

Costa Rica and Singapore's Transport Policies

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Climate Change and Transport Sector

The last 3 decades have been successively warmer than any past decade since 1850. Climate warming is unequivocal. Anthropogenic influence on the climate system is evident, recent greenhouse gases (GHG) emissions have never been higher. This increasing trend is mainly due to economic and population growth. Changes in the climate have caused important impacts on human and natural systems all over the world. The atmosphere and ocean have warmed, the snow and ice have diminished and the sea level has risen. Furthermore, changes in many extreme weather and climate events have been observed including a decrease in cold temperature extremes, an increase in warm temperature extremes, and an increase in the number of heavy precipitation events in many places around the globe. If GHG emissions continue to increase, it will cause further warming and enduring changes in the climate system, increasing the likelihood of severe and irreversible impacts. Climate change will intensify existing risks and create new ones for natural and human systems. These risks are unevenly distributed and are generally greater for disadvantage people and developing countries. Limiting climate change would demand significant and sustained reductions in GHG emissions¹.

After arduous negotiations and meetings throughout many years, on December, 2015 at the 21st Session of the COP² to the UNFCCC³, the Paris Agreement (PA) was adopted⁴ as

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¹ IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.

² United Nations Framework Convention on Climate Change. (n.d.). 'Conference of the Parties (COP)' [WWW document] URL <http://unfccc.int/bodies/body/6383.php> (visited 2016, November 22)

³ United Nations Framework Convention on Climate Change, New York, 9 May 1992, International Legal Materials (1992), 849.

⁴ UNFCCC, Decision 1/CP.21, Adoption of the Paris Agreement, UN Doc. FCCC/CP/2015/10/Add.1

substitute of the Kyoto Protocol⁵. As of November, 2016 the PA had 193 Signatories and 114 Parties. It entered into force on 4 November, 2016⁶. The PA aims to:

- ...strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:
- (a) Holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;
 - (b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and
 - (c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.⁷

The PA involves developed and developing countries while still assuming the principle of common but differentiated responsibilities and respective capabilities⁸. It covers matter of mitigation, adaptation and implementation (capacity building, finance, and technology transfer). It also includes procedural and institutional provisions⁹. An enhanced transparency framework¹⁰ and a non-adversarial, non-punitive and transparent mechanism to facilitate implementation¹¹ were established. The motor of the PA is the nationally determined contributions (NDCs) where Parties set and communicate their best efforts to achieve the purpose of the Agreement¹². Parties shall pursue domestic mitigation measures. Developed countries should continue taking the lead in absolute emissions reduction targets meanwhile developing countries should continue enhancing their mitigation pledges¹³.

⁵ Kyoto Protocol to the United Nations Framework Convention on Climate Change, 10 December 1997, UN Doc. FCCC/CP/1997/L.7/add. 1, 37 International Legal Materials (1998), 22.

⁶ United Nations Framework Convention on Climate Change. (2016, November). 'Paris Agreement – Status of Ratification' [WWW document] URL http://unfccc.int/paris_agreement/items/9444.php (visited 2016, November 29)

⁷ Paris Agreement Article 2

⁸ Paris Agreement Article 2

⁹ Annalisa Savaresi, 'The Paris Agreement: A New Beginning?', *Journal of Energy and Natural Resource Law*, 34.1, (2016), pp. 16-26

¹⁰ Paris Agreement Article 13

¹¹ Paris Agreement Article 15

¹² Paris Agreement Articles 3 & 4

¹³ Paris Agreement Article 4

Mitigation options are available in every sector. The total annual anthropogenic GHG emissions increased by 10 GtCO₂eq between 2000 and 2010. The transport sector directly represents 11 % of this increase¹⁴. Transport demand per capita in developing countries is lower than in Organisation for Economic Co-operation and Development (OECD) countries but is expected to increase much faster due to rising incomes and development of infrastructure. Therefore, there are regional differences in transport sector mitigation with major opportunities to shape transport systems around low-carbon options, especially in developing countries where urban growth is occurring. High mitigation potential can be offered by: avoiding journeys where possible; modal shift to lower-carbon transport systems; lowering energy intensity; and reducing carbon intensity of fuels. Also, indirect emissions can be reduced when the construction of infrastructure, manufacture of vehicles, and provision of fuels. Reducing global GHG emissions from transport sector is not an easy task since growing passenger and freight demand could outweigh all mitigation efforts unless transport can be fully decoupled from GDP growth¹⁵.

Costa Rica's Transport Policies

According to the Costa Rican GHG inventory of 2014, transport sector is the largest source of GHG emissions. The country introduced in 1996, its first fuel economy standards (Vehicle Emissions Act)¹⁶ and this year, the Government issued the Regulation for the Control of the Polluting Emissions produced by Motor Vehicles with Internal Combustion Engines (Executive Decree 39724) which establishes guidelines for the entry and movement control of vehicles equipped with internal combustion engine, based on their pollutant emissions. It

¹⁴ Supra note 1

¹⁵ Sims R., R. Schaeffer, F. Creutzig, X. Cruz-Núñez, M. D'Agosto, D. Dimitriu, M.J. Figueroa Meza, L. Fulton, S. Kobayashi, O. Lah, A. McKinnon, P. Newman, M. Ouyang, J.J. Schauer, D. Sperling, and G. Tiwari, 2014: Transport. In: Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

¹⁶ The London School of Economics and Political Science. (2016). 'The Global Climate Legislation Study (Costa Rica)'. [WWW document] URL <http://www.lse.ac.uk/GranthamInstitute/legislation/countries/costa-rica/> (visited 2016, November 30)

includes the establishment of permitted emission levels for all motor vehicles circulating on public roads and using gasoline, diesel, LPG, alcohol or mixtures thereof as fuel¹⁷.

In 2008, Costa Rica's first biofuel mandates (National Biofuels Programme) was issued and later in 2009, the Biofuel Regulation (Executive Decree 35091¹⁸) was released. This regulation has the objective of fostering the development of the biofuel industry in Costa Rica. It controls the production, transportation, storage and trade of biofuels. It appoints the Ministry of Environment, Energy and Telecommunications (currently, the MINAE¹⁹) and the Ministry of Agriculture and Livestock (MAG) as the entities in charge of the promotion, implementation and management of the National Biofuels Programme development. The decree stipulates that the prices of raw materials used in the production of biofuels as well as the sales of biofuels to consumers and to the national oil refinery (RECOPE) are determined by the market. Nonetheless, the prices of fossil fuels combined with biofuels are regulated by the competent national institution. The decree also establishes the National Research and Development Bioenergy Policy in order to improve the environmental sustainability of the biofuels production, and to increase the production and support studies of new biomass sources²⁰.

The Law 9366 on Strengthening of the Costa Rican Institute of Railroads (INCOFER) and Promotion of the Interurban Electric Train of the Great Metropolitan Area of 2016, aims to strengthen the economy of the country by administering a modern rail transport system for passenger and cargo service throughout the country. The purpose is to electrify, rebuild, rectify and extend the entire existing rail network. In order to achieve this, the law allows INCOFER to negotiate, contract and implement external and internal debts up to a maximum equivalent to 40% of its assets²¹. Moreover, public-private partnerships and trusts for the construction may be established. The electric train would reduce the hours of travel, bring the provinces together (Alajuela, Heredia, San Jose and Cartago) and facilitate

¹⁷ Costa Rican Legal Information System. Executive Decree 39724 Regulation for the Control of the Polluting Emissions produced by Motor Vehicles with Internal Combustion Engines. 2016.

¹⁸ Costa Rican Legal Information System. Executive Decree 35091 Biofuel Regulation. 2009.

¹⁹ Ministerio de Ambiente y Energía de Costa Rica. (2016). 'Historia' [WWW document] URL <http://www.minae.go.cr/index.php/es/2012-06-08-20-19-22/quienes-somos> (visited 2016, December 1)

²⁰ Supra note 16

²¹ Costa Rican Legislative Assembly. Law 9366 Strengthening of the Costa Rican Institute of Railroads (INCOFER) and Promotion of the Interurban Electric Train of the Great Metropolitan Area. 2016.

the reduction of GHG emissions when moving from diesel to electric engine. Plus, the law has no issues of unconstitutionality, a query exposed by some members of the Legislative Assembly²².

The National Energy Plan 2015-2030, within the transport sector, has the objectives of: promote efficient collective transportation systems that are environmentally cleaner and mitigate the effects of global warming; promote the use of alternative fuels in the transportation system to reduce dependence on hydrocarbons and the GHG emissions; and improve the import standards for new and used vehicles to stimulate energy efficiency and reduce pollution. This new Plan integrates, in a unified strategic perspective, the sectors of electricity and transport, as these two key sectors determine the production and consumption of energy in the country²³. The Executive Directive 056 of 2016, establishes that the fuels purchased by the Public Administration institutions should comply with the requirements of this guideline²⁴; the Executive Decree 39219 declares the National Energy Plan of public interest²⁵.

On 2015, the Executive Decree 39114 made official the Action Plan for the National Climate Change Strategy (NCCS) of the MINAE²⁶. The NCCS has transport sector as one of the priority intervention sectors. Some of the proposed options for GHG mitigation in this sector are: increasing the efficiency of vehicles in fuel consumption, improving the quality of fossil fuels used, increased use of biofuels, encouraging collective transport, discouraging individual options, the construction of exclusive roads for the use of bicycles and mass public transport. On the other hand, more specific government policies are likely to be

²² Presidencia de la República de Costa Rica. (2016, June 7). 'Aprobada ley para construir tren eléctrico interurbano' [WWW document] URL <http://presidencia.go.cr/comunicados/2016/06/aprobada-ley-para-construir-tren-electrico-interurbano/> (visited 2016, November 30)

²³ Costa Rica. Ministerio de Ambiente y Energía. (2015). Plan Nacional de Energía 2015-2030.

²⁴ Costa Rican Legal Information System. Executive Directive 056 Quality Parameters for fuels derived from petroleum. 2016.

²⁵ Costa Rican Legal Information System. Executive Decree 39219 Approves the VII National Energy Plan 2015-2030. 2015.

²⁶ Costa Rican Legal Information System. Executive Decree 39114 Make official Plan of Action of the National Strategy for Climate Change. 2015.

required, many are already under way. However, the largest investment should come from the private sector²⁷.

The Regulations on the Efficient Use of Energy (Law 7447) of 1994, integrates the participation of the government in the promotion and execution of the programme for the efficient use of energy. It pursues the establishment of mechanisms to achieve energy efficiency, taking into account the protection of the environment. These mechanisms will be based on three principles: the obligation to execute projects for the rational use of energy in high-consumption companies, the control over equipment and installations that are widely used in energy demand and the establishment of a plates system in the articles that will inform users of their energy consumption. The Ministry of Natural Resources, Energy and Mines (currently, the MINAE²⁸) is the entity responsible for the implementation of the programme. The MINAE will publish in the Official Gazette the energy indices of the economic activities to which the rational use of energy program will be applied. Further, the Technical Commission of Transport is obliged to ensure compliance with the requirements of MINAE in energy and environmental matters; this Commission should incorporate these requirements into all administrative contracts signed in the field of public transportation. The Ministry of Public Works and Transport must request MINAE's criteria for energy and fuel consumption in order to set the rates for transport of people, taxis and buses. Article 27 stipulates that this Ministry must tests the products of combustion, i.e. the gases and particles emitted. It will carry out this test during an annual review. Vehicles that exceed the permissible emission limits of gases and particles, fixed by MINAE, are not authorized to circulate in the national territory. Fines and penalties apply upon breaching the law. Additionally, it exonerates materials and equipments promoting renewable energies from taxes, both imported and domestically manufactured. Furthermore, the MINAE will include activities to inform and sensitize citizens, through campaigns; and the Ministry of Public Education will include, in primary and secondary curricula, the issue of the rational use of

²⁷ Costa Rica. Ministerio de Ambiente, Energía y Telecomunicaciones. (2009). Estrategia Nacional de Cambio Climático.

²⁸ Supra note 16

energy²⁹. In 2010, modifications were made to the law in order to further encourage the development and use of renewable sources of energy³⁰.

The Incentive and Promotion for Electric Transport it's a law to be approved by the Assembly, which proposes tax incentives and others for those who purchase vehicles that operate 100% of electricity or hybrid vehicles³¹.

Singapore's Transport Policies

Transport accounted 15% of Singapore's CO₂ emissions in 2010³². The country has one of the most rigorous and innovative systems of the world to control the demand and use of vehicles. Singapore's public transport is the most efficient and environmentally friendly mode of transportation³³. Singapore's Climate Action Plan (2016) comprises two complementary publications. The first one, Take Action Today for a Carbon-Efficient Singapore, includes their efforts to reduce GHG emissions and increase energy efficiency. The second, A Climate-Resilient Singapore for a Sustainable Future, explains how the country may be affected by climate change and their adaptation strategy³⁴. In order to meet Singapore's 2030 pledge, the transport plan includes: achieve 75 % use of public transport by 2030; encourage cycling and walking; and improve vehicle fuel efficiency. Initiatives supporting these goals include: double the rail network in 15 years which will make it comparable to New York's rail density; the Bus Service Enhancement Programme of 2012 aims to grow the public fleet by 1,000 buses (25 %) by 2017; the walkway network will be quadrupled by 2018 and the cycling paths will double by 2030; bicycle-sharing will be

²⁹ Costa Rican Legislative Assembly. Law 7447 Regulation of the Rational Use of Energy. 1994.

³⁰ Costa Rican Legislative Assembly. Law 8829 Modification of article 38 of Law No. 7447 Regulation of the rational use of Energy, dated 03/11/1994 and its amendments, Law to Encourage the Development and Use of Renewable Energy Sources. 2010.

³¹ La Nación. (2016, May 17). 'Proyecto bajaría tributos solo a vehículos eléctricos de enchufe' [WWW document] URL http://www.nacion.com/nacional/transportes/Proyecto-bajaria-tributos-vehiculos-electricos_0_1561243865.html (visited 2016, December 2)

³² The London School of Economics and Political Science. (2016). 'The Global Climate Legislation Study (Singapore)'. [WWW document] URL <http://www.lse.ac.uk/GranthamInstitute/legislation/countries/singapore/> (visited 2016, December 2)

³³ Singapore. National Environment Agency. (2014). Singapore's Third National Communication under the United Nations Framework Convention on Climate Change.

³⁴ National Climate Change Secretariat of Singapore. (2016). 'Publications' [WWW document] URL <https://www.nccs.gov.sg/resources/publications> (visited 2016, December 2)

promoted; the city of Ang Mo Kio will be transformed into a town model of walking and cycling; and new integrated transport hubs will be built by 2023 for people to easily access different transport methods. All these measures intend to increase public transport during morning peak hours to 85 % by 2050 (currently is 66 %)³⁵.

The Sustainable Singapore Blueprint 2015 is an action plan which sketches the nation's vision and plans for a more liveable and sustainable Singapore. The idea is that the Government, people and businesses work together as committed participants to create a better home. A car-lite Singapore is sought under the Blueprint. Electric car-sharing and driverless cars will be piloted. One of its targets is 80 % of households within 10-min walk of a train station³⁶.

The 2012 Singapore's National Climate Change Strategy is based on the nation's efforts of preparing for the uncertainties and impact of climate change, seizing opportunities and supporting the transition to a lower emission economy. The Strategy highlights Singapore's transport measures that led to the progressively reduction of its annual vehicle growth rate, including a fuel excise duty of S\$0.41 to S\$0.44 per liter of petrol, depending on the fuel. Singapore is also investing in efforts to increase energy efficiency in aviation and maritime sectors³⁷.

In Singapore, anyone who wants to register a new vehicle must first get a Certificate of Title (COE). A COE is a right to vehicle ownership and use of limited road space for a 10 years period. At the end of the 10 years, vehicle owners may choose to deregister their vehicle or to revalidate their COEs for another 5 or 10-year period by paying the Prevailing Quota Premium. COEs are released through a competitive bidding process. There are 2 biddings every month. COEs are bid through the COE Open Bidding System. The System gives real-time information to allow you to submit your bid for a COE, monitor the Current COE Prices (CCPs), and revise your reserve price for your bid. Bidders outbid each other to obtain a COE during the bidding process. The System will automatically revise the bid upwards, at an increment of S\$1, until the reserve price is reached. The reserve price is the maximum

³⁵ Singapore. National Climate Change Secretariat. (2016). Singapore's Climate Action Plan: Take Action Today, For a Carbon-Efficient Singapore.

³⁶ Ministry of the Environment and Water Resources of Singapore. (2016). 'Sustainable Singapore' [WWW document] URL <http://www.mewr.gov.sg/ssb/> (visited 2016, December 7)

³⁷ Singapore. National Climate Change Secretariat. (2012). National Climate Change Strategy 2012.

amount that a bidder is prepared to pay for the COE. The bid is in the running as long as the reserve price is equal or higher than the CCP. The number of successful bidders is limited by the COEs available for each particular COE category of vehicles. If the CCP goes higher than the bidder's reserve price, the bidder is then out of the running for a COE unless he revises his reserve price upwards. The CCP will stop rising when the number of bidders who are prepared to pay more than or at the CCP equals the quota at the close of the bidding. At the end, bidders whose bids are above or equal to the CCP will get a COE. The latest CCPs at the close of bidding are the Quota Premiums for the bidding. All successful bidders in the vehicle category will pay the same Quota Premium³⁸. The Quota Premium of the second bidding exercise of this year for a Category B vehicle (Cars above 1600cc or 97kW (130bhp)) was \$53,001³⁹.

The Electronic Road Pricing (ERP) is a system used for managing road congestion. Motorists are charged when they use priced roads during peak hours. ERP rates depend on the car, the road, time period and local traffic conditions. Each time a vehicle passes through an ERP gantry, its cashcard is charged via radio. The first road pricing system, known as the Area Licensing Scheme (ALS), was introduced in the Restricted Zone (RZ) in 1975. The next ERP system, based on a Global Navigation Satellite System, will be operational from 2020 including new services⁴⁰.

Singapore also has the Electric Vehicle (EV) Pilot Programme. In its first phase, 89 EVs were positioned in 2011-2013. For the second phase, the use of EVs will be trialled for fleet-based operations. Besides, an EV car-sharing pilot programme will deploy up to 1,000 EVs and up to 2,000 charging stations along the country⁴¹. Organisations providing green products and

³⁸ Land Transport Authority of Singapore. (2016, July 25). 'Certificate of Entitlement (COE)' [WWW document] URL <https://www.lta.gov.sg/content/ltaweb/en/roads-and-motoring/owning-a-vehicle/vehicle-quota-system/certificate-of-entitlement-coe.html> (visited 2016, December 5)

³⁹ Land Transport Authority of Singapore. (2016, November 25). 'Results of November 2016 Second Open Bidding Exercise for Certificates of Entitlement' [WWW document] URL <https://www.lta.gov.sg/apps/news/page.aspx?c=2&id=bc1b91fd-3d74-44d5-bc63-17791d9f2672> (visited 2016, December 5)

⁴⁰ Land Transport Authority of Singapore. (2016, September 30) 'Electronic Road Pricing (ERP)' [WWW document] URL <https://www.lta.gov.sg/content/ltaweb/en/roads-and-motoring/managing-traffic-and-congestion/electronic-road-pricing-erp.html> (visited 2016, December 6)

⁴¹ Supra note 35

vehicles for land transport may be recognized as the “Most Eco-Friendly Transport Partner”, as part of the annual Land Transport Excellence Awards⁴².

To encourage the purchase of low carbon emissions vehicles, the country utilizes the Carbon Emissions-Based Vehicle Scheme (CEVS). To further encourage the shift to low carbon emission models, rebates and surcharges will be increased for very low and high carbon emission vehicles respectively. All cars with less than or equal to 135g carbon emissions per kilometer will qualify for rebates of \$5,000 to \$30,000; cars with more than or equal to 186g carbon emissions per kilometer will incur a surcharge of \$5,000 to \$30,000. For taxis, the rebates and surcharges are 50% higher⁴³.

The Environmental Protection and Management Act⁴⁴, the Energy Conservation Act⁴⁵ and the Environmental Protection and Management (Vehicular Emissions) Regulations⁴⁶ are the primary laws with regards to the promotion of transport efficiency and reduction of environmental impact.

Comparison, analysis and conclusions

Costa Rica and Singapore are two very different countries. One is a tropical country located in Central America, and the other is a tropical island in South-Eastern Asia. In population they are similar; nonetheless, Costa Rica is about 70 times bigger than Singapore. Costa Rica has 52.8 % of forested area; while Singapore has 23.1 %. The urban populations in Costa Rica is 76.8 %, in Singapore is 100 %. The CO₂ tons per capita in Costa Rica are 1.6, in Singapore are 9.4⁴⁷. Both countries are committed to mitigating and adapting to a changing

⁴² Supra note 37

⁴³ Land Transport Authority of Singapore. (2015, June 17). ‘Revised Carbon Emissions-Based Vehicle Scheme (CEVS) From 1 July 2015’ [WWW document] URL <https://www.lta.gov.sg/apps/news/page.aspx?c=2&id=8aa03b88-409f-4852-b2df-09077e101468#1> (visited 2016, December 6)

⁴⁴ Singapore Statutes Online. Environmental Protection and Management Act (Chapter 94A). 2002.

⁴⁵ Singapore Statutes Online. Energy Conservation Act. 2014.

⁴⁶ Singapore Statutes Online. Environmental Protection and Management (Vehicular Emissions) Regulations. 2008.

⁴⁷ UN Data. (2016). ‘Costa Rica’ [WWW document] URL <http://data.un.org/CountryProfile.aspx?crName=Costa%20Rica#Top> (visited 2016, December 7); UN Data. (2016). ‘Singapore’ [WWW document] URL <http://data.un.org/CountryProfile.aspx?crName=Singapore#Top> (visited 2016, December 7)

climate. According to the Climate Action Tracker, Costa Rica's INDC⁴⁸ target is rated as "sufficient" indicating that the country's mitigation plan is very ambitious and consistent with limiting warming to 2 °C⁴⁹ without other countries having to make much deeper reductions⁵⁰. On the other hand, the emissions target of Singapore was rated as "inadequate" since their commitments were very weak compared to current policies being implemented. Singapore could strengthen its mitigation strategy and reflect its high capability⁵¹. A great example of this capability is the country's transport system and its early vision in the matter. Costa Rica might be a pioneer in several climate change actions, but could learn a lot from Singapore's experience in the transport sector, which is Costa Rica's main GHG emissions source⁵². It's urgent that Costa Rica makes significant investments in improving its transport system. The decongestion of the streets from more than 800,000 private vehicles (data of 2014)⁵³ and the encouragement of public transportation use are imperative. The Singapore policies that Costa Rica could start implementing promptly are the Electronic Road Pricing⁵⁴ and the Certificate of Title⁵⁵, as a start of paving the path towards becoming a Carbon Neutral economy⁵⁶. It's not going to be easy for these policies to be approved by the Assembly nor by the people, but these are actions that can be taken in the short term and that are proven effective. Costa Rica is already working in its electric train⁵⁷, a matter that also can be learned from Singaporeans, but this is going to take a long time before results can be seen. Electrical buses along with charging stations would be another good short-term solution. A system of car-sharing should be promoted as well. Betterment of cycling paths is another action to be taken along with Singapore advice since

⁴⁸ Parties to the UNFCCC were invited to communicate their INDCs (Intended Nationally Determined Contributions) prior to the Paris COP21. See UNFCCC, Decision 1/CP.19, Further advancing the Durban Platform. UN Doc. FCCC/CP/2013/10/Add.1.

⁴⁹ Paris Agreement Article 2

⁵⁰ Climate Action Tracker. (2015, December 4). 'Costa Rica' WWW document] URL <http://climateactiontracker.org/countries/costarica/2015.html> (visited 2016, December 7)

⁵¹ Climate Action Tracker. (2016, November 2). 'Singapore' WWW document] URL <http://climateactiontracker.org/countries/singapore.html> (visited 2016, December 7)

⁵² Supra note 16

⁵³ Amelia Rueda. (2015, November 18). 'Cantidad de carros particulares en Costa Rica creció en un 914% en tres décadas' WWW document] URL <http://www.ameliarueda.com/nota/cantidad-carros-particulares-crecio-914-por-ciento-tres-decadas-costa-rica> (visited 2016, December 8)

⁵⁴ Supra note 40

⁵⁵ Supra note 38

⁵⁶ Costa Rica. Ministry of Environment and Energy. (2015). Costa Rica's Intended Nationally Determined Contribution.

⁵⁷ Supra notes 21 & 22

in San Jose, cars drive over them as if they were part of the street⁵⁸. However, with these policies and initiatives implemented, and the construction of new infrastructure, there is still another big problem hindering people from choosing public transportation, walking or bicycling: security. As a Costa Rican, I attest this issue. San Jose has a crime index of 55.53 while Singapore is one of the safest cities with a rate of 16.79. The worries of being mugged or robbed in San Jose are high⁵⁹. This discourages people to take the bus, walk a short distance or use the bike to go to work; thus they prefer to take their own car. So, solving transport GHG emissions problem in Costa Rica is more than transportation policies and new infrastructure; it's about digging deeper into security issues and cultural behavior. Again, something Singapore could guide us on.

⁵⁸ Amelia Rueda. (2016). 'Un recorrido en dos ruedas por el corazón de San José' WWW document] URL <http://www.ameliarueda.com/ciclovia/> (visited 2016, December 8)

⁵⁹ NUMBEO. (2016). 'Crime Comparison Between San Jose and Singapore' WWW document] URL https://www.numbeo.com/crime/compare_cities.jsp?country1=Costa+Rica&country2=Singapore&city1=San+Jose&city2=Singapore (visited 2016, December 8)

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