Greener Transport for North America

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1 Introduction

Green logistics is one of the key pillars of the sustainable development concept. 'Green' in the context of sustainability in logistics means turning all related operations into environmentally friendly ones, for instance, green transport, green warehousing, green procurement, green packaging, etc. As long as transportation accounts for roughly 60% in the overall logistics costs, green transport should be studied precisely. In sustainability terms green transport could be viewed as 'a notion that meets the current transport and mobility needs without compromising the ability of future generations to meet these needs' (Black 1996).

Marking the 5th anniversary of the Sustainable Development Goals (SDGs) transportation as a connecting operation has generally sustained the trend on eco-friendliness of the world economy. Several SDGs encompass the transport and logistics agenda (i.e. Goals 7, 9, 11, 12, 13, 14, 15). At the same time, transport is still one of the main polluters of the environment. Transportation accounts for 24% of direct CO2 emissions and when broken down by modes of transport, road vehicles are responsible for around 75% of the related emissions with sea and air segments' inputs on the rise (IEA 2020). In tackling this, the International Maritime Organization (IMO) undertook a plan on reducing greenhouse gas (GHG) emissions from international shipping by at least 50% by 2050 (IMO 2020).

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Specifically, sustainability in transport and logistics has been fairly studied both from the operational and regulative sides (Dekker et al. 2012). As the world economy is shifting towards green, digital, cost-efficient and zero waste policies, as of today it is predominantly viewed from the supply chain perspective (Chu et al. 2017; Kazancoglu et al. 2018). For instance, sustainability in logistics operations already within the chain could be achieved by applying either a dual-channel supply approach (Barzinpour and Taki 2016) or cross-docking (Dulebenets 2018). Based on World Bank Logistics Performance Index (LPI) Lu et al. (2019) have empirically bridged logistics operations and environmental management by introducing a new metric—Environmental Logistics Performance Index (ELPI). Some scholars have referred to the phenomenon in question as a circular supply chain specifically centering it around *just-in-time* and *3R* (reduce/reuse/recycle) tools (Blomsma and Brennan 2017; Merli et al. 2018; De Angelis et al. 2018).

From the regulatory side climate provisions in regional trade agreements do also contribute to sustainability, including that in transport and logistics (Morin et al. 2018; Berger et al. 2020). Efficiency of the EU regional policy on transport has been tested on the basis of greenhouse emissions (Eliasson and Proost 2015). Being in the same vein, Georgatzi et al. (2020) have empirically investigated the effect of strengthening the environmental policy and green technologies related to transport on the CO2 emissions produced by the EU transport.

On their part, Morin and Jinnah (2018) have found 8 types of provisions in the existing preferential trade agreements (PTAs) with the promotion of renewable energy at the top. The EU pioneered this motion in 1991, and as of today there are, on average, 2.6 climate provisions in the EU trade agreements compared to 0.2 signed by others (Morin and Jinnah 2018). Moreover, there is a relative divergence in approaches undertaken by the EU and US when including environmental clauses in regional agreements. Unlike the EU with its inclusive and cooperative bases, the US forces its partners (fair for both North American Free Trade Agreement (NAFTA) and United States-Mexico-Canada Agreement (USMCA) formats) to introduce 'equally stringent environmental standards' and related regulations (Morin and Rochette 2017).

In its turn, sustainability of transport and logistics operations in North America has been relatively touched upon. For instance, Rodrigue and Notteboom (2010) scrutinized the existing logistics gateways in NAFTA from the perspective of location, functionality, management and regulation. Blank and Prentice (2015) studied the potential of autocabotage in shortening the empty run and, consequently, reducing greenhouse gas emissions.

Overall, there is a gap in the existing research, which the paper endeavors to critically cover. Specifically, this gap is prominent when studying the link between the environmental provisions of the USMCA that came into force on July 1, 2020 as a successor of NAFTA and greener transport in the region. In this essence, the research hypothesis states that the implementation of environmental agenda under the USMCA climate provisions and the liberalization of

cabotage shipments across the United States, Canada and Mexico can reduce the region's ecological footprint and add sustainability to their transport.

2 Methodology

The research methodology is twofold. First, its theoretical grounds could be found in the concepts of environmental economics, circular economics, climate governance and regional integration under the umbrella of sustainability paradigm. In neoclassical traditions environmental economics generally deals with the 'market failure' phenomenon. Circular economics refers to an economic system containing material flows with zero waste philosophy. Climate governance and regional integration could be applied when viewing environmental provisions (that imply green initiatives in transport and logistics) of regional trade agreements as one of the most decisive non-trade dimensions of economic integration.

Second, it embraces a profound analysis of primary and secondary sources presented in a form of literature review. The review is holistic, comparative, multidisciplinary and critical with the fundamental aim of investigating ideals and realities of sustainability in transport and logistics both worldwide and in North America in particular.

3 Results

It has been revealed that North America is responsible for a sizeable and relatively adverse environmental impact broken down to multiple measurements, i.e. carbon dioxide emissions, waste management, marine litter, food loss and waste. The region's performance on the environmental agenda is uneven across the studied dimensions, yet, it remains relatively competitive compared to others.

In 2019 North America accounted for 17.5% (–2.8% compared to 2018) of the total world carbon dioxide emissions (most prevalent among greenhouse gases) well ahead of Europe (12.0%). In its turn, the US generates almost 83% of the overall regional emissions, Canada—9.3% and Mexico—7.6% (BP, 2020). Although the 3 economies constitute 27.8% of the world GDP, their CO_2 emissions are around 17.0% of the total world carbon dioxide emissions. In contrast, China with its global GDP share of 16.0% alone is responsible for close to 30.0% of the related emissions.

However, if judged by the Environmental Logistics Performance Index (Lu et al. 2019), which in addition to the World Bank's Logistics Performance Index (LPI) methodology considers energy consumption and CO_2 emissions of transport, the US and Canada have leveled at close to 0.9 (on the index scale from 0 to 1), which indicatively shows the eco-friendliness of their transportation. Thus, Lu et al. (2019) refer to North America as a high-performance region well ahead of East Asia and Pacific, Europe and Central Asia, South Asia and Latin America.

Regarding the dimension of waste management measured by the municipal solid waste (MSW) North America has been found to underperform in reducing its waste footprint. Thus, the United States, Canada and Mexico's shares in global MSW exceed their shares in the world's population. Specifically, the US is responsible for 12.0% of the global municipal waste (773 kilograms of waste per capita) when accounting for only 4.0% of the global population; Canada for 1.7 and 0.3% respectively; Mexico for 2.1 and 1.9% respectively (Verisk Maplecroft 2019, p. 5). Furthermore, the countries in question are severely lagging behind in recycling performance in contrast to others. For example, the Americans produce 3 times more waste than the Chinese, while recycling only 35% of MSW, unlike the second to none Germans with the recycling record of 68% (Verisk Maplecroft 2019, p. 6).

Another dimension of the North American ecological profile is marine litter. The Pacific waters to the west of the continent are home to the largest offshore plastic accumulation zone in the world—the Great Pacific garbage patch. With its eastern part located between the Hawaii and California the patch is estimated to cover a surface area of 1.6 million square kilometers accumulating (by the median prediction) 79,000 tonnes of marine plastic (Lebreton et al. 2018, p. 7). The patch is up to half composed of fishing nets and includes 8% microplastics that pose a special threat to the marine life and the subsequent natural food chains.

Finally, the region is also facing the problem of food loss and waste. Whereas food waste is naturally attributed to spoilage or neglect, food loss could be associated with insufficient methods in production and the relative inefficiency within the supply chains. Overall, the North American states annually generate around 168 million tonnes of food loss and waste. Broken down to states, such a loss is estimated at 126 million tonnes in the United States, 28 million tonnes in Mexico and 13 million tonnes in Canada (CEC 2017, p. 12). The US and Canada account for the highest rates of food loss and waste per person annually: 415 and 396 kilograms respectively (CEC 2017, p. 12). The corresponding figure for Mexico is relatively lower leveled at 249 kilograms per capita, which corresponds to the average in developing economies.

Apart from measuring the ecological footprint of the region from the national perspective it is worth undertaking a corporate approach. As of today, corporate environmental contribution is also being evaluated from the supply chain perspective. For instance, Greenhouse Gas Protocol provides companies with corporate standards to assess and report their direct and indirect environmental impact. The emissions have been grouped into three scopes (GHG Protocol 2020). Scope 1 implies direct emissions from the company's operations. Scope 2 deals with the indirect impact from consumption of energy resources. Scope 3 embraces indirect emissions from operations within the supply chain of the company, including those both in the upstream and downstream segments. Normally emissions amounting from these segments are on average 5.5 times higher than those produced from owned or controlled sources. Depending on the industry upstream and downstream emissions

range from 1.3 times higher for companies in power generation and materials industries to 10.9 times higher for companies in retail. Fossil fuels industry is the only emission-intensive exception where the companies' counterparts generate only 0.4 times the amount of the in-house emissions (CDP 2019, p. 18).

According to EcoVadis (2020) estimates on corporate sustainability performance, Europe outperforms North America on energy and emissions advancement, although the latter is the global leader in emissions reporting. These estimates back up the evidence from companies reporting to Carbon Disclosure Project (CDP) on greenhouse gas emissions and to the United Nations Global Compact (UNGC) initiatives on the corporate progress under the SDGs. Unlike the world trend in sustainability assessment with large companies underperforming environmentally in North America large companies perform 17% better than small and medium companies under sustainable procurement category and 6% better under environment (EcoVadis 2020).

Thus, sustainability in supply chains (and consequently in transportation) could be reached with the introduction of circularity. The concept of circularity involves three stages. First stage implies introduction of sustainable material management and responsible product design for future circular usage. Second –optimization of suppliers' processes with sustainability in mind and optimization of the linking logistics components. Third—reusing and remanufacturing coupled with return, buyback policies, remarketing and, ultimately, recycling. These steps mark the full circle in a circular supply chain. The concept of circularity could be also viewed as the unified embodiment of industry 4.0 advancements applied in logistics and transportation.

Under this framework logistics and transport operations represent a vital component of any supply chain. The research comes up with parameters the development of which may facilitate the achievement of sustainability in logistics and transportation in North America. Ecologically addressed logistics parameters include but are not limited to: mode of transportation, fuel used, and induced optimization of distance traveled. It is worth stressing that the development of these dimensions is underway in North America, yet, it faces problems mainly of regulatory origin.

North American supply chains benefit from the expansive and elaborate logistics gateways on all transport modes. Simultaneously, transportation is one of the main sectors contributing to the amount of greenhouse gas emissions generated by the USMCA states. In 2018 it was responsible for the largest share of 28% in the overall US emissions with CO_2 accounting for 97.2% in total emissions well ahead of other greenhouse gases (EPA 2020, p. 1). Road transport dominant in both US domestic and overall regional freight-turnover structures generates an overwhelming share of GHG emissions (Table 1).

As it could be seen from the table, water transport is underutilized in the US domestic freight, whereas in the regional trade through American ports it accounts for the majority of weight transported. The environmental impact of

Table 1 Shares of selected transport modes in transportation-induced greenhouse gas emissions, US domestic freight and intra-USMCA cargo carriage in 2018–2020, per cent

Mode	*Share in US transport GHG emissions*	*Share in US domestic transported weight*	*Share in US domestic transported value*	*Share in intra-USMCA cargo carriage weight*	*Share in intra-USMCA cargo carriage value*
Truck	23.0[a]	64.0	69.8	18.9	64.3
Rail	2.0	9.6	3.9	16.5	13.9
Water	2.0	4.5	2.3	35.1	7.1
Air	9.0	0.03	3.3	0.1	4.4

[a]This share refers to medium- and heavy-duty trucks that are more frequently involved in cargo transportation in the United States. However, when put together with light-duty vehicles road transport accounts for 82% in the overall US GHG emissions

Source Compiled by the authors based on: United States Environmental Protection Agency. Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100ZK4P.pdf; Centre for Transportation Analysis. Available at: https://faf.ornl.gov/faf4/Extraction1.aspx; U.S. Bureau of Transportation Statistics. Available at: https://explore.dot.gov/t/BTS/views/Dashboard_PortbyCommodity/Last12MonthsofTrade

air transport is disproportionate both to the weight and value of the underlying cargo in the domestic US and regional traffic.

The type of fuel used could be named as another sustainability-oriented parameter for North America. Under the IMO emission standard effective from January 1, 2020 sulfur content in bunker fuel is to be reduced to 0.5% by mass globally, except for 4 designated Emission Control Areas (ECA) where it has already been limited to 0.1% ahead of the curve since 2015 (IMO 2020). Two out of the four areas embrace the waters of North America: the North American Control Area (waters up to 200 nautical miles off the West, East, and Gulf coasts of Canada and the US, French territories, and the Hawaiian Islands) and the United States Caribbean Emission Control Area (waters up to 40 nautical miles off Puerto Rico and the U.S. Virgin Islands).

The regulation in question allows the use of exhaust-gas cleaning devices in shipping referred to as 'scrubbers' that enable the carriage for combustion of non-compliant sulfur-heavy fuel in ECAs and elsewhere. However, in July 2009 California introduced its own, stricter regulation for vessels fuel within 24 nautical miles of the California baseline. Specifically, California Air Resources Board Ocean-Going Vessel (CARB OGV) Fuel Regulation demands the use of marine distillate grade fuels (marine gas oil or marine diesel oil) and no scrubbers in Californian waters (CARB 2020). Thus, the United States turn out to be performing better than Canada and Mexico when tracing the type of fuel used.

In optimizing logistics operations across the USMCA from the perspective of smartness, greater connectivity and eco-friendliness the countries face common obstacles related to cabotage rights. Cabotage implies the carriage of domestic traffic between points within a single country by a foreign carrier. Such activities constitute a domestic service falling under domestic regulation that protects the national interest. Canada, the United States, and Mexico all generally (with several exceptions and waivers for force majeure) prohibit cabotage in their territories in water, road and air transportation of passengers and cargo.

Discussions on the prospects of maritime transportation in North America inevitably lead to the 'Cargo preference' laws and the Jones Act (Sect. 27 of the Merchant Marine Act, 1920) of the United States. Under the 'cargo preference' package passed in 1904–1954, seaborne shipments of all military cargo and 50% of non-military cargo purchased with federal funds are to be done by vessels under the US flag (U.S. Department of Transportation 2018).

In its turn, the Jones Act is commonly considered to be the most vivid example of protectionism in transportation. By the law any commercial marine carriage between points in the US could be done only by a US-built and US-registered vessel, owned and crewed by the US citizens (CRS 2019a). Today, the law stands still to support the national shipping and shipbuilding, although the economic efficiency of these measures is debated. According to the US Maritime Administration (MARAD) estimates, daily operating costs of container and roll-on/roll-off vessels that constitute around 75% of the US-flag foreign trade fleet are 2.2 and 3.3 times respectively greater than those of the vessels under the foreign flag (MARAD 2011).

The Act has several noticeable environmental implications that could contribute to greater sustainability in regional transportation. As found in Table 1, maritime transportation is relatively emission-neutral compared to road and rail. Indeed, it generates less GHG emissions. However, it is responsible for up to 10 times more criteria air pollutants, i.e. sulfur oxides (SOx), nitrogen oxides (NOx), particulate matter (PM), yet, for instance, SOx segment has been already fixed by IMO's ECAs (Fitzgerald 2020). Meanwhile, the underutilization of water transport in the US domestic traffic is largely attributed to the higher costs of the marine transportation under Jones Act, which explains the shippers' switch to other transport modes. Simultaneously, Fitzgerald (2020) acknowledges that there is an uncertainty among scholars about the magnitude of the environmental costs of marine transport. Yet, under his scenario with Jones Act's abandonment, where both new vessels enter the US fleet and part of truck and rail's freight shifts to water transport, the potential net reduction in environmental costs can range between $109 million and $8.2 billion.

Besides, the Act affects the configuration of supply chains and the promotion of renewables, namely wind turbines for offshore wind energy farms. As the installation of the turbines requires unique 'wind turbine (tower) installation vessels', a company in the renewable energy industry has two options in

terms of transportation. It can either charter a single foreign-flagged vessel to carry the turbines from abroad and install them; or two vessels, one Jones Act-compliant carrier and a foreign non-compliant installation vessel. To facilitate the development of renewable energy off the US coast, the first Jones Act-compliant fleet in question was initially planned for end 2019 but was later postponed until 2023 (CRS 2019a).

The case of the US is given here to exemplify the general implications of competition restrictions on cabotage, and as similar laws do exist in Canada and Mexico they are highly destined to experience equivalent effects of the potential relaxation. For instance, since the elimination of a 25% tariff in 2010 with no vessels imported before Canada has seen a surge of at least 35 new vessels built for navigation on the Great Lakes (CRS 2019a).

Overall, general exceptions from maritime cabotage restrictions in North America include seaborne carriage of deadhead (empty) containers between domestic ports. In its turn, Mexico's policy is more selective. Thus, it allows foreign-flag carriers to obtain renewable fixed-term cabotage permits in case of shortage of suitable bulk vessels under the national flag. As OECD (2017, p. 149) estimates it, cabotage in this case accounts for one third of the total volume of the country's domestic shipping.

Shared intra-regional and domestic road transportation has remained a controversial issue since the enactment of NAFTA. The US-Mexico clauses that were supposed to gradually allow Mexican trucks onto American roads for long-haul international routes (not even cabotage) starting from 1995 were not fully implemented until 2015. The potential liberalization was confronted by influential trade unions such as The International Brotherhood of Teamsters and The Owner–Operator Independent Drivers Association. The unions forced protectionism under the pretext of Mexican carriers' non-compliance with safety and environmental standards, risk of unauthorized migration as well as possible contraband.

Normally, the cross-border carriage by road is limited to the commercial-zone areas within 25 miles from the US-Mexican border. A common logistics configuration in this case includes unloading at a warehouse within the commercial zone or transshipment onto a truck of a national carrier. After a two-decade delay, in 2015 Mexican motor carrier companies were finally allowed to obtain Federal Motor Carrier Safety Administration (FMCSA) authorizations for long-haul international operations beyond the 25-mile area.

To some degree road cabotage is permitted in Canada. A foreign vehicle may conduct a cabotage carriage in Canada if this carriage is 'incidental' under the international shipment, i.e. direct or return moves, except for in-transit trips involving Alaska. For instance, such incidental domestic freight does not exceed 30% of the total truck load (Blank and Prentice 2015). However, there is no reciprocity for Canadian drivers in the US. While its customs regulations imply the similar 'incidental' term legislation on migration creates a deadlock prescribing that 'purely domestic service or solicitation, in competition with the United States operators, is not permitted' (Federal Register 2020).

In the airline sector cabotage traffic rights may be provided under the 8th and 9th International Civil Aviation Organization (ICAO) freedoms of the air. These freedoms establish consecutive cabotage that includes a leg to/from airline's originating country and standalone (purely domestic) cabotage respectively. According to the bilateral Open Skies agreements between the US, Canada and Mexico, these traffic rights are reserved for the national carriers, which is in line with the global practices. Minor exceptions concern international charter flights carrying passengers and private non-revenue flights.

Thus, North America performs relatively well from the perspective of ecologically addressed parameters applied. However, the absence of a full-fledged cabotage policy on maritime and road modes prevents the configuration of efficiently optimized logistics solutions across North America. Besides, it limits coastal shipping and cost-effective land transshipment solutions that taken together could lead to the reduction in CO2 emissions and, consequently, raise the sustainability of the region's transportation.

4 Conclusion

Overall, the paper concludes that the shift towards greener transport in North America is on the way. From the theoretical side the concept of circularity has the potential to incorporate the advancements of industry 4.0 applied to logistics and transportation. Its contribution to the development of greener transport in North America has been measured by the following ecologically addressed logistics parameters: mode of transportation, fuel used, smart logistics, optimization of distance traveled. Related implications on the corporate level have resulted in regional companies leading both in reports on emissions and optimization policies on supply chains.

Yet, the region's progress in transport sustainability is uneven. On the one hand, a unique approach to ECAs present in North America demonstrates a breakthrough in the promotion of advanced environmental standards in shipping (i.e. in sulfur content terms) well ahead of global trends. On the other – the US, Canadian and Mexican national regulations generally restrict cabotage operations on major transport modes (i.e. maritime and road) across North America. Such protectionism mostly vivid in the US case is believed to limit the potential of greener initiatives in the regions' transportation.

The research believes that the environmental provisions of the USMCA could be a good institutional springboard for the United States, Canada and Mexico's motion towards sustainability in transport, though the agreement does not specifically address crucial sustainability matters.

From the institutional perspective, out of the three the US has the most prominent position on environmental provisions in trade agreements. Its stance has drastically evolved since 1980-s from placing such provisions subordinate to trade to eventually encouraging legal adherence to the multilateral environmental agreements (MEAs) the signatories are parties to. Under the

bipartisan agreement of 2007 and Trade Promotion Authority (TPA) passed in 2015, the US president has been empowered to negotiate international trade agreements and, consequently, has pursued the implementation of MEAs into such treaties (CRS 2019b). Besides, non-derogation from domestic environmental laws and their bona-fide enforcement have been strictly demanded from the signatories.

Canada holds a less sound but compatible view on environmental provisions in trade agreements. Like the US it views loose compliance with undertaken environmental obligations as a dishonest gain of competitive advantage in international trade pledging to contest such cases. The related Mexico's position is the least pronounced in the region. It has not undertaken significant commitments on sustainability outside the agreements that involve its North American partners.

In a nutshell, the environmental part of the USMCA significantly builds on NAFTA and specifically its side agreement—North American Agreement on Environmental Cooperation (NAAEC). The environmental provisions previously contained in the side agreement have now been incorporated into the body as chapter "Ecological Vector of Social Responsibility in Energy Companies" 'Environment'. Such a decisive step has made them subject to built-in dispute resolution procedures and stringent legal actions pertaining to possible violations.

All seven MEAs[1] specified by the United States as basic priority under the TPA-15 are listed in the USMCA (Article 24.8), but the United Nations Framework Convention on Climate Change (UNFCC) also known for the related Paris Agreement, has been left out. Three out of the seven MEAs (i.e. Montreal Protocol, MARPOL, CITES) were respectively emphasized in the articles on the protection of the ozone layer, protection of the marine environment from ship pollution, and on wildlife. Additional attention is given to the conservation of marine species, management of fisheries and subsidizing them, all in line with the corresponding international treaties (Articles 24.17–24.21). Thus, the implications of at least two MEAs—MARPOL and the Montreal Protocol—could be directly executed in the greener transport agenda for North America.

The agreement has also introduced brand new environmental provisions, two of which are binding: on the criminal prosecution of wild fauna and flora trafficking; and on the reduction of marine litter (including plastic litter and microplastics). Another novelty is an intention stated in the Environmental Cooperation Agreement (ECA), a new side agreement between the United States, Canada and Mexico that superseded NAAEC: 'promoting sustainable

[1] Convention on International Trade in Endangered Species (CITES), The Montreal Protocol on Substances that Deplete the Ozone Layer, The International Convention for the Prevention of Pollution from Ships (MARPOL), The RAMSAR Convention on Wetlands, The Convention on the Conservation of Antarctic Marine Living Resources (CAMLR), The International Convention for the Regulation of Whaling (ICRW), and The Inter-American Tropical Tuna Commission (IATTC).

production and consumption, including reducing food loss and food waste' (ECA 2018). So, reducing marine litter and food loss could be also regarded as sustainable transport milestones for North America, as the region is severely underperforming on this track.

Besides, two former debated measures generally hampering the greener motion in transport have not been transferred into the main body of the agreement. First, the notorious NAFTA's proportionality clause for energy exports has been abrogated. For instance, this obligation limited Canada's eco-friendliness, as the state was compelled to maintain its energy exports to the US at the level of previous three years (while energy extraction in Canada generates more GHG emissions than consumption). Second, the USMCA regulation has granted the governments an opportunity to protect national interests when settling the disputes with investors from the member states, as previously numerous environmental cases were resolved in favor of such investors.

At the same time, the USMCA is not deprived of a number of failing points in transport sustainability. Given the binding nature of the new agreement, the US unilaterally reserves the right to limit the issuance of the previously discussed FMCSA authorizations for long-haul operations to Mexican carriers. Such limitations can take effect if the US identifies material harm or threat of it to US trucking companies and drivers. Specifically, such material harm implies a 'significant loss' of market share starting from July 1, 2020. Since this unilaterally held condition lacks precision, it may be used arbitrarily. Thus, as of end 2020, under the previous regime sixty-six Mexico-domiciled motor carriers got authorizations from FMCSA and no limitations on 'significant losses' have been exercised under the USMCA yet (FMCSA 2020).

In its turn, cooperative activities laid down in ECA include the promotion of 'all clean energy sources' and 'low emissions development' (ECA 2018, p. 7). However, neither chapter "Ecological Vector of Social Responsibility in Energy Companies" nor the ECA contain such salient terms of the environmental agenda as climate change, greenhouse gases, or renewable energy. Additionally, the activities under the ECA bear rather an advisory nature in contrast to the binding nature of provisions secured in the USMCA.

Thus, the research believes that the USMCA environmental provisions can become a part of a wider regulatory basis for greener transport, which coupled with liberalization of cabotage shipments across North America could improve the ecological footprint of the region. Yet, this motion towards sustainability is heavily subject to mutual concessions of policy-makers in the United States, Canada and Mexico.

References

"Agreement on Environmental Cooperation Among the Governments of the United States of America, the United Mexican States, and Canada" (2018), available at: https://tinyurl.com/yxzey23z (accessed 8 November 2020).

Barzinpour, F. and Taki, P. (2016), "A Dual-Channel Network Design Model in a Green Supply Chain Considering Pricing and Transportation Mode Choice", *Journal of Intelligent Manufacturing*, Vol. 29 No. 7, pp. 1465–1483.

Berger, A., Blümer, D., Brandi, C. and Chi, M. (2020), "Towards Greening Trade? Environmental Provisions in Emerging Market's Preferential Trade Agreements" in A. Negi (Eds.), *Sustainability Standards and Global Governance*, Springer, Singapore.

Black, W. (1996), "Sustainable Transportation: A US Perspective", Journal of Transport Geography, Vol. 4 No. 3, pp. 151–159.

Blank, S. and Prentice, B. (2015), "NAFTA at 20: Time to Open the Internal Borders of North American to Cabotage", Research in Transportation Business & Management, Vol. 16, pp. 4–14.

Blomsma, F. and Brennan, G. (2017), "The Emergence of Circular Economy: A New Framing Around Prolonging Resource Productivity", Journal of Industrial Ecology, Vol. 21 No. 3, pp. 603-614.

British Petroleum (2020), "BP Statistical Review of World Energy 2020", available at: https://tinyurl.com/y93mc5yc (accessed 5 November 2020).

California Air Resources Board (2020), "Ocean-Going Vessel Fuel Regulation", available at: https://tinyurl.com/y5dwdkcp (accessed 5 November 2020).

Carbon Disclosure Project (2019), "CDP Supply Chain Report 2018/19", available at: https://tinyurl.com/y2sumh6f (accessed 5 November 2020).

Center for Transportation Analysis (2020), "Freight Analysis Framework", available at: https://tinyurl.com/y6be9k5n (accessed 5 November 2020).

Chu, S., Yang, H., Lee, M. and Park, S. (2017), "The Impact of Institutional Pressures on Green Supply Chain Management and Firm Performance: Top Management Roles and Social Capital", Sustainability, Vol. 9 No. 5, 764.

Commission for Environmental Cooperation (2017), "Characterization and Management of Food Loss and Waste in North America", available at: https://tinyurl.com/y47d85hb (accessed 5 November 2020).

Commission for Environmental Cooperation (2018), "Agreement on Environmental Cooperation", available at: https://tinyurl.com/9s5fxvds (accessed 27 July 2021).

Congressional Research Service (2019a), "Shipping Under the Jones Act: Legislative and Regulatory Background", available at: https://tinyurl.com/y4wxjk2b (accessed 5 November 2020).

Congressional Research Service (2019b), "Trade Promotion Authority (TPA): Frequently Asked Questions", available at: https://tinyurl.com/y6qh2uep (accessed 5 November 2020).

De Angelis, R., Howard, M. and Miemczyk, J. (2018), "Supply Chain Management and the Circular Economy: Towards the Circular Supply Chain", *Production Planning & Control*, Vol. 29 No. 6, pp. 425–437.

Dekker, R., Bloemhof, J. and Mallidis, I. (2012), "Operations Research for Green Logistics—An Overview of Aspects, Issues, Contributions and Challenges", *European Journal of Operational Research*, Vol. 219 No. 3, pp. 671–679.

Dulebenets, M. (2018), "A Diploid Evolutionary Algorithm for Sustainable Truck Scheduling at a Cross-Docking Facility", Sustainability, Vol. 10 No. 5, 1333.

EcoVadis (2020), "Business Sustainability Risk and Performance Index 2020", EcoVadis SAS, Paris, France.

Eliasson, J. and Proost, S. (2015), "Is Sustainable Transport Policy Sustainable?", *Transport Policy*, Vol. 37, pp. 92–100.

Federal Motor Carrier Safety Administration (2020), "Mexico-Domiciled Motor Carriers Authorized to Operate Long-Haul under OP-1MX Authority", available at: https://tinyurl.com/yyde3tp3 (accessed 8 November 2020).

Federal Register (2020), "Code of Federal Regulations", available at: https://tinyurl.com/y3qq2les (accessed 8 November 2020).

Fitzgerald, T. (2020), "Environmental Costs of the Jones Act", Policy Analysis No. 886, available at: https://tinyurl.com/yxu36qj4 (accessed 8 November 2020).

Georgatzi, V., Stamboulis, Y. and Vetsikas, A. (2020), "Examining the Determinants of CO_2 Emissions Caused by the Transport Sector: Empirical Evidence from 12 European Countries", *Economic Analysis and Policy*, Vol. 65, pp. 11–20.

Greenhouse Gas Protocol (2020), "Greenhouse Gas Protocol", available at: https://ghgprotocol.org (accessed 5 November 2020).

International Energy Agency (2020), "Tracking Transport 2020", available at: https://tinyurl.com/y2upm58s (accessed 5 November 2020).

International Maritime Organization (2020), "Reducing Greenhouse Gas Emissions from Ships", available at: https://tinyurl.com/yxsdznou (accessed 5 November 2020).

Kazancoglu, Y., Kazancoglu, I. and Sagnak, M. (2018), "A New Holistic Conceptual Framework for Green Supply Chain Management Performance Assessment Based on Circular Economy", *Journal of Cleaner Production*, Vol. 195, pp. 1282–1299.

Lebreton, L., Slat, B., Ferrari, F., Sainte-Rose, B., Aitken, J., Marthouse, R., Hajbane, S., Cunsolo, A. Schwarz, A. Levivier, K. Noble, P. Debeljak, H. Maral, R. Schoeneich-Argent, R. Brambini and J. Reisser (2018), "Evidence that the Great Pacific Garbage Patch is rapidly accumulating plastic", *Scientific Reports*, Vol. 8 No. 1, 4666.

Lu, M., Xie, R., Chen, P., Zou, Y. and Tang, J. (2019), "Green Transportation and Logistics Performance: An Improved Composite Index", *Sustainability*, Vol. 11 No. 10, 2976.

Merli, R., Preziosi, M. and Acampora, A. (2018), "How do Scholars Approach the Circular Economy? A Systematic Literature Review", *Journal of Cleaner Production*, Vol. 178, pp. 703–722.

Morin, J. and Jinnah, S. (2018), "The Untapped Potential of Preferential Trade Agreements for Climate Governance", *Environmental Politics*, Vol. 27 No. 3, pp. 541–565.

Morin, J. and Rochette, M. (2017), "Transatlantic Convergence of Preferential Trade Agreements Environmental Clauses", *Business and Politics*, Vol. 19 No. 4, pp. 621–658.

Morin, J., Dür, A. and Lechner, L. (2018), "Mapping the Trade and Environment Nexus: INSIGHTS from a New Data Set", *Global Environmental Politics*, Vol. 18 No. 1, pp. 122–139.

Organization in Economic Cooperation and Development (2017), "Review of the Regulation of Freight Transport in Mexico", available at: https://tinyurl.com/y5hqbmzl (accessed 8 November 2020).

Rodrigue, J.-P. and Notteboom, T. (2010), "Comparative North American and European Gateway Logistics: The Regionalism of Freight Distribution", *Journal of Transport Geography*, Vol. 18, pp. 497–507.

U.S. Bureau of Transportation Statistics (2020), "Overview of U.S.- North American Freight by Port, Commodity Group, and Mode" available at: https://tinyurl.com/y4feeq2d (accessed 5 November 2020).

U.S. Department of Transportation (2018), "The State of the U.S. Flag Maritime Industry", available at: https://tinyurl.com/4ae92nty (accessed 27 July 2021).
U.S. Environmental Protection Agency (2020), "Fast Facts. U.S. Transportation Sector Greenhouse Gas Emissions", available at: https://tinyurl.com/4pfrhcbv (accessed 27 July 2021).
U.S. Maritime Administration (2011), "Comparison of U.S. and Foreign-Flag Operating Costs", available at: https://tinyurl.com/y69v9yhf (accessed 5 November 2020).
Verisk Maplecroft (2019), "Waste Generation and Recycling Indices 2019", available at: https://tinyurl.com/y2by4g9d (accessed 5 November 2020).