

Benefits of Trade Liberalization with Environmental Goods: Mexican Environmental Industry Case

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Abstract: - The current round of negotiations on trade liberalization within the World Trade Organization is generally aimed at development agenda and within it, it has initially included also abolishment of trade barriers for environmental goods (EG). Even if the multilateral negotiations are not progressing in the field of EG, it is necessary to analyse how EG trade liberalization would influence industrial sectors of developing countries and what will be impact of the international plurilateral Environmental Goods Agreement (EGA) that is negotiated since June 2014. There are several perspectives that can be taken into consideration (the main ones are: influence on the overall economy, on industry using environmental goods, on industry producing environmental goods, on consumers, on substitution of products). The article brings the case of Mexican environmental industry and analyses its performance within the NAFTA region in relation to the intended EG trade liberalization. The findings show that Mexico remains a net importer of high-tech EGs and due to the limited financing, its environmental industry does not have sufficient potential to benefit from potential positive outcomes of EG trade liberalization.

Key-Words: - environmental goods, trade liberalization, Mexico, NAFTA, Environmental Goods Agreement

1 Introduction

Together with globalization progresses, economic blocs become stronger, as they use for benefit of their economic relations an exception from the most favoured nation treatment of the multilateral trading system that rules international trade flows under the umbrella of the World Trade Organization (WTO) agreements. Examples are the European Union (EU) that encompasses 28 countries and becomes the main trading power of the world, followed up by the North America Free Trade Agreement (NAFTA)

that is formed by United States (US), Canada and México [1]. Within the NAFTA region, the transition of Mexico from an inward economic policy featured by a strong state intervention to an open and liberalized economy requires a deeper analysis from various perspectives, including the development of environmental industrial sectors.

Mexico has shown a historical preference for an import substitution industrial policy. For decades the industry was supported by governmental subsidies and protected with import tariffs until the

1980s where the trade policy changed drastically [2]. According to Morales, the economic restructuring was featured by trade liberalization, thus, from 1986 to 1994 the government reduced import tariffs, joined the General Agreement on Tariffs and Trade (GATT) and ultimately the NAFTA [3]. The implementation of NAFTA was the most crucial step in the transition from the import substitution model to an open market economy with trade liberalization in order to seize the economic gains of the exchange with other countries, especially the US [4]. Also, Puyana stressed that in the year 2000, 92% of the total Mexican exports had as main destination industrialized countries where the US showed the largest share with 85% of the Mexican exports [5]. Although the Mexican industry has some large companies, it is composed mainly of small and medium size firms. After the enforcement of NAFTA in the period of 1993 to 1999, the number of export-oriented participants grew 67% to reach over 30,000 firms; however, most of them were either small or medium size business that represented 89% of the exporting sector [6]. The composition of the sector had a significant impact in the distribution of the benefits of international trade. In 1994, the 80% of the non-oil exports were concentrated in 573 companies, whereas 20% was distributed among the 20,846 business remaining in the sector [3]. This situation does not apply exclusively for a particular industry but encompasses all branches involved in international trade.

In this regard, the environmental industry and the liberalization of the trade of environmental goods (EG) is becoming an important topic in the agenda of several countries. Global trade in environmental goods is already estimated to be around \$1 trillion annually, and growing quickly. According to a report by the United Nations Environment Program [29], the International Trade Centre [30] and the International Centre for Trade and Sustainable Development [31], trade in environmental products more than doubled globally from 2001 to 2007, and exports by developing countries rose as fast as those by developed economies.

At the WTO Ministerial Conference in Doha in November 2001, it has been agreed to include into the mandate of future negotiations on trade liberalization also reduction or elimination of tariffs for EGs. The purpose has been to develop a win-win strategy in this area of international trade: to expand

the flows of EG trade and at the same, to foster the path towards sustainable development and economic reforms in developing countries, by broadening the access to environmental technology and eco-friendly goods at lower costs [7]. Nevertheless, the strategy has been subjected to discussion for being considered more favourable for developed countries in terms of EG exports. According to Sang and Jisun, Mexico is listed as a key player in the international trade of EGs, however, its share in the world trade is quite low if compared to the European Union and the United States [8]. Therefore, given the strategic importance of the NAFTA region for the Mexican exporting sector, it is important to assess benefits for the environmental industry.

The aim of this paper is to determine how the Mexican environmental industry benefits from the liberalization of international EG trade within the NAFTA region. In the first part we analyze the discussion regarding the liberalization of environmental goods, their main challenges and current development. In the second part, we use the Mexican EG trade balance with the other NAFTA members to analyze and assess the role of Mexican environmental industry and its trade flows within the region. Also, we discuss the factors that determine the performance of the industry. The last part concludes with some policy recommendations.

2 Liberalization of environmental goods: perspectives and challenges

2.1 Dilemma of multilateral liberalization

Discussion on the issue trade and environment started at the WTO Ministerial Conference in 1996 in Singapore. The topic appeared as a part of the final declaration, binding WTO members to start a discussion with a goal to identify related areas for future negotiations on trade liberalization and trade rules. Within the following discussion, for which a WTO body has been established, some fields developed as the main trade related areas and three of them have been included into the negotiation mandate of the current round of the WTO negotiations in 2001 at the a WTO Ministerial Conference in Doha. The mandate related to EG trade is reflected in the article 31(iii) and is aimed at liberalization not only of the EG import tariffs, but also at extension of markets for environmental services [9]. Benefits of the reduction of tariffs were

since than subjects to extended discussion. According to Sang and Jisun, most of the promoters of the liberalization are key players in the international trade of EG; their main argument is the demand growth for clean technologies and products in both developed and developing countries [8]. Thus, lowering the current tariffs will result in price reductions to become environmental technology more affordable for developing countries and simultaneously developed countries will increase their trade flows [10]. In this regard the strategy has been criticized for being disadvantageous for developing countries in terms of international trade balance, mainly because the competitiveness the environmental industries of developed countries are more competitive [7]. As stressed by Balineau and De Melo, EG are in fact less protected than other goods; in the period 1996-2010, tariffs were reduced approximately 50% from the initial levels but remain high in low-income countries [11]. Also, the size of the contribution to the improvement in the environmental performance is vague.

Thus, the economic and development gap between developed and developing countries raises doubts about who are the true winners of the EG trade liberalization. According to some analysis, future of negotiations depends on ability of negotiators to table persuasive data and favorable arguments of EG liberalization [9].

2.2 Fundamental problem: EG definition

The definitions of environmental goods and lists agreement belong to the key elements of the liberalization negotiations and they have been identified as causes for the slow progress in the negotiations: the political economy of trade policy formulation [11].

The formulation of any governmental trade policy for EG depends largely on what is considered to be the EG, it means on an agreement on a definition of the environmental goods.

One of the first definitions of EGs has been developed in the 1990s by experts of the Organization for Economic Co-operation and Development (OECD) and Eurostat: "the environmental goods and services industry consists of activities which produce goods and services to measure, prevent, limit, minimize or correct environmental damage to water, air and soil, as well as problems related to waste, noise and ecosystems." [12]. The OECD list includes goods spanning 6-digit Harmonized Commodity

Description and Coding System (HS codes). The items include goods for water treatment, waste management, renewable energy and sound technologies.

The other definition has been provided by Asia-Pacific Economic Cooperation (APEC). The APEC defines environmental goods and services as an industry sector devoted to solving, limiting or preventing environmental problems. The industry should be involved in manufacturing and/or services related to water or air pollution, waste management, recycling, renewable energy, monitoring, analysis and assessment. APEC deals with a list of 54 environmental goods [13]. The items include renewable and clean energy technologies, wastewater treatment technologies, environmental monitoring and assessment equipment, biofuels are, however, excluded.

Among all the conceptualization efforts, the definitions and lists of EG of the Asia-Pacific Economic Cooperation (APEC) and the OECD have been the baseline for the WTO negotiations on environmental goods [9].

During the WTO discussion, it has not been possible to achieve one definition only. Having in mind that such a definition should have been agreed by consensus by all WTO members, the task was considered as unrealistic. It was why the WTO members agreed on establishment of a list of EG that could be accepted by all members. Even this approach, however, did not show to be very effective, as members presented different lists proposal that have taken into consideration different points of view and their trade interests [28]. Two crucial problems for defining EG have occurred, one associated to the production process and the other linked to the dual-use dilemma. The first problem refers to whether a good is ecologically manufactured or if the process generates pollution [9]. The second matter is linked to the end use of goods; since the same a product could be used for environmental purposes but also in polluting activities [8]. These two problems provided an obstacle for formulation of a globally accepted EG definition. Although several international organizations have further proposed lists and definitions [24], none of this has been universally accepted by the WTO.

As a matter of fact, the WTO used a working definition that characterized environmental goods as those activities that produce materials, equipment and technologies used to address particular

environmental problems; or products considered preferable than less ecological similar goods [26]. The mentioned characterization (not a final definition) has been accepted by the WTO members with a goal to put forward the negotiations on liberalization and not to limit the discussion to fine tuning the definition as such. However, the WTO members did not find any final list of environmental goods. One of the lastly tabled lists is consisting of 26 items of core EGs and includes goods for waste management, and water treatment, renewable energy, environmental technologies, carbon capture and storage and air pollution control [13 [14].

As mentioned, an important feature of the EG lists and definitions proposed by international organizations is that they are based on the interests of their authors-WTO member countries. The best positioned countries in the international trade of these products, which are represented by developed industrialized countries, pursue their influence on the outcome of the EG categorization. As stressed by Balineau and De Melo, until 2010 three broad approaches were proposed in order to foster EG trade liberalization: the List approach, the Request and Offer approach; the Integrated-Project approach and the Hybrid approach were proposed by different countries in order to achieve modalities for reduction of import tariffs within the WTO. The List approach was proposed by some key players in the EG trade such as the EU, Japan and the US and it was broadly accepted, however, the listed items were those in which large developed countries have a comparative advantage [11]. Most of the EG included in the core list of the WTO are high-tech and capital goods, therefore, given the gap between developed and developing countries, the latter might remain only as net importers [10]. This conflict of interests helps to explain why developing countries have been more reluctant to establish negotiation on tariffs reduction.

2.3 Plurilateral EG agreement: a way out?

The negotiation of EG trade liberalization has been frozen as a consequence of beginning of the economic and financial crisis together with difficulties in progress of negotiations in 2008. Since then, some regional blocks have recognized an importance of EG trade liberalization. For example, APEC countries agreed on tariff reduction to 5 % or less until 2015 for all 54 products on the APEC list [13]. In 2014, 44 WTO members decided to process through a plurilateral approach (the 28 EU Member States and 16 other WTO members:

Australia, Canada, China, Costa Rica, Taiwan, Hong Kong, Japan, Korea, New Zealand, Norway, Switzerland, Singapore, United States, Israel, Turkey and Iceland). These countries account for the majority of the world trade in environmental goods. Plurilaterality is a historically approved approach that can facilitate trade liberalization in a situation when some members of the multilateral trading system do not feel themselves ready to join a consensus on a specific area of liberalization. It has been applied, for example, for the Governmental Procurement Agreement, and it means that an agreement is signed by interested parties and other can join it in any future when they comply with its rules and are ready to overtake respective commitments. The newly negotiated plurilateral Environmental Goods Agreement (EGA) is aimed to remove barriers to trade in environmental goods that are crucial for environmental protection and climate change mitigation.

The EGA liberalization covers products that directly contribute to environmental protection and climate change mitigation, as for example by helping clean the air and water, manage waste, contributing to energy efficiency, controlling air pollution or generating renewable energy. The negotiations are based on the APEC list of EG, that is composed of 54 products; other products as well as services could be, however, added, if signatory parties agree on it. The EGA is also open to tackling non-tariff barriers, such as local content requirements or restrictions on investment. The EGA signatories will apply most favored nation clause toward all third countries, it means that the market opening will be provided also for those countries that do not participate in the process of liberalization. The EGA supports the idea of a “win-win” situation, as it can boost global trade in green goods and services, support green industry globally, help meet climate and energy targets to be agreed in the new Climate Agreement end 2015 in Paris, provide cheaper access to these technologies worldwide, help make rapidly growing cities greener and more sustainable, strengthen security of energy supply in the EU and reduce dependency on fossil fuels, create an impetus for talks on green goods and services in the World Trade Organization [27].

The EGA is considered to be an EU initiative, launched in Davos 2014. The EU is a world leader in exports and imports of EG (followed by China and other APEC countries). Although environmental goods are a relatively small part of EU trade, the sector is very dynamic. In 2013 EU exports of the 54 APEC list products amounted to 71 billion euros,

imports to 34 billion euros. If other so called “green” products are included, the EU exports rise to 146 billion euros and imports to 70 billion euros [27].

The global industry supports the ambitious EGA that will according to it further increase global trade in environmental goods, lowering the cost of addressing environmental and climate challenges by removing tariffs that can be as high as 35 percent, and in addition it can act as a stepping stone to lowering tariffs and other trade barriers in other sectors and associated value chains [25].

From the perspective of EG trade liberalization, the approach decided by the major EG players seems to be a way how to achieve a progress and to abolish trade barriers at these markets, while other countries will be in a position to maintain their domestic market protection. The question that is analyzed by using the example of Mexico is how the market opening will contribute to the development of environmental industry in developing countries. The example of Mexico is very illustrative namely because Mexico already enjoys a market access to the US and Canada without limitation through NAFTA preferential trade agreement and we can thus assess impact of further EG trade liberalization on developing countries which in majority already enjoy a preferential market access to developed countries through the Generalized System of Preferences, it means through lower or not existing trade barriers. We need to consider in this relation if the mentioned preferences of developing countries would not be further eroded by EG trade liberalization in developed markets. A deep analysis that takes into consideration all aspects is necessary in order to design a complex picture of the EG liberalization.

3 Performance of the Mexican environmental industry in EG trade

3.1 NAFTA and the Mexican market

The international trade of environmental goods of Mexico is analysed in the framework of NAFTA. In 2000, 92% of the Mexican exportation has been oriented to industrialized countries, among them namely to the USA that is the largest Mexican target market with a share of 85% [5]. This situation is observed as a high dependence on the US economy and together with the NAFTA rules and conditions it establishes quite intensive single market characteristics between Mexico and USA. Economic and namely trade relations of Mexico with Canada

are at the margin of NAFTA arrangement and specifically trade with EG achieves only about one tenth of the EG trade with the US; therefore the EG trade with Canada could be partially disregarded in this analysis. According to Muñoz, based on the definition of environmental goods and services of the OECD/Eurostat [22], the Mexican environmental industry can be divided into three categories: goods and services for pollution control, intermediate goods and services related to clean technologies and goods and services dedicated to the rational use of natural resources [6]. However, the Mexican environmental industry is composed of a moderate number of companies, namely of small and medium sized enterprises. Although the Mexican environmental industry has been growing quite fast in last twenty year period, it is represented only by 8,300 businesses, compared to the United States where the number of companies reaches 117,000 [15]. Table 1 shows, however, that the position of Mexico within the international trade with EG achieved almost 3 per cents already in 2009 (based on the WTO Core list of EG [23]).

Table 1. World Trade in EG, main traders (mil. USD, 2009)

Country	Export	World Share	Import	World Share
European Union	34,248.0	19.31	28,802.2	16.32
Japan	22,842.5	12.92	5,170.8	2.97
United States	17,651.9	10.04	21,228.9	12.03
China	21,813.2	12.33	19,552.7	11.14
Korea	6,786.0	3.85	11,068.1	6.35
Mexico	4,811.7	2.76	3,327.9	1.90
World Total	177,187.1		176,877.5	

Source:[8], p.12

The gap between the trade balances of Mexico and the US suggests a big difference in terms of competitiveness that affects the performance of Mexico in the NAFTA region. According to Zhang, since the implementation of the NAFTA, the trade of EG among its member states doubled its size in the period of 1995-2005 [16]. The Mexican market became important for “being added” to the largest single market for environmental goods in the North America. In this regard, Avery and Boadu, estimated a regression model for the exports’ demand of the EG industry of the US, showing that the highest increases in this demand would occur in

the developing areas of the world, including Mexico [17] what could boost the developing countries environmental industry development. Even if the Mexican case proves the mentioned hypothesis on increasing exportation of EG from Mexico, the Mexico's EG trade balance with NAFTA partners remains in deficit (table 2, based on OECD/Eurostat definition of EG).

Table 2. Mexico's EG trade balance with US and Canada (mil. USD, 2001)

	Exports	Imports	Trade Balance
USA	116.60	918.70	- 802,10
Canada	12.84	18.93	- 6,11

Source: [18], p.10,12.

Observation of the Mexican EG sectors' trade balance (table 3) leads to a conclusion about competitiveness of individual EG sectors toward the USA and Canada: positive trade balance outcomes – thus demanded competitive EG - are observed within resources and services sectors of sustainable agriculture, sustainable forestry and services of ecotourism, while in very many sectors Mexico is almost a net importer: in equipment for control of air pollution, for water, in technology for processes and prevention, in instruments and information systems, in services of solid waste management, hazardous waste management sanitation and industrial services, consultancy and engineering, analytical, public companies for water management, recovery of resources, systems and services of clean energy. There are identified only two sectors within which Mexico not only imports, but also exports: equipment for waste management and water treatment.

Table 3. Mexico's EG trade balance with US and Canada: sector groups (mil. USD, 2001)

Type of goods	Export to the US	Import from the US	Export to Canada	Import from Canada
Equipment	13.30	499.20	1.86	13.35
Services	23.62	205.70	0.39	2.48
Resources	93.00	213.80	10,59	3.10
Total	129.92	918.70	12.84	18.93

Source: [18], p.10,12.

The data reflect a generalized trade deficit of Mexico in the NAFTA region. If compared to the exportation and importation of EG with the rest of the world, with which the EG trade balance of

Mexico is positive, we can come to a conclusion about an impact of the preferential trade agreement within which the barriers to trade has been abolished, while they are maintained toward third countries: according to data of the World Trade Organization (2011), Mexico has an average tariff of 6.75% for the EG of the core lists of the WTO which is the highest among the members of NAFTA.

While Mexico is competitive ecotourism, sustainable agriculture and sustainable forestry, it lacks behind in sectors which share of the total EG trade is significant in NAFTA region (table 4).

Table 4. Share of the EG trade by sectors in the NAFTA region (mil USD, 2001)

Type of goods	Trade	% Share
Equipment:		67%
Equipment and chemicals for water	1,469.8	
Equipment for control of air pollution	590.7	
Instruments and information systems	123.2	
Equipment for waste management	535.8	
Technology for processes and prevention	11.7	
Services:		17%
Solid waste management	130.6	
Hazardous waste management.	48.7	
Consultancy and engineering	372.1	
Sanitation and industrial services	63.6	
Analytical treatment	15.4	
Water treatment	69.5	
Resources:		16%
Public companies for water management	42.5	
Recovery of resources	235.0	
Systems and services of clean energy	82.2	
Sustainable agriculture	197.6	
Sustainable forestry	19.5	
Ecotourism	78.5	
Total	4,086.6	100%

Source: [18], p.13.

The data shows that equipment is the main segment of the EG trade. As shown before, the participation of Mexico in this category is not very significant and it exposes the lack of specialization in the environmental industry. The causes of the underdevelopment of the Mexican environmental industry will be discussed in the next subsection.

3.2 Why is the Mexican environmental industry underdeveloped?

Along with the progress of trade liberalization a transition towards specialization started as well. According to Morales, since Mexico joined the General Agreement of Trade and Tariffs, the country started its transformation from exporting raw materials to high-tech manufactured goods, however, only a few companies had sufficient resources to perform this change [3]. This affected also the modernization of the environmental industry. The size of firms represents an obstacle for the competitiveness and the development of the sector mainly because of financial restrictions [6]. The economic crises of the 1980s and the 1990s reduced considerably the public budget for the improvement of environmental infrastructure and also led the banks to bankruptcy [19],[20]. Although the production of EG and the number of firms grew during the crisis of 1994, the growth responded to reduction of costs due to a policy of low wages but not to a modernization strategy [6]. Also, Dutrénit et.al. performed a study about the technological transition for three Mexican firms where they showed that economic shocks substantially decreased the investment on research and development [21]. Thus, if the lack of resources to foster the competitiveness of the environmental industry is not tackled Mexico will not be able to seize a larger share of the benefits of the international trade of EGs.

4 Conclusion

Environmental industry and trade with environmental goods and services becomes more and more important. Notwithstanding this conclusion, it is not yet defined what environmental goods are, as no comprehensive EG list has been agreed by consensus of the WTO membership representing 161 countries. Nevertheless, a need of trade barriers elimination is not only pursued by developed countries' governments, but also by global industry. As the multilateral EG trade liberalization is not progressing currently, the plurilateral initiative has been launched recently and the Environmental Goods Agreement is negotiated by 44 governments, based on 54 products. The scope of EGA is however open for further extension.

There is no doubt that international trade has fostered the exports of the Mexican environmental industry. According to the WTO, Mexico is a key

player in the trade of environmental goods, however, in the NAFTA region the country remains as a net importer of capital environmental goods which are the most profitable segment of the trade of EGs. Additionally, the lack of specialization of the Mexican environmental industry limits the economic and environmental benefits that can be obtained from the liberalization of the trade of EGs.

Given the importance of the American markets, the trade policy must be revised. New approaches to develop definitions and categories are needed, as well as the development of new industrial policy to foster the growth and competitiveness of the firms participating in the environmental industry. Also, greater specialization will increase the exports destination of Mexican EGs and at the domestic level it will reduce the costs of environmental protection. Only with it, Mexico can benefit in the future from the EG trade liberalization and also join the plurilateral Environmental Goods Agreement.

Future research should be focused on comprehensive studies about possible strategies to develop the environmental industry and simultaneously reduce the dependency of imported environmental goods and technology.

This work was supported by the IGA project No. F2/26/2014 „Impact of economic liberalization on environmental policy“

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