, it is evident that China has a much more balanced, diverse portfolio of export and import partners and is not dependent on one or two nation's economy. Table 4 will make this visible to the reader by juxtaposing both nations' top five export destinations and import origins together with their share of the overall annual export and import of 2018. Although the United States is the most important export destination for both countries, roughly two out of ten Chinese export products go to the States, whereas in Mexico almost eight out of ten export goods are sold to the US market.

Table 4. China's and Mexico's most important partners in export and import and their share of the annual export and import in 2018 (OEC, 2020a; OEC, 2020b).

	China		Mexico	
Top 5 export destinations and their share	USA	19.3%	USA	77%
	Hong Kong	10.9%	Canada	4.14%
	Japan	6.01%	Germany	1.78%
	South Korea	4.14%	China	1.73%
	Germany	3.75%	Japan	1.08%
Top 5 import origins and their share	South Korea	9.93%	USA	56.9%
	Japan	8.6%	China	13.1%
	USA	7.37%	Germany	4.08%
	Germany	6.79%	Japan	3.07%
	Taiwan (Chinese Taipei)	6.05%	South Korea	2.88%

A similar picture evolves for the origin nations of imports. China's top five all have a share between 6-9.9%. The shares of Mexico's top five do not lay nearly as close together as that, here the shares reach from less than 3% to almost 56.9%. Noticeable to the reader is now also the importance of China as a trade partner for Mexico and the "unimportance" of Mexico as a trade partner for China. China is Mexico's fourth most important export destination and its second most important import origin nation. However, Mexico does not appear in either of China's top five rankings. In fact, only 2.11% of Chinese exports are sent to Mexico, and only 0.48% or imports reaching China come from Mexico (OEC, 2020a; OEC, 2020b). For Mexico, this builds up into a trade deficit with China of USD -47.05bn which Mexico can only compensate with its trade surplus reached through NAFTA/USMCA trade. Given that background, it becomes even more obvious why successful USMCA negotiations were so vital for Mexico, and why the trade with China is a balance act for Mexico between protection of domestic industries and international trade (Hernández, 2012, p. 55 & 68).

6 METHODOLOGY

Each methodological choice made has a direct impact on the nature of the research; with each choice made the original research questions develop into a project (Saunders et al. , 2016, p. 163). Research itself is done to expand and uncover new knowledge by collecting, revisiting and critically analysing already existing knowledge. The reason for conducting a research are numerous, gaining a competitive advantage or testing the efficiency of a new programme or strategy being only two of them (Adams et al., 2016, pp. 1-3.) The following subchapters explain the purpose and design of this research and which measure have been taken to secure its reliability and validity.

6.1 Purpose of the research design

The design of the research determines how the researcher will answer the research questions in terms of suitable sources, data collection methods, the analysis of the data collected, and how the researcher will respond to ethical questions as well as to limitations that could be encountered. Hence, the developed research design will clarify what is to be achieved in the research and how these achievements are made (Saunders et al., 2016, pp.163-165.)

The purpose of the research design can be traced back to the research questions, how they have been phrased and what they want to answer. According to that, the purpose can be either explanatory, exploratory, descriptive, or evaluative. An explanatory research aims at making sense of the relationship between variables by studying a specific situation; at the end of the descriptive research stands a clear profile of a situation reached by understanding the situation before data collection. The evaluative research does, as the name says, evaluate a practical aspect of life such as a project or a strategy to look how effectively it works (Saunders et al., 2016, pp.174-176.)

The purpose for this research is exploratory, it is being followed in order to get a thorough understanding of the topic and discover the developments within the field. Also, the research questions defined in chapter 2 – mainly questions using typical exploratory key interrogative words such as “how” and “what” – point towards the

exploratory purpose of the research (Saunders et al., 2016, p.174). The answer to the key question, whether preferential import tariffs and other financial incentives exist for WHR technology when imported to Mexico from either China or the EU market, stands at the end of a deep analysis of sustainability policies, and trade policies which are intertwined with geopolitical strategies, alliances, and fears. Therefore, the research must create an understanding of the context, otherwise readers will find it hard to understand the larger picture behind the results itself. Because the underlying context has been clarified before data collection, the research does have a descriptive aspect in it; however, the research goes further by making practical use of this context during data collection and afterwards in the data evaluation (Saunders et al., 2016, p. 175).

6.2 Research method

Another methodological choice to be made is the type of data collected for the research. Essentially, data is separated into quantitative and qualitative data. In a quantitative research, numerical data and data collection techniques using numerical data such as questionnaires build the foundation of a relationship analysis between multiple variables; the results of this analysis can then be shown using quantitative methods such as diagrams. Qualitative research studies relationships and meanings and for that purpose uses non-numerical data and data collection techniques using it, such as face-to-face interviews. Because of that, the researchers access to data sources and participants becomes crucial for the informative value of the research. Interviews will only then supply the researcher with valuable data if the interviewee has expertise in and access to the field of interest. As the participants alter, so may the questions they are asked which makes the qualitative research more versatile compared to quantitative research (Saunders et al., 2016, pp. 166-167.)

While a separation of quantitative and qualitative research is unproblematic on paper, it can prove quite unrealistic in a real-life environment as deciding for either method would mean the exclusion of the data and techniques provided by the other one (Saunders et al., 2016, p. 165). This can limit to what extend a profound analysis can be achieved; the results could become rather weak. For that reason, and in the context

of the topic, this research uses both numerical and non-numerical data. To understand geopolitical influences, the historical context of international trade today and regional integration, non-numeric data in form of text from academic literature, journals, reports and other sources. Additional to that, it was equally necessary to collect numerical data, mostly concerning trade figures, but also social-economic and sustainability indicators needed as counterpart to the theory provided by the texts. Both methods to some extent complete each other, as trade figures between two nations are little more than numbers unless the reader is provided with enough background to make sense of this information; likewise, qualitative data alone can appear rather distant and theoretical unless supported by numerical data visualising and proving what has been explained. The solution to the research problem of this research lays therefore in the usage of both quantitative and qualitative data.

6.3 Data collection and analysis

As trade policies are negotiated and created by national governments, their publications and data bases about FTAs and tariffs are one pillar the research is based on. Intergovernmental organisations and forums such as the OECD, APEC or the IEA build the second pillar of data sources; their reports, research publications and data bases are of high value for this research as these organisations have the financial means and the data access necessary for the creation of high-quality, reliable publications with a global perspective. The third pillar of data sources are articles and publications in academical journals, magazines, and news articles.

Language barriers limited the number of sources that could be used for the research: While data coming from or concerning the EU is largely available in multiple languages including English, and intergovernmental organisations commonly use English as language of communication, data sources concerning sustainability policies in Mexico were limited as most source material was accessible in Spanish only. The same turned out to be the case for the trade between Mexico and the EU where publications were limited as well.

All of these three pillars are sources of secondary data which has been collected for another purpose than this research and by other people than the researcher. For each

source the researcher used it was made sure that the data fit into the topical scope of the research and add a new perspective or new knowledge to it. The interviews the researcher conducted are the sole source of primary data specifically collected for this research.

6.4 Interviews for data collection

To add real life perspectives to the analysis and include personal experiences to the research, interviews with employees of the case company are conducted. The purpose of the interviews is to add a close-to-business-reality component that cannot be accessed through theoretical data but will help to build the desired detailed overall picture of the current situation and answer the research questions. The interview form chosen for this research is the semi-structured face-to-face interview in which one interviewer talks to one interviewee at a time with questions possibly differing between interviewees depending on the interviewee's position, their expertise, or the situation. Following another typology in which interviews are separated into standardized and non-standardized interviews, the semi-structured interview approach chosen for this thesis falls under non-standardized interviews after this typology (Saunders et al., 2016, pp. 391-392.)

Regarding current social distancing rules due to the ongoing Covid-19 pandemic, the interviews have alternatively been conducted on a digital meeting platform.

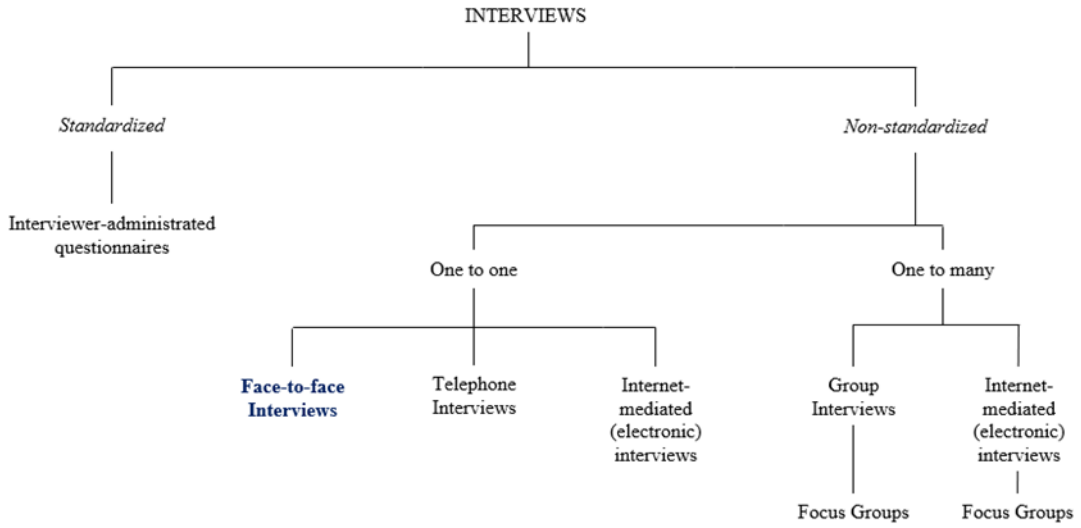

Figure 4. Forms of Interviews, chosen interview form highlighted (Saunders et al., 2016, p. 392).

Semi-structured or non-standardized interviews have been chosen as they provide the interviewee with the possibility to give detailed, individual answers that have not been predefined by the interviewer, as it would be the case in a structured interview. The personal component the interviewee experiences by actually meeting and seeing the interviewer can have a positive influence on the perceived trust and might encourage the interviewee to talk honestly about their experiences. The risk of unspecific answers is minimised as the interviewer can explain unclear questions or ask further on a matter. Collected data from semi-structured interviews support the exploratory purpose of this study and will deliver contrived data needed to understand the situation and its context as perceived by those in the work environment (Saunders et al., 2016, pp. 392-394.)

6.5 Reliability and validity

Both reliability and validity are crucial to the quality of the research and certain measures have been taken against threats to both. Concerning the collection of data, the age, nature and creators of the sources have been points of constant observation. Since trade-related matters, geopolitics and sustainability policies are all subjects to constant change, the researcher focused on source material published within the past

five years; any older publications were used to provide first and foremost a historical context, and additional research followed to critically evaluate the validity of the text's data and identify recent developments the author could not foresee.

Some aspects of the research topic are subject to heated disputes, above all NAFTA and the relationship with China, therefore publications about either topic contained at times a more or less visible bias – either the author took their personal opinion to the outside and therefore provided the researcher with one perspective of the topic, or the bias was hidden between the lines creating a more manipulative text the researcher had to analyse with particular care lest not to include the bias unwittingly.

Further precautions have been taken with consideration to the interviewees and the researcher herself. To prevent participant errors during the interviews, it was made sure that the interview takes place during a time that did not limit either party's cognitive capacities or put either party under pressure. Interviews took place where it was most convenient for the interviewee – affected and limited only by Covid-19 restrictions or geographical distances – to assure a relaxed atmosphere.

7 RESEARCH FINDINGS

7.1 Identifying trade policies and differences in export

The export from China and the export from the EU have gone through partly enormous changes since last autumn as result of the Covid-19 pandemic. Especially the export from China is affected, were prices for containers and flatracks have at least doubled since November 2020. The price development goes back to a lack of containers and flatracks in the Chinese ports, since this equipment is currently laying in the US and does not return to China – with the result that shipping lines shipping from China have much less containers to offer. Another consequence of the shortage in container supply are delivery bottlenecks and schedule changes including multiple shipping postponements; some shipments get postponed over thirty time. The export from the

EU has experienced similar developments due to the pandemic, although on a lower intensity level so far than China: Prices have been mostly stable since November 2020, with only a minor increase and with equipment (containers, flatracks) still being available and only some shipping postponements. However, future developments and changes are hard to predict right now and that the situation could change completely within the course of Spring 2020 and end up being similar to the situation in Chinese ports. Particularly worrisome are the latest forecast that the current situation could last until the third quarter of 2020 which would begin in July; at the time of the interview the third quarter laid five months in the future.

As to differences in delivery times, information sources have to be watched with special care. The best option to get a general idea of delivery routes from China or the EU to Mexico was the usage of shipping lines' voyage time calculators. The researcher used the shipping line Maersk as one example. According to Maersk's schedules, a transportation from Qingdao, China to the Pacific coast harbour of Manzanillo, Mexico (this port was chosen due to its size and national importance) would take 22 days. One major time-saving advantage with this route is that no stopovers are needed according to the information provided by Maersk.

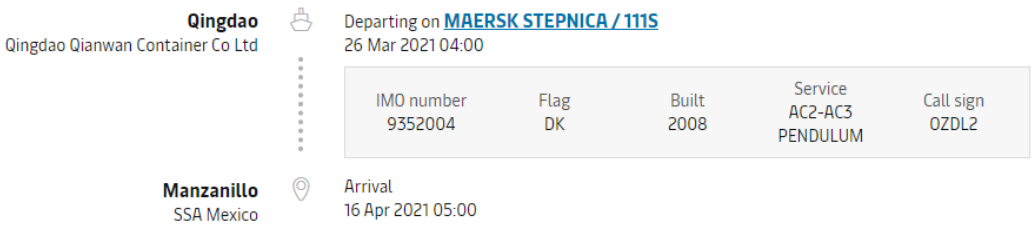

Figure 5. Vessel transport schedule from Qingdao, China, to Manzanillo, Mexico, as proposed by Maersk (Maersk, 2021.)

This is different if the product was shipped from a smaller European harbour. If the port of Rauma is taken as the port of lading and the goods are shipped to Mexico's Atlantic coast port of Altamira, the journey will need on estimation 28 days. Main reason for the difference in delivery time is the fact that in this case, the vessel departing from Rauma would stop at the larger harbour of Bremerhaven, Germany, were to goods would be transferred onto a larger ocean vessel. This transfer would

require some additional days, depending on Maersk's offers between six and nine days (Maersk, 2021.)

Figure 6. Vessel transport schedule from Rauma, Finland, to Altamira, Mexico, as proposed by Maersk (Maersk, 2021.)

The shipping line Hapag-Lloyd offered very similar times but with even smaller differences between Chinese and European ports of lading; here the transit time from Qingdao to Manzanillo would take between 22 and 23 days (zero to one trans-shipment), the transit time from Rauma to Altamira 24 days (one trans-shipment) (Hapag-Lloyd, 2021).

Nevertheless, these results should be regarded with caution. As shipping routes may vary and shipping schedules may change on a short-term basis in the current time (spring 2021), the accuracy of these calculated results should not be taken for granted. Based on the schedules the shipping lines provide, it can still be concluded that delivery times may vary slightly as vessels departing from smaller European ports may stop at larger harbours for goods to be transferred, whereas vessels from a Chinese harbour ship in many cases directly to Mexico.

7.1.1 Tariffs and non-tariff barriers

Until the new EU-Mexico Trade Agreement will be signed, the so-called Global Agreement is giving them framework for trade between the EU and Mexico. Its replacement with the EU-Mexico Trade Agreement will bring tariff reductions for the food industry, open the Mexican market for European service providers and include new guidelines concerning workers' rights and environmental protection. For machinery, or specifically for technology used to produce cleaner power such as WHR, no additional incentives have been defined in the new agreement. Originally, signing the new FTA was scheduled for 2020, and although negotiations have been successfully completed by now, the new Agreement has not been signed yet (European Commission, 2020b; European Commission, 2021a.)

Under both the old FTA and the new one, companies from the EU and Mexico can benefit from preferential tariffs, which are generally set at 0%, instead of following the WTO's most favoured nation (MFN) tariff which for this product group is currently set at 15%. The preferential tariffs are bound to origin-relating rules, called rules of origin, which the product has to fulfil in order to qualify for the preferential tariff. To help the exporter find out about their product's specific rules of origin, the EU has set up the Rules of Origin Self-Assessment tool, referred to as ROSA (European Commission, 2021b.)

Manufacture in which:

- all the materials used are classified within a heading other than that of the product,
- the value of all the materials used does not exceed 40 % of the ex-works price of the product

or

Manufacture in which the value of all the materials used does not exceed 25 % of the ex-works price of the product

Figure 7. The rules of origin for all products listed under section XVI, product code 8402 (European Commission, 2021c).

Concerning the trade between Mexico and China, the trade is mainly settled by the framework of the WTO and its MFN tariffs, and to some extent also by APEC initiatives. One of these initiatives was the APEC List of Environmental Goods from

2012, a list containing a number of goods eligible for preferential tariffs (5% or lower) selected to promote technologies that would support environmental protection. The list also includes parts relevant in WHR systems, however, the preferential tariffs would only apply if the power plant in question is operating on biomass fuels (APEC, 2012.) Though, the power plants the case company serves typically run on gas which is also the fuel used especially by all new power plants in Mexico while in the future, power plants running on hydrogen or a mixture of hydrogen and natural gas can be expected. For the export of WHR systems from China to Mexico this leads back to the WTO's MFN tariffs of 15%. However, APEC's List of Environmental Goods may be changed over time and new product groups could be added in the future.

Indications for the formulation of a real FTA between Mexico and China which would start the regional integration between both nations and would further reduce import tariffs and simplify trade for companies in both markets could not be identified. Due to Mexico's otherwise large number of trade agreements which did not very much change its dependency on the United States, and the comparatively lower prices of imported goods from nations which would show interest in FTAs with Mexico, the researcher does not see high chances for an FTA between Mexico and China in the near future.

Regarding the meaning of the membership in the WTO, the core ambition of the organisation is to get rid of those barriers for traded goods which are not tariffs. This applies specifically to quantitative import limits. Other regulations can, under strict WTO rules, be applied by a member nation to protect their economy from foreign product, however their use is restricted. This applies to anti-dumping duties, anti-subsidy measures and to safeguard measures. The latter, safeguard measures, are specifically used to prevent that domestic industries suffer harm from foreign imports. Anti-subsidy measures refer to products which received special subsidies in its domestic market and are then able to be offered at a lower than market price in other markets. Anti-dumping duties, perhaps the most well-known, are duties applied whenever products from one nation are offered at a much lower price in the export market than what is considered the standard market price. China has been confronted numerous times with anti-dumping duties in the past, but ever since it joined the WTO back in 2001, it has legal tools to fight back. The reasoning behind the implementation

of anti-dumping duties is connected to some nations' classification of China as a non-market economy, meaning that the government's influence in the domestic economy is so strong that a product's domestic price is unreliable when evaluating the product's value in order to decide whether or not it is being sold at a dumping price in another market (European Parliament, 2015, p. 3). Whether a nation is given the Market Economy Status (MES) or is considered a non-market economy (NME) makes a difference in a way that nations seen as NMEs can be confronted with anti-dumping duties also if the importing nation uses data from other countries to calculate a price considered as fair which can make it somewhat easier to identify price dumping Reuvid & Yong, 2003, pp. 13-14.)

Particularly memorable may be the case of anti-dumping duties which the United States and the EU put on Chinese steel and aluminium products; China fought back claiming it had a right to be considered MES (Miles, 2019) after having been a WTO member for other a decade. As of November 2015, however, countries such as the United States, Mexico, and economic unions such as the EU still consider China an NME, therefore export from China to Mexico can suffer compared to export from the EU to Mexico in case Mexico implies anti-dumping duties on Chinese-produced goods in the future (European Parliament, 2015, pp. 1-4).

7.1.2 Differences and non-tariff barriers caused by trade documentation

Although the trade documentation in import-export does not differ significantly, differences and also difficulties may lay in the Letter of Credit (LC). Especially when entering a new market, or when making business with a new company and also when a political risk is involved, the LC is used to minimize the risk involved in the trade, more specifically the risks connected to the money involved since by using the LC it is the banks who are taking the payment risk instead of the seller. While most documents and categories listed under the LC, such as the commercial invoice, the packing list, bill of exchange, bill of lading and master bill of lading, are part of every LC, there are categories which are specific for the importing country. Some of these categories and certificates can be connected to a country's strict religious believes: Some countries which are strictly Islamic do not allow goods to be imported by an

Israeli liner, to name one concrete example, and in some cases the customer demands a specific certificate included in the LC which guarantees this. Another example for a more specific procedure and document some customers may require is a pre-shipment inspection including a certificate by an internationally recognised surveyor. For these kinds of documents, the seller has to arrange an inspection before the goods are packed and sent away; these inspectors at times have to travel into the seller's country to do the inspection. This is quite time consuming and has an impact on delivery schedules, even more so in times of travel restrictions, but also regarding the latest date of shipment which is also determined in the LC which draws closer the more time-consuming the acquisition of special documents is. If this date cannot be met, the LC will become invalid and has to be renegotiated. With regards to the shortage of containers especially in Chinese harbours and the number of postponed or cancelled voyages, this latest date of shipment has been a concern in multiple projects during the past months.

Another problem that might occur are dissents between the customer or the importing country and the exporting nation's Chamber of Commerce (CoC). This differs between different exporting market's CoC, but it can happen that the importer demands a specific document issued by the exporting nation's CoC which refuses to act, for example if procedures work traditionally different in the exporting nation and the domestic CoC is not willing to act according to foreign demands. Depending on the Mexican customer's demand, differences might occur here when exporting from the EU and from China, in which case the LC could require time consuming renegotiations that brings the company closer to the latest day of shipment.

Since WHR products are eligible for a preferential tariff which is tied to rules of origin under the EU-Mexico FTA, a Proof of Preferential Origin is necessary to guarantee that these rules have been met. A regular certificate of origin is not necessarily tied to an FTA with preferential tariffs, many countries demand this document in any case, but in EU-Mexico trade with WHR technology the product's origin is not only a detail but connected to money, therefore the Proof of Preferential Origin must be submitted by the exporter, otherwise the preferential tariff of 0% cannot be granted and the MFN tariff of 15% becomes applicable (European Commission, 2021d.)

Currently, the EU also lists the "Arbitrary customs procedures" as a non-tariff trade barrier impacting EU exports to Mexico. This barrier has first been reported back in 2010, has been checked again in January 2021 and is still active. In detail, the EU complains about excessive document requirements, inefficient customs procedures which have partly been also non-transparent and inconsistent in regard to the FTA, causing delivery delays to the disapproval of European exporting companies and Mexican customers. Two prior customs reforms, one in 2008 and another one in 2013, addressed this barrier. Three major points of the 2013 reform were on one hand the creation of the customs electronic system which would make procedures more efficient as customs declarations could now be kept electronically; secondly, custom brokers were no longer mandatory in export and import; thirdly, customs procedures meant to become more time efficient as the reform abolished the second round of inspections. However, both reforms could not fully eliminate the EU's concerns as some procedures remain some level of uncertainty, such as the fact that trade requirements have been interpreted differently at different Mexican ports (European Commission, 2021e.)

7.2 Status of WHR in the Mexican market

The awareness of WHR in Mexico differs between different customer segments. Customers with high-efficient cogeneration power plants are naturally aware of WHR as it is essential for the entire plant; without it operating would not be possible. Customers who have to deal with industrial waste heat, as it for example would be the case in the cement or steel industry, are not necessarily as aware of the technology as they could or should be, according to an interviewee. Nevertheless, the general awareness of WHR is growing and the reasons for this development include the influence of global trends and energy policies on the one hand, and on the other hand also regional trends towards higher efficiency and environmentally friendly power generation. Especially with regards to the government's latest involvement as it has been described previously, future market developments are hard to predict currently. Still, industrial companies in Mexico very much depend on reliable energy, a demand which is hard to be covered by a grid coming from the rather inefficiently and centralised operating PEMEX and CFE which are under the control of the government.

Therefore, the industrial companies are interested in having their own power plant that can supply them with electricity and is at the same time more reliable, cheaper and independent from any state-owned energy company.

Additionally, owners of high-efficient cogeneration power plants can benefit from incentives as they are among those technologies defined as renewable energy and low-carbon technology used for producing clean energy by the Law of Electric Industry (LIE) which had been enacted back in 2014 (Valenzuela & Studer, 2017, p. 12); these incentives can be benefitted from if the plant reaches a certain level of efficiency, explained one interviewee. Global trends towards environmentally friendly energy and local policy changes such as the LIE pushing renewable energy pushed the demand for WHR and made sustainable investments more attractive. How strongly sustainability aspects are emphasised in the communication between the case company and the customer depends again on the customer segment, as customers who have taken the approach of cogeneration already decided for an approach of which sustainability benefits are naturally part of. Therefore, the emphasis is stronger for industrial WHR where customers deciding for an installation would recognise immediate sustainability benefits. However, if and how sustainable measures are taken is also determined by endemic policies and the availability of support, which includes incentives to make sustainable investments also a financially attractive step next to the opportunity to build a brand image with strong sustainability values.

7.2.1 Political influences

Political influences are currently the largest perceived threat for the Mexican market. The government's role in the current market development has to be emphasised: While a number of projects eligible for financial incentives due to their level of sustainability are currently under development, their approval is being blocked due to the President's decision to shut down those offices and entities that are involved in the approval process. That has been done under the guise of Corona-related hygienic regulations, however the actual, ideological reasons for shutting down entities that go against the President's interests are rather easy to see through as the Mexican government has not shut down any other entities in the country or has given much thought to a Covid-19

strategy. The number of projects awaiting their approval is currently amounting to about two hundred projects and it is unsure whether their waiting time will be over in a couple of months or whether the approval process will still be held up for years to come.

It was the Energy Reform of 2014 under President Peña Nieto which had made Mexico a promising market in the first place as it aimed at opening the market for private investors and therefore increased the market activity which was attractive to investors. Under President López Obrador, the situation has changed. He is following a more socialist approach wishing to return power to state-owned companies such as PEMEX or CFE that currently have huge financial problems. This political approach is affecting the market. The investments into new plants have been interrupted, they are now supposed to flow into older power plants instead, therefore new investments are currently less active which turned a formerly very promising market into a less promising market.

President López Obrador has been elected in 2018; presidential elections in Mexico take place every six years. Therefore, unless his term would be interrupted, López Obrador will remain in his position until late 2024. The Mexican Constitution forbids re-elections, therefore López Obrador will not be able to run for a second six-year term, provided that the Mexico's Political Constitution will not change until the next election. Until then, however, he will remain the one person in charge of the Supreme Federal Executive Branch (Instituto Nacional Electoral, 2021.)

7.3 Conclusion

The export from the EU to Mexico differs in some respects to the export from China to Mexico. This shows most obvious in the existence of an FTA between the EU and Mexico which brings with it attractive preferential tariffs for WHR technology, whereas exported goods of this kind from China still have to be charged with the standard 15% tariff given by the WTO. Smaller differences lie in the export documentation where the compulsory Proof of Preferential Origin certificate is needed to receive the preferential tariff under the EU-Mexico FTA. Furthermore, a difference in shipping schedules gives a rather small advantage to China as products exported

from smaller harbours in the EU are more likely to take an additional stop at a larger harbour. However, under the current influence of Covid-19, there is a scarcity in containers which impacts the export from China currently much more than the export from the EU as planned voyages are getting postponed or completely cancelled. This circumstance is not expected to be permanent but likely to shape export from China still until the second half of 2021, according to current predictions. Neither the EU nor China are currently employing any additional projects with Mexico to enhance the trade of clean energy technology, and if they do, they do not apply to the projects undertaken by the case company.

To come to a conclusion, the differences between Mexico's trade structures with the EU and those with China become more evident when seen from a political and economic point of view. Although this is not product-specific, political and economic interests are playing a major role in regard to future trade reliefs and incentives. Here, Mexico is in a dilemma regarding China: On one hand, Mexico can account for one of the highest numbers of FTAs in the world. On the other hand, Mexico's economic health is at large dependent on the US economy and therefore on US trade politics. Especially in the trade relationship with China, Mexico has shown reluctance to enter into more serious alliances such as an FTA. For one thing, this has been done with regards to domestic industries as the government has seen products imported from China as a threat to the Mexican market. This is not the case with products imported from the EU. Secondly, Mexico's participation in the UCMCA free trade zone which is heavily US-centred, and the United States' importance for Mexico's economic development are leading Mexico's view more to North America, instead of tightening trade alliances across the Pacific. This is also different to the situation with the EU as the EU and the United States are also ideological partners; therefore, the US is evaluating a partnership with the EU differently than one with China. What remains is a lose partnership with China under the umbrella of APEC which brings so far little benefit for WHR technology if compared to the preferential tariffs offered by the EU-Mexico FTA.

What is concerning at the moment inside of Mexico is the political developments which affect WHR investments. The Energy Reform package of 2013 and 2014 had substantial meaning for the country's energy sector, but it also paved the way for an

increase in investments in clean technologies such as WHR as now the government was offering attractive financial incentives to those power producers who would make their processes cleaner. Mexico has good reasons for its approach, two of them being the unreliable energy supply provided by the state-owned energy companies, and the very real climatic threats for the entire country. Nevertheless, the political style has changed since the Energy Reform and currently, under President López Obrador who follows a more socialist approach, the preconditions for foreign investors have worsened to the intended benefit of the inefficient state-owned power producers with severe consequences for investments in WHR projects. Without the financial incentives offered by the government to make investments in clean technology attractive and fiscally reasonable and without an open market that will not discriminate foreign investors, investments in clean technology such as WHR will hardly expand.

Overall, the findings themselves may be low in number as international trade is well organised and structured worldwide, and little has been established so far on the international stage to promote specifically the trade with clean energy technology. However, the larger differences between Mexico-EU trade and Mexico-China trade really appear when looked at from the broader perspective where the traded product itself is not in the focus anymore (unless it can be used as an instrument to create political pressure, as done by Donald Trump) and national and strategic factors play into account.

8 RECOMMENDATIONS

The purpose of this research was to explore the differences in trade structures between Mexico-EU trade and Mexico-China trade with Mexico being the importing market and the EU and China the exporting markets. A special emphasis was put on identifying potential incentives that would be of an advantage for the trade of WHR technology. Currently, export from the EU has the benefit of being handled under the EU-Mexico FTA which offers a considerable money saving as import tariffs have been removed. Nonetheless, any additional incentives that would fit the case company's

project portfolio – for example multinational projects for the sustainable development of the energy sector and the industrial process – could not be found. A following-up research focussing specifically on the North American trade zone could offer a very detailed insight into how future projects in Mexico may facilitate the establishment in the US and Canadian market in consideration of their local incentive programmes. The political development in Mexico should be observed as well throughout the next years until and after the Presidential elections planned for 2024 in order to give conclusions over future expectations of the next President who will serve until the end of the decade. Since the researcher herself does not have knowledge of the Spanish language at her disposal, she had to rely on international media about the current political landscape in Mexico for this research, but an in-depth research about this matter done by another researcher with the required language skills would certainly offer clarity over possible political and market developments in the 2020s.

The research about the future of North American free trade under Joe Biden turned out to be particularly troublesome as the research coincided with the US Presidential election and the early days of his presidency which are commonly characterised by a large amount of promises and optimistic words; to take these promises at face value did not appear the researcher as a save foundation for predictions over the next four years. Moreover, the corona pandemic overshadowed most other topics, and in another year the future of trade in North America and the handling of China might have been a more visible topic. Therefore, follow-up research would be necessary to keep up on US-decisions about North American trade.

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