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One Small Step for Earth, One Giant Leap for Costa Rica

Emily Canney

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I. HOTTER IS NOT ALWAYS BETTER

When relaxing on the beaches of Costa Rica in 28-degree Celsius weather, you can hardly sense a change of two degrees. However, according to the Potsdam Institute for Climate Impact Research and Climate Analytics, a four degree Celsius increase by the year 2100 would be disastrous, causing climate change to become a pressing issue in today's politics in both the national and international realm.¹ In response to this risk, many international agreements' main goals are to keep the earth's temperature under a two

¹ John C. Dernbach, *Creating Legal Pathways to Zero Carbon Future*, 46 ENVTL. LAW REP. 10780, 10782 (2016) (stating that the estimate was formulated in 2012).

degree Celsius increase.² The key to avoid crossing this catastrophic temperature threshold relies on lowering the levels of greenhouse gases, like carbon dioxide, that are emitted into Earth's atmosphere.³ It is estimated that by the year 2050 greenhouse gases need to be reduced by 40% to 70% in order to keep Earth's temperature at a constant.⁴ By the year 2100, greenhouse gas emission levels ideally need to be at zero.⁵

Integrated Assessment Models ("IAMs") are designed to determine the effects climate change will have on the worlds' environment and socioeconomics.⁶ Global effects of climate change include a possible decline in resource availability, an impact on agricultural and coastal developments, a decline in water resources and water quality, as well as adverse health effects to citizens around the world.⁷ Climate change could also cause "unprecedented heat waves, severe droughts, and major floods in many regions . . ." ⁸ As climate change worsens, the impact and adaptation costs needed to combat each of these changes will dramatically increase for countries around the world. Governments must engage in policy negotiations on both a national and international level to create new, sustainable developments to lower emission rates, develop disaster plans, and regulate/monitor ecosystems.⁹ Costa Rica is proactively, rather than retroactively, trying to combat climate change in order to avoid the costly repercussions that accompany it.

² Paris Agreement, at art 2(a). Paris Agreement, *in* United Nations Framework Convention on Climate Change [UNFCCC], Conference of the Parties, Rep. on its Twenty-First Sess., Annex, Art. 2, UN Doc. FCCC/CP/2015/L.9/Rev.1 (Dec. 12, 2015) [hereinafter Paris Agreement].

³ Michael P. Vandenberg and Anne C. Steinemann, *The Carbon Neutral Individual*, 82 N.Y.U. L. REV. 1673 (2007).

⁴ Dernbach, *supra* note 1, at 10780 (stating that these reduction estimates were created by the Intergovernmental Panel on Climate Change in 2013 and other scientific reports state that reductions must proceed must faster).

⁵ *Id.*

⁶ INTERGOVERNMENTAL PANEL ON CLIMATE, CLIMATE CHANGE 2014—IMPACTS, ADAPTATION AND VULNERABILITY: PART B: REGIONAL ASPECTS: WORKING GROUP II CONTRIBUTION TO THE IPCC FIFTH ASSESSMENT REPORT, 1148 (Cambridge U. Press 2014) [hereinafter CLIMATE CHANGE 2014].

⁷ *Id.* at 1149.

⁸ Dernbach, *supra* 1, at 10782.

⁹ CLIMATE CHANGE 2014, *supra* 6, at 1149.

This article will discuss Costa Rica's declaration to become the first carbon neutral country by the year 2021. This ambitious goal is not easily achievable; it requires a complex legal path. Costa Rica must create different agencies and laws to create an economically stable and functional carbon neutral country. Part II of the Article will summarize the Ministry of Environment and Energy's newest reports, which lay out the plan-of-attack for carbon reduction. Part II will also look at Costa Rica's environmental laws that are already in place, such as the Forestry Law, and discuss the amendment of these laws, if need be, and/or be the application of the environmental laws to Costa Rica's new plan. Lastly, Part II will lay out the Paris Agreement, which is a recent international agreement attempting to combat climate change issues. Part III will describe in detail Costa Rica's main objective—becoming carbon neutral—and will discuss the strategies and goals mapped out in the country's Market Readiness Proposal and Emission Reduction Program. Part IV will look at the requirements laid out in the Paris Agreement and how far beyond the 2015 Paris Agreement Costa Rica will be going to achieve its goal. Lastly, Part IV will provide a survey of the parties Costa Rica must incorporate into its plan and will assess the potential problems Costa Rica must confront to become carbon neutral by 2021. It will also consider how climate change is a global issue and how Costa Rica's efforts could serve as an example for other countries in curbing emission rates.

II. COSTA RICA'S ECO-FRIENDLY HISTORY

Costa Rica first made the declaration to become carbon neutral in 2007 when its lead political figures determined that scientific evidence showed that the benefits of becoming carbon neutral strongly outweigh the costs down the road from inaction.¹⁰ Carbon neutrality occurs “when the net transfer of carbon into the atmosphere due to human activities over a given time is zero.”¹¹ Before sustainability and carbon reduction was a mainstream topic, President Figueres,

¹⁰ Roberto Dobles Mora, *Costa Rica's Commitment: On the Path to Becoming Carbon-Neutral*, UN Chronicle vol. 2, at 42 (2007).

¹¹ Damien Cabral, et al., *Assessment of Carbon Neutrality of el Benemérito Cuerpo de Bomberos of Costa Rica*, Worcester Polytechnic Institute, (Oct. 2012), https://web.cs.wpi.edu/~rek/Projects/Bomberos_Proposal.pdf, at 4.

Costa Rica's former president, made it the central theme of his 1994 administration.¹² In 2007, President Oscar Arias, took this theme one step further by declaring his goal to make Costa Rica a carbon neutral country.¹³ He stated, "we do this with the hope, that eventually, we will be able to show the world that what ultimately needs to be done, can be done."¹⁴

Costa Rica may be the ideal country to be the first to succeed in becoming carbon neutral. One reason this ambitious goal may be possible in Costa Rica is that it only has a population of 4.6 million citizens.¹⁵ Also, in 2007, Costa Rica produced only 1.8 tons of carbon dioxide compared to the global average of 4.6 tons of carbon dioxide.¹⁶ However, Costa Rica must try to do everything in its power to accomplish this declaration on time for numerous reasons, the most important one being that Costa Rica is a "biological bridge" for thousands of species of plants and animals.¹⁷ Costa Rica alone has 242 species classified as endangered according to the World Union's red list.¹⁸

Even though this is a national objective Costa Rica submitted an official statement to the United Nations Framework Convention on Climate Change ("UNFCCC") on January 2010 in order to bring

¹² Int'l Institute for Sustainable Dev., *Costa Rica Case Study: Analysis of National Strategies for Sustainable Development* (June 2004) (unpublished manuscript), https://www.iisd.org/pdf/2004/measure_sdsip_costa_rica.pdf. [hereinafter *Costa Rica Case Study*]

¹³ Roberto Dobles Mora, *supra* note 10, at 42.

¹⁴ *Id.* at 42 (explaining that President Arias wants to show the world that a small country like Costa Rica can add important contributions to combat climate change).

¹⁵ *Emission Reductions Program, FCPF Carbon Fund*, Gov't of Costa Rica Ministry of Env't and Energy, at 33 (May 24, 2016), <https://www.forestcarbon-partnership.org/sites/fcp/files/2016/May/CR-ERPD-May%2024-%202016.pdf>. [hereinafter *Emission Reductions Program*] (stating that 4% of the planet's terrestrial species live in Costa Rica and out of the 500,000 species estimated to live in Costa Rica only 17.4% have been described.).

¹⁶ *Costa Rica Market Readiness Proposal (MRP): Partnership for Market Readiness, Final Report*, Gov't of Costa Rica Ministry of Env't and Energy, at 18 (2013), https://www.thepmr.org/system/files/documents/Costa%20Rica_MRP_Final_19-02-2013_0.pdf. [hereinafter *Market Readiness Proposal*].

¹⁷ *Emission Reductions Program*, *supra* note 15, at 35.

¹⁸ *Id.*

global attention and support to it.¹⁹ In this statement, Costa Rica explained its “long-term economy-wide transformational effort to enable carbon-neutrality” by the year 2021.²⁰ In addition, the 2007 pledge was incorporated into the 2011-2014 and 2015-2018 National Development Plan (“NDP”), which is considered the most official public policy statement Costa Rica’s government can issue.²¹ The NDP reinforced the 2021 deadline and stated that the country’s goal is to maintain a viable economy while also producing little to no greenhouse gases.²² In February of 2013, Costa Rica’s Ministry of Environment and Energy (“MINAE”) released a Market Readiness Proposal (“MRP”) final report.²³ The MINAE is a governmental agency with the authority to implement and regulate international commitments and national policies, including the Carbon Neutrality goal.²⁴ The MRP details Costa Rica’s domestic carbon market, mitigates potential via public and private sectors, outlines the government agencies that will need to be created, and details the international assistance Costa Rica will need to achieve neutrality.²⁵ The MRP identifies the following as key greenhouse gases: carbon dioxide (CO₂), methane (CH₄), carbon monoxide (CO), nitrous oxide (N₂O), nitrogen oxides (NO_x), and other non-methane volatile organic compounds (NMVOC).²⁶ The main sources of these greenhouse gases are energy consumption, agriculture, waste management, and industrial practices.²⁷ The MRP uses emission rates from 2005 as its baseline to determine the amount of carbon dioxide that

¹⁹ Market Readiness Proposal, *supra* note 16, at 19.

²⁰ *Id.*

²¹ *Id.* at 18; Emission Reductions Program, *FCPF Carbon Fund*, Gov’t of Costa Rica Ministry of Env’t and Energy, at 14 (April 24, 2017), https://www.forestcarbonpartnership.org/sites/fcp/files/2017/July/1-Costa%20Rica%20ERPD_April%2024-2017_clean%20for%20CFP.pdf. [hereinafter Updated Emissions Reductions Program]

²² Market Readiness Proposal, *supra* note 16, at 18.

²³ *See generally*, Market Readiness Proposal, *supra* note 16, at 19.

²⁴ Emission Reductions Program, *supra* note 15, at 7 (outlining that the MINAE is responsible for overseeing policy design of forests, protected areas, and biodiversity).

²⁵ *See* Market Readiness Proposal, *supra* note 16.

²⁶ *Id.* at 21.

²⁷ *Id.*

needs to be lowered from each source every year to achieve neutrality.²⁸

Sustainability is nothing new for Costa Rica. Eco-tourism has been a driving industry in the country and has led the country to preserve its forests and biodiversity long before 2007. To protect Costa Rica's natural habitat and preserve the industry of eco-tourism, Costa Rica ratified the Forestry Law on April 14, 1996, which its legislature enacted to prevent the mass deforestation that was taking place across Costa Rica.²⁹ This law prohibited the changing of forest lands, regulated activities on forested lands, and regulated the industrialization and export of round wood.³⁰ The Forestry Law gave the government the power to "expropriate private domain lands" and create natural and protected areas.³¹ However, it soon became apparent that the Forestry Law alone was not enough to stop the rapid rate of deforestation.³²

One loop-hole in the Forestry Law was that people were able to convert their managed forests into grasslands and then request a permit to harvest timber on the now "non-forest areas," increasing the rate of deforestation.³³ One way the government tried to overcome this conundrum was by creating the Payment for Ecosystem Service Programme in 1997.³⁴ This payment program pays "private owners of forest to conserve forest or allow it to regenerate in return for the ecosystem services they produce." There are 4 different types of ecosystems services for which a private landowner can be paid: 1)

²⁸ *Id.* at 9. (indicating that a 2005 National GHG Inventory (Second National Communication in 2009) found a total emission of CO₂ is 12,285,900 tons).

²⁹ Sasha Rodricks, *Enabling the Legal Framework for PES, Costa Rica*, The Economics of Ecosystems & Biodiversity (2007), <http://www.teebweb.org/wp-content/uploads/2013/01/Enabling-the-legal-framework-for-PES-Costa-Rica.pdf> (explaining that prior to 1950 more than half of Costa Rica was covered by forests, but by 1986 over half of the forests had been cut down).

³⁰ Emission Reductions Program, *supra* 15, at 62.

³¹ *Id.*

³² *Id.* at 45 (explaining that factors like land value, urban markets, prices of agricultural crops, demand increase of cattle production, rural-urban migration, indigenous productive systems have contributed to the continuing decline of forests).

³³ *Id.* at 38.

³⁴ Joe Kuper, *REDD in Costa Rica*, THE REDD DESK: A COLLABORATIVE RESOURCE OF REDD READINESS (Jan. 2014), <http://theredddesk.org/countries/costa-rica>.

emission mitigation, 2) protection of water resources, 3) protection of scenic beauty, and 4) protection of biodiversity.³⁵ However, this program was insufficient to completely stop deforestation because another major industry in Costa Rica is agriculture and cattle rearing.³⁶ To further combat deforestation, the MINAE's Emission Reduction Program (ER-P) discusses the downfalls of the Forestry Law and proposes Costa Rica's new plan to reduce deforestation and to regenerate forests in order to obtain a carbon neutral level by 2021.³⁷

While Costa Rica is making great strides in carbon reduction, it still must comply with the formalities of each international commitment the country has previously signed. One agreement Costa Rica has signed on to is the Paris Agreement of 2015.³⁸ The purpose of the Paris Agreement is to “strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty” by maintaining an average global temperature below two degrees Celsius of pre-industrial levels, increase the ability to handle the impacts of climate change, and make more finances available for reducing emissions.³⁹ The Paris Agreement was opened for signatures and ratification on April 22, 2016, and it needed 55 parties to the convention, accounting for at least an estimated 55% of the total global greenhouse gas emission, to ratify it before it is enforceable.⁴⁰ As of October 5, 2016 the threshold requirement of ratifying States was met, which means the Agreement

³⁵ *Id.*

³⁶ *Id.*

³⁷ Emission Reductions Program, *supra* note 15, at 8 (explaining that forests are the main carbon sinks).

³⁸ U.N. Treaty Collection, https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-d&chapter=27&lang=_en&clang=_en (status as of 12/3/2018) [hereinafter U.N. Treaty Collection]; *see also* Updated Emissions Reduction Program, *supra* note 21, at 45 (explaining that Costa Rica is also a party to the following international conventions: United Nations Framework Convention on Climate Change, Central American Convention on Climate Changes Guatemala, Convention on Wetlands of International Importance especially as Waterfowl Habitat, and Convention on Biological Diversity.)

³⁹ Paris Agreement, *supra* note 2 at art 2.

⁴⁰ *Id.*

entered into force on November 4, 2016.⁴¹ Costa Rica ratified this agreement on October 13, 2016.⁴²

III. COSTA RICA'S GIANT LEAP TOWARDS CHANGE

A. Market Readiness Proposal (MRP)

For people to want to reduce their emission rates, there needs to be an economic incentive persuading people to make sustainable changes. The MINAE lays out this economic incentive in the MRP in the form of a Domestic Carbon Market. In order for Costa Rica to achieve its goals, it had to choose a baseline point to compare current emission rates because “[r]eliable data is essential to ensuring the environmental integrity of the Domestic Carbon Market.”⁴³ Costa Rica chose emission rates from 2005 as its baseline, a year in which carbon dioxide emissions totaled 12,285,900 tons, the transportation sector accounting for the majority of these emissions.⁴⁴

One of the first steps to the MRP is mitigation, which consists of three sub-areas: 1) reduction of gas emissions by source, 2) biological sequestration of carbon, and 3) the creation of an effective national carbon market with active participation in international markets.⁴⁵ The Carbon Board was established to ensure the growth of the market system, oversee registration of approved projects, enforce regulations, and establish carbon technicians.⁴⁶ The Secretariat of the Carbon Board ensures transparency in the overall operation, functions as a mediator between developers, establishes protocols and activities, and provides information to participants in the market.⁴⁷ There are two permanent committees that assist the Secretariat: 1) the Methodologies and Protocols Committee, and 2) the Control and Transparency Committee.⁴⁸ The Methodologies Committee

⁴¹ *Id.*

⁴² *Id.*

⁴³ Market Readiness Proposal, *supra* note 16, at 11.

⁴⁴ *Id.* (showing transportation emits 46% of CO₂ emission, agriculture emits 37% of emissions, waste management emits 11% of emissions and the industry sector emits 5% of emissions.).

⁴⁵ *Id.* at 28.

⁴⁶ *Id.* at 33.

⁴⁷ Market Readiness Proposal, *supra* note 16, at 34.

⁴⁸ *Id.* at 34-35.

is in charge of reviewing and recommending various methods and standards needed and for calculating Costa Rican Compensation Unit (“UCCs”).⁴⁹ The Control and Transparency Committee is in charge of ensuring that entities comply with the carbon market.⁵⁰ Both committees report to the Secretariat.⁵¹

In 2012, MINAE adopted the National Climate Change Strategy and incorporated it into the MRP, which planned to establish Costa Rica’s domestic carbon market on a voluntary basis. However, mandatory regulations may be imposed if goals are not met on a voluntary basis.⁵² The National Climate Change Strategy first required all public institutions and local governments to create an action plan that includes short, medium and long-term goals; each stage of the goal must address the following topics: 1) mitigation, 2) vulnerability and adaptation, 3) measurements, 4) capacity building and technology transfer, 5) education and awareness, and 6) financing.⁵³ Entities that opt into the carbon market are compensated with UCCs.⁵⁴ The National Climate Change Strategy allows everyone that wants to generate, buy, or sell carbon credits to participate in the program using UCCs as the established “currency”.⁵⁵ The available supply of UCCs are listed on a registry that anyone interested in the market can access.⁵⁶ The carbon market looks to four principles to help guide its success: 1) environmental integrity, 2) economic efficiency, 3) simplicity and transparency, and 4) flexibility.⁵⁷ These principles are the mantra of the program and the Costa Rican government plans to follow them to ensure the market’s success and long-term viability. The MINAE’s goal is that the carbon

⁴⁹ *Id.*

⁵⁰ *Id.*

⁵¹ *Id.* at 10.

⁵² Market Readiness Proposal, *supra* note 16, at 8.

⁵³ *Id.* at 19.

⁵⁴ *Id.* at 10.

⁵⁵ *Id.* at 36.

⁵⁶ *Id.* at 42 (explaining public inquiries are a key component of the evaluation process because they hold the developer accountable for the relevant information).

⁵⁷ Market Readiness Proposal, *supra* note 16, at 28.

market will incentivize participants to want to achieve a carbon neutral certification.⁵⁸ The MINAE is in charge of overseeing the implementation of this strategy by working through the Directorate of Climate Change.⁵⁹

The infrastructure required for the Domestic Carbon Market is estimated to cost Costa Rica around \$1,400,000 U.S. dollars.⁶⁰ This budget includes the development of the design of the institutional and economic framework, design of the reporting system, creation of protocols, and data collection.⁶¹ However, creating the infrastructure marks just the beginning stages of a successful carbon market. The MINAE estimates that the entire budget needed to get the Domestic Carbon Market up and running will be around \$3,000,000 U.S. dollars.⁶²

The MRP recognizes that as of 2012 there are still specific duties and details that need to be established for certain organizational structures.⁶³ To ensure that there is a large voluntary participation in the market it is crucial that the government players take the initial steps needed to draw attention to the carbon market and its incentives.⁶⁴ In order to achieve carbon neutrality by 2021 the Proposal called for immediate action to turn this market from a paper concept into concrete actions.⁶⁵

B. Emission Reductions Program (ER-Program)

The first ER-Program was released by the MINAE on May 24, 2016.⁶⁶ In the ER-Program, the MINAE explains that it will look to the State Forestry Administration, the National System for Conservation Area, and the National Forestry Financing Fund to implement and monitor the ER-Program.⁶⁷ Also, the MINAE established that it

⁵⁸ *Id.* at 44.

⁵⁹ *Id.* at 23 (establishing its legal authority from the Decree No. 35669-MINAET on January 6, 2010.).

⁶⁰ *Id.* at 15.

⁶¹ *Id.*

⁶² Market Readiness Proposal, *supra* note 16, at 15.

⁶³ *Id.* at 105.

⁶⁴ *Id.*

⁶⁵ *Id.* at 103.

⁶⁶ *See* Emission Reductions Program, *supra* note 15, at 1.

⁶⁷ *Id.* at 7.

has the authority to give various entities specific guidelines to follow.⁶⁸ The second ER-Program was released on April 24, 2017, and it has been incorporated into the Forest and Rural Development Program.⁶⁹ Overall, the ER-Program is being implemented from 2010 to 2025.⁷⁰

The ER-Program was proposed after a self-assessment of the 2015 R-Package, which was presented in November 2015.⁷¹ The self-assessment revealed various weaknesses that the ER-Program hoped to fix.⁷² One fix-it method MINAE attempted was presenting the ER-Program to the Forest Carbon Partnership Facility (“FCPF”) carbon fund in the hope that this will help increase national effort to achieve carbon neutrality.⁷³ The baseline measurement the ER-Program used dates back to 1998 because this is the closest date to the enactment of the Forestry law in 1997, which was the first real step the government took to reduce emission rates.⁷⁴ If successful, the ER-Program is expected to reduce emissions levels to 24,536,680 t CO₂e.⁷⁵ The program is budgeted at \$63 million U.S.

⁶⁸ *Id.* at 8.

⁶⁹ Updated Emissions Reduction Program, *supra* note 21, at 7 (“The *Forest and Rural Development Program* is an initiative of current government administration. Its objective is to assist the implementation of key elements of the National Forestry Development Plan. The Program includes the following initiatives: 1. Green and inclusive development program in rural productive territories; 2. Economic reactivation for the production, transformation and commercialization of sustainable forestry products and generation of income for the rural section; 3. Policy for the Protected Wildlife Areas of the National System of Conservation Areas; and 4. Strengthening of the State’s Natural Heritage.”).

⁷⁰ *Id.* at 49.

⁷¹ Emission Reductions Program, *supra* note 15, at 8.

⁷² *Id.* at 22 (listing the weakness from the R-Package as: (1) low effectiveness in sharing information with relevant stakeholders, (2) limitations in institutional planning, (3) lack of clarity in the roles of the relevant stakeholders in the REDD+ and (4) the formalization of processes by the REDD+ secretariat to facilitate decision making at the sector level).

⁷³ *Id.* at 7.

⁷⁴ *Id.* at 12.

⁷⁵ Emission Reductions Program, *supra* note 15, at 9; John Mark Dangerfield, *CO₂e*, *Climate Change Wisdom: The Conundrum Explained*, <http://www.climate-change-wisdom.com/CO2e.html> (last visited Mar. 1, 2018) (explaining that t CO₂e is an abbreviation for tonnes of carbon dioxide equivalents.).

dollars; however, the actual final cost is likely to change because the end date of the program may need to be extended.⁷⁶

There are six policies that the MINAE has incorporated into the ER-Program to help achieve its overarching goal of preserving and re-growing forests to help reduce emissions rates.⁷⁷ The policies listed include: 1) guaranteeing the integrity of the state's natural heritage and private forests, 2) promoting the comprehensive participation of stakeholders, 3) improving the public and private sectors' management of silvicultural practices, 4) promoting legal security, especially for indigenous territories, 5) increasing opportunities for all stakeholders to receive benefits, and 6) guaranteeing that all political provisions will be available.⁷⁸ The first policy will be achieved through the strengthening of the operation and financing of SINAC's Forest Fires Management Strategy and Illegal Logging Control Strategy.⁷⁹ Additionally, Costa Rica will begin to integrate public lands into the State Natural Heritage, which focuses on the combination of conservation and resilience.⁸⁰

The second policy will be achieved through the preparation of a Forestry Development Plan with Indigenous Territories.⁸¹ Additionally, Costa Rica will create mechanisms to encourage agroforestry producers and farmers to join the REDD+ program.⁸² The third policy will be achieved by strengthening policies that promote "sustainable agriculture and agroforestry practices."⁸³ Next, accomplishing the fourth policy requires focusing on land-tenure rights in the indigenous territories and public lands and their emission levels.⁸⁴ The fifth policy will encourage competition between forestry and agro-

⁷⁶ *Id.* at 10.

⁷⁷ *See* Emission Reductions Program, *supra* note 15, at 9-12.

⁷⁸ *Id.* at 11-12.

⁷⁹ Updated Emissions Reduction Program, *supra* note 21, at 36.

⁸⁰ *Id.*

⁸¹ *Id.*

⁸² *Id.*

⁸³ *Id.* at 37.

⁸⁴ Updated Emissions Reduction Program, *supra* note 21, at 37.

forestry's financing mechanism and by broadening the available resources.⁸⁵ Finally, the sixth policy will require the design and implementation of a Safeguards Information System and Social and Environmental Management Framework.⁸⁶

Additionally, the ER-Program is a key part of Costa Rica's REDD+ National Strategy.⁸⁷ Parties to the United Nations Framework Convention of Climate Change ("UNFCCC") created the REDD+ initiative; its objective is to provide a set of policies and incentives to address deforestation, economic development, and conservation.⁸⁸ In REDD+, a local community, private landowner, or government entity must reforest the land and then he may sell the stored carbon the land now holds to entities that need to offset their greenhouse gas emissions.⁸⁹ The goal of REDD+ is to "blur the bounds between global mitigation and local adaptation."⁹⁰ Under the REDD+ initiative, when a developing country implements a National REDD+ program, they will then receive "results-based payments for results-based actions" to reduce forest carbon emissions.⁹¹ Costa Rica began implementing REDD+ incentives as part of its Payments for Ecosystems Services Programme, which was implemented by the 1997 Forestry Law.⁹² Additionally, it developed the 2010-2014 REDD+ Strategy, which will be implemented from 2015 until 2020 via the ER-Program.⁹³

Furthermore, one of the key goals of the ER-Program is forest regeneration.⁹⁴ Even though regeneration is easier to enforce in protected areas, the program plans "to increase participation of all

⁸⁵ *Id.*

⁸⁶ *Id.* at 38.

⁸⁷ *Id.* at 50.

⁸⁸ *About REDD+*, UN-REDD PROGRAMME, <http://www.un-redd.net/about/what-is-redd-plus.html> (last updated Oct. 6, 2017) [hereinafter *About REDD+*].

⁸⁹ Jessica Owley and David Takacs, *Chapter 4: Flexible Conservation in Uncertain Times*, *Contemporary Issues in Climate Change Law and Policy: Essays Inspired by the IPCC*, ENVTL. LAW INST. 86 (2016).

⁹⁰ *Id.*

⁹¹ *About Redd+*, *supra* note 88.

⁹² Emission Reductions Program, *supra* note 15, at 125.

⁹³ *Strategic Actions*, REDD+ Costa Rica: Reduction of Emissions from Deforestation and Forest Degradation, <http://www.reddcr.go.cr/en/strategic-actions>. (last visited Mar. 1, 2018).

⁹⁴ Emission Reductions Program, *supra* note 15, at 8.

stakeholders, both public and private (forest land owners), including indigenous territories and to generate new alternatives to enable the participation of people with unclear land tenure rights.”⁹⁵ However, in order to get private landowners to comply with the ER-Program, the government must first attempt to solve the land-tenure conflicts that are common throughout the country.⁹⁶ The 2017 ER-Program proposes three methods for solving these land conflicts: 1) judicial evictions to consolidate the State Natural Heritage; 2) legislative reform to clarify possession rights and permitting laws; and 3) in cases of incertitude then the Payment for Environmental Services program will be used to encourage the registration of lands.⁹⁷ The ER-Program also will develop implementation and monitoring agreements to ensure emission reduction rates are properly monitored and recorded.⁹⁸ Data recording will occur every two years and evaluations will be based on the accuracy of the land coverage maps.⁹⁹ The MINAE understands that in order for this program to survive it is not just about empirical science, but also social science. Because of this, the Environmental and Social Management Framework has been created.¹⁰⁰ This framework will analyze the potential impacts the ER-Program’s policies will have on Costa Ricans and review national guidelines to look for legislation gaps.¹⁰¹

⁹⁵ *Id.* at 7-8 (identifying that the purpose of this increase participation is to help achieve three goals: reduce emissions, increase absorptions, and develop the capacity to improve environmental and social sustainability and the integrity of these emission reductions).

⁹⁶ *Id.* at 10.

⁹⁷ Updated Emissions Reduction Program, *supra* note 21, at 44.

⁹⁸ Emission Reductions Program, *supra* note 15, at 13.

⁹⁹ *Id.*

¹⁰⁰ *See id.* at 14.

¹⁰¹ *Id.*

C. *The Paris Agreement*

On December 12, 2015, the UN Framework Convention on Climate Change successfully drafted and adopted the Paris Agreement.¹⁰² The Agreement requires all member states to formulate domestic policies to achieve “ambitious climate targets.”¹⁰³ Article II of the Agreement explains that the objective of the Agreement is to strengthen the international response to climate change threats by formulating sustainable development policies.¹⁰⁴ All member states’ mitigation plans must be recorded with the Secretariat of the Convention.¹⁰⁵ Also, each member state must “communicate and maintain [its] nationally determined contributions (NDCs) that it intends to achieve.”¹⁰⁶ The Agreement contemplates that each country has a different starting point for climate mitigation.¹⁰⁷ However, because this is an international goal, developed countries are encouraged to provide financial help to developing countries to ensure that each member state is able to achieve lower emission level goals.¹⁰⁸ Each member state shall promote conservation efforts to sequester greenhouse gases.¹⁰⁹ Also, each country should incentivize its private and public entities to volunteer in supporting sustainable developments.¹¹⁰ Additionally, the Paris Agreement reaffirms the role of the REDD+ initiative in mitigating climate change.¹¹¹ It reaffirms the importance of incentivizing non-carbon benefits associated with REDD+.¹¹²

Even though the negotiations did not denote an exact date that global emissions will peak, the Agreement does state that a peak

¹⁰² The Paris Agreement Summary: Climate Focus Client Brief on the Paris Agreement III, Climate Focus (Dec. 28, 2015), <http://www.climatefocus.com/sites/default/files/20151228%20COP%2021%20briefing%20FIN.pdf>. [hereinafter Climate Focus].

¹⁰³ *Id.*

¹⁰⁴ *Id.*; Paris Agreement, *supra* note 2, at art. 2(1).

¹⁰⁵ Climate Focus, *supra* note 102, at 1, 3; Paris Agreement, *supra* note 2, at art. 4(12).

¹⁰⁶ Paris Agreement, *supra* note 2, at art. 4(2).

¹⁰⁷ *Id.* at art. 2(2).

¹⁰⁸ *Id.* at art. 9(1) – (3).

¹⁰⁹ *Id.* at art. 5(1) (including the conservation of forests).

¹¹⁰ Climate Focus, *supra* note 102, at 2.

¹¹¹ Owley, *supra* note 89, at 87-88.

¹¹² *Id.* at 87-88.

must occur “as soon as possible,” and after reaching this peak point, reductions must immediately follow.¹¹³

IV. IS CARBON NEUTRALITY FEASIBLE?

A. Costa Rica’s Ideal Economic and Social Standing to Blaze the Trail to Sustainability

Costa Rica’s constitution provides that every person has a fundamental right to a “healthy and ecologically balanced environment, and [it is] the responsibility of the state to guarantee [this right].”¹¹⁴ Costa Rica is the most developed country in Latin America and has a history of being a strong supporter of sustainable development and a protector of non-renewable resources.¹¹⁵ Costa Rican citizens have a stable political system, education system, healthcare system, and an economic model similar to many developed countries.¹¹⁶ Costa Rica’s government has historically invested a substantial portion of the country’s Gross Domestic Product (“GDP”) into public education, which will help Costa Rica achieve its 2021 goal because education is key to achieving public awareness and support for climate change issues.¹¹⁷ Today, Costa Rica is known for its quality public school systems, which are among the best in Latin America.¹¹⁸

Additionally, Costa Rica is already well ahead of the sustainable development bandwagon that other countries are just now jumping on. Because of Costa Rica’s strides toward eco-tourism and sustainability over 40 years ago, Costa Rica already touts a substantially

¹¹³ Paris Agreement, *supra* note 2, at art. 4(1).

¹¹⁴ Emission Reductions Program, *supra* note 15, at 22.

¹¹⁵ TAMMI C. REDD ET AL., *Costa Rica in 4 THE WORLD GUIDE TO SUSTAINABLE ENTERPRISE: THE AMERICAS* 62, 62 (Wayne Visser ed., 2016); Emission Reductions Program, *supra* note 15, at 22.

¹¹⁶ *Id.*, at 62.

¹¹⁷ *Costa Rica’s Intended Nationally Determined Contribution*, Ministry of Env’t. and Energy (Sept. 30, 2015, 12:43 AM), at 5, <http://www4.unfccc.int/submissions/indc/Submission%20Pages/submissions.aspx>. [hereinafter INDC] (explaining that Costa Rica invests 8% of GDP into its public education systems).

¹¹⁸ *Id.*

smaller carbon foot print compared to other countries.¹¹⁹ In the 1970s, eco-tourism became Costa Rica's largest source of income, encouraging the government to make environmental issues a top priority in order to preserve this lucrative industry.¹²⁰ To promote their sustainability goals, Costa Rica initiated an education program for indigenous people and new immigrants—the local task force provided valuable services to eco-tourists.¹²¹ The more the service industry understands the benefits and importance of sustainable practices, the easier it will be for the government to obtain a carbon neutral economy.

Costa Rica's unique geographical makeup also makes it an exemplary location to promote environmental policies, like the encouragement of harvesting renewable natural resources.¹²² Costa Rica has been a world leader in hydroelectricity and geothermal power, both of which are an exponentially cleaner source of energy compared to the burning of fossil fuels for many years.¹²³ One reason is because Costa Rica is surrounded by water on two sides and has large rivers running throughout its territory, making the country an ideal candidate for the mass production of hydroelectricity. Also, Costa Rica's mountainous regions are littered with volcanos that create large amounts of renewable geothermal energy. Currently, 98% of the country's electricity is derived from renewable energy.¹²⁴ Furthermore, in 2016, Costa Rica had 250 days that were

¹¹⁹ JAMES FARGO BALLIETT, *FORESTS: ENVIRONMENTAL ISSUES, GLOBAL PERSPECTIVES* Part II, Ch. 6 (Routledge 2010) (explaining that in 2002, the average Costa Rican emitted roughly 1.5 tons of carbon dioxide compared to the 5 tons of carbon dioxide the average American emits. Costa Rica's small size is also a contributing factor to its smaller carbon footprint).

¹²⁰ *Id.* at 64.

¹²¹ *Id.* (explaining that these educational programs taught the local people how to focus their business on sustainable practices and how to develop the skills needed to make sustainable business excel.)

¹²² REDD ET AL., *supra* note 115, at 62. (“About 93 percent of Costa Rica's electricity is generated by clean, renewable sources.”).

¹²³ Andrew Burger, *Costa Rica May Keep Carbon Neutrality Goal*, TRIPLE PUNDIT (Mar. 17, 2014), <http://www.triplepundit.com/2014/03/costa-ricas-likely-new-governing-party-wont-scrap-carbon-neutrality-goal/>.

¹²⁴ Kevin Ross, *Costa Rica Sets Carbon Neutral Goal*, RENEWABLE ENERGY WORLD (Jan. 19, 2017), <http://www.renewableenergyworld.com/articles/2017/01/costa-rica-sets-carbon-neutral-goal.html>

solely run by renewable energies.¹²⁵ Moreover, Costa Rica is an ideal candidate to become the first carbon neutral country because of its involvement in reforestation, which is an excellent initiative to create carbon sinks.¹²⁶ Reforestation is easier for Costa Rica than most countries because a large percentage of Costa Rica's territory is already forestland.¹²⁷ These geological factors, together with Costa Rica's advanced foresight for environmental concerns and education, make the government's carbon-neutral goal that much easier and more plausible to obtain.

B. The Parties Involved in Achieving Costa Rica's Goal

Costa Rica's ambitious goal requires involvement and cooperation from numerous parties and groups to be feasible. Not only does Costa Rica need a full commitment from its own political branches, it also needs the support of citizens, corporations, tourists, and the international community.

In order to implement this declaration, Costa Rica acknowledges that it must obtain an open government to ensure adequate information sharing, and establish new environmental agencies to lead the task force.¹²⁸ The National Environmental Information System ("SINIA") was created under the National Geo-Environmental Information Center ("CENIGA") to ensure that an open government policy would be maintained.¹²⁹ The MINAE was delegated this authority through the Organic Law of Environment.¹³⁰ The director of

¹²⁵ *Costa Rica Pledges Carbon Neutrality by 2021*, CLIMATE ACTION (Jan. 20, 2017), http://www.climateactionprogramme.org/news/costa_rica_pledges_carbon_neutrality_by_2021.

¹²⁶ Emission Reductions Program, *supra* note 15, at 23.

¹²⁷ Emission Reductions Program, *supra* note 15, at 8, 26 (stating that as of 2013, 61% of Costa Rica's national territory was covered in forests).

¹²⁸ Market Readiness Proposal, *supra* note 16, at 102-03; Emission Reductions Program, *supra* note 16, at 19-21.

¹²⁹ INDC, *supra* note 117, at 4; Jill Replogle, *Costa Rica's Climate Pledge: 5 Things to Know*, TICO TIME NEWS (Dec. 4, 2015), <http://www.tico-times.net/2015/12/04/costa-rica-climate-change-pledge-5-things-know> (explaining that an INDC is an outline that each country must submit to the United Nations to show how it plans to combat climate change as part of the Paris Agreement); Market Readiness Proposal, *supra* note 16, at 23 (stating that all. (All information collected by the SINIA is available to any citizen upon request).

¹³⁰ Emission Reductions Program, *supra* note 15, at 19.

the MINAE has the “highest political level of decision making” regarding the ER-Program.¹³¹ The MINAE implements its authority through the Directorate of Climate Change (“DCC”).¹³² The Directorate is in charge of coordinating and managing public policy, scheduling the MINAE’s agenda, establishing the National Metrics System, and coordinating the carbon neutral process with different sectors throughout Costa Rica.¹³³ In order to assist with the implementation of the ER-Program, the MINAE delegated authority to the State Forestry Administration and the National Fund for Forest Financing.¹³⁴ The primary objective of these agencies is to promote and manage the ER-Program on an administrative and financial level.¹³⁵ Also, the Costa Rican Office for Joint Implementation (“OCIC”) has been formed to manage the reporting system to help formulate policy and implement projects for the carbon neutral program.¹³⁶

Costa Rica’s government recognized that in order for this goal to succeed it needed to not only create agencies to implement the plan, but also create an economic market that promoted climate change, which is why the Costa Rican Domestic Carbon market was introduced.¹³⁷ This market creates financial incentives for citizens to reduce their carbon emissions.¹³⁸ For example, the federal government pays on average \$1,875 per year to local landowners to not log timber on their land.¹³⁹ Promoting emission reductions would be nearly impossible unless it was financially beneficial for participants to partake in sustainable activities. Without the carbon market, it is likely that citizens and entities would continue with their usual practices because it would not be economically advantageous to reduce emissions.

Another hurdle the Costa Rican government faces in achieving carbon neutrality by 2021, is getting the indigenous people involved

¹³¹ *Id.* at 21 (stating that as of 2016, the director is Dr. Édgar Gutierrez-Espeleta).

¹³² Market Readiness Proposal, *supra* note 16, at 23-24.

¹³³ *Id.*

¹³⁴ Emission Reductions Program, *supra* note 15, at 19.

¹³⁵ *Id.* at 83.

¹³⁶ Market Readiness Proposal, *supra* note 16, at 24.

¹³⁷ *Id.* at 28.

¹³⁸ BALLIETT, *supra* note 119, at 63-71.

¹³⁹ *Id.*

in the process.¹⁴⁰ It is predicted that the ER-Program will help “re-generate forests on about 340,000 hectares of privately owned land and also in Indigenous People’s territories.”¹⁴¹ The indigenous people have already expressed their willingness to participate in the carbon neutral process and the government has allowed them to dictate their own level of participation.¹⁴² The indigenous groups agreed that their participation would take place in three stages.¹⁴³ The first stage is information gathering and conveying, which involves government groups communicating with the indigenous groups in a “culturally appropriate” way to explain the program.¹⁴⁴ Also during this stage, cultural mediators will ensure that appropriate materials and channels of communication are used.¹⁴⁵ The second stage is pre-consultation, which involves analytical discussions regarding the indigenous groups’ special topics and the co-benefits involved.¹⁴⁶ Finally, the last stage is the consultation stage, which involves a final validation of the program’s strategies.¹⁴⁷

However, because tourism is one of Costa Rica’s main sources of income, it is not just the indigenous practices that need to be assessed. If tourism services and tourists in Costa Rica engage in sustainable practices, then carbon emissions can be reduced more easily. To encourage and regulate the tourism industry’s practices, the Certification for Sustainable Tourism (“CST”) was launched in 1999.¹⁴⁸ CST helps tourism businesses manage their use of resources and teaches the businesses how to use these resources in a

¹⁴⁰ Emission Reductions Program, *supra* note 15, at 67 (stating that there are 24 indigenous groups scattered throughout Costa Rica. Each group could define their own level participation in the Emission Reduction Program).

¹⁴¹ *Costa Rica First to Negotiate Sale of Forestry Carbon Credits*, THE WORLD BANK (Sept. 10, 2013), <http://www.worldbank.org/en/news/press-release/2013/09/10/creditos-por-reduccion-de-carbono>.

¹⁴² Emission Reductions Program, *supra* note 15, at 67.

¹⁴³ *Id.*

¹⁴⁴ *Id.*

¹⁴⁵ *Id.*; *Costa Rica First to Negotiate Sale of Forestry Carbon Credits*, *supra* note 141 (stating that this will be the first time the indigenous territories will have access to this kind of information in their own language according to Carlos Cascante, a representative of the Bribri Indigenous territory).

¹⁴⁶ Emission Reductions Program, *supra* note 15, at 67 (including special topics like quality of life, their rights in the future, and women participation).

¹⁴⁷ *Id.*

¹⁴⁸ REDD ET AL., *supra* note 115, at 65.

responsible manner; however, at this time, businesses are not forced to enter into this program.¹⁴⁹ This voluntary participation is a potential downfall because if a major carbon producing company does not believe it is economically advantageous to become part of CST, then it will be more difficult to reduce emissions and more difficult to reach carbon neutrality.

Another key to the success of Costa Rica's neutrality process will be the involvement of various corporations. The government has collaborated with colleges, universities, and non-profit organizations to help manage its forests. In 1995, The Nature Conservancy paired with Costa Rica to promote sustainable practices.¹⁵⁰ In 2007, the same year the carbon neutral declaration was made, Costa Rica entered into a "debt for nature Swap" with several partners, including The Nature Conservancy and Conservation International.¹⁵¹ This agreement states that over a period of sixteen years, partners will give Costa Rica \$26 million U.S. dollars in exchange for the governments' improved management of its rain forests.¹⁵² Compliance among local businesses is also crucial towards achieving a carbon neutral level. As of 2016, eighty private entities had been awarded the brand of being "C-neutral."¹⁵³ This labeling system first arrived in 2010, and it "identif[ies] businesses and products that eliminate or offset all carbon emissions."¹⁵⁴ However, to truly achieve a carbon neutral state within the desired time, the government needs to quickly encourage nearly all private businesses to achieve a "C-neutral" label. Otherwise, the sustainable gains achieved in one area of the country will be offset by the continued pollution caused by businesses.

¹⁴⁹ *Id.*

¹⁵⁰ BALLIETT, *supra* note 119, at 63-71 (creating the relationship between the National Park and the Osa Peninsula)

¹⁵¹ *Id.* at 71.

¹⁵² *Id.*

¹⁵³ *Forest Reference Emission Level/Forest Reference Level: Submission to the UNFCCC Secretariat for Technical Review*, UNFCCC Ministry of Env't and Energy Costa Rica, at 7 (Jan. 4, 2016), http://redd.unfccc.int/files/2016_submission_frel_costa_rica.pdf <http://cambioclimaticocr.com/2012-05-22-19-42-06/estrategia-nacional-de-cambio-climatico> [hereinafter Forest Reference Emission Level].

¹⁵⁴ BALLIETT, *supra* note 119, at 70.

Climate change is borderless. Emissions from one country will leach over to another, even though it is through no fault of the emitting country. Because climate change is a global issue, Costa Rica will need outside help to achieve its goals and ensure those goals have a positive impact on the global battle against climate change. Costa Rica requires the assistance of the international community for funding, cooperation, grants, and loans. In 2017, the World Bank granted Costa Rica \$3 million U.S. Dollars to help with its ER-Program.¹⁵⁵ While this will help Costa Rica achieve its goal of becoming carbon neutral, it is not enough.

Another way Costa Rica is receiving international support is by creating a financial marketplace for greenhouse gas. This program is called the Certifiable Tradable Offset (“CTO”), and it gives each greenhouse gas a unit, which is then sold to other countries.¹⁵⁶ In 2013, the World Bank wrote a “Letter of Intent” to state its commitment to purchase up to \$63 million U.S.-dollars of carbon dioxide at five U.S. dollars per ton.¹⁵⁷ The Intergovernmental Panel on Climate Change, which is an international panel that helps all levels of government in different countries develop climate change policies, has validated and approved Costa Rica’s carbon market.¹⁵⁸ Costa Rica plans to allow international third parties to audit its Domestic Carbon Market, as well as ensure its effectiveness, efficiency, accountability, and transparency.¹⁵⁹ Because Costa Rica is not the first country to have a government agenda that focuses on climate change, it intends to study and use “lessons learned from international best practice.”¹⁶⁰ This helps to ensure that Costa Rica will not make the same mistakes that other countries have already experienced and corrected. This will minimize the trial and error process

¹⁵⁵ *Costa Rica First to Negotiate Sale of Forestry Carbon Credits*, THE WORLD BANK (Sept. 10, 2013), <http://www.worldbank.org/en/news/press-release/2013/09/10/creditos-por-reduccion-de-carbono/>.

¹⁵⁶ Market Readiness Proposal, *supra* note 16, at 25 (stating that the first set of CTO units were sold to the United States for \$2 million U.S. Dollars for 200,000 units).

¹⁵⁷ Rodricks, *supra* note 29.

¹⁵⁸ INDC, *supra* note 117, at 4; *Intergovernmental Panel on Climate Change, IPCC Factsheet: What is the IPCC?*, IPCC (Aug 2013), https://www.ipcc.ch/news_and_events/docs/factsheets/FS_what_ipcc.pdf.

¹⁵⁹ Market Readiness Proposal, *supra* note 16, at 56-57.

¹⁶⁰ *Id.* at 52.

for Costa Rica. With a 2021 deadline for carbon neutrality, there is no room for error. For example, Costa Rica's mitigation methods will look to the Kyoto Protocol of the United Nations Framework Convention on Climate Change ("UNFCCC") and greenhouse gas reduction methods used in different countries.¹⁶¹ In addition, Costa Rica was an early supporter of UNFCCC's REDD+ program and quickly implemented it into its own policies by incorporating aspects of the it into Costa Rica's ER-Program.¹⁶²

Costa Rica's plan for carbon neutrality will make a difference within its borders, but it will also hopefully encourage other countries to reduce greenhouse gas emissions by proving that it is economically possible and wise to make sustainable changes. Ideally, Costa Rica's success will encourage other countries to incorporate parts of Costa Rica's plan into their own policies. To encourage this, Costa Rica plans to make its carbon neutral programs easy for other countries to mimic, and accessible to all by submitting its plans to the UNFCCC.¹⁶³ Also, Costa Rica ensures its greenhouse emission mitigation standards comply with UNFCCC guidelines.¹⁶⁴ All international agreements Costa Rica has agreed to will continue to trump domestic laws according to Article 7 of the Costa Rican Political Constitution, which is another reason Costa Rica is ensuring its emission standards comply with the UNFCCC guidelines and submission requirements.¹⁶⁵

C. Integrating the Paris Agreement into Costa Rica

The Paris Agreement met its threshold requirement of signing parties needed to cause the document to be entered into force on October 5, 2016.¹⁶⁶ Costa Rica plans on complying with all necessary requirements since it signed the agreement on April 22, 2016 and ratified it on October, 13, 2016.¹⁶⁷ The Paris Agreement requires

¹⁶¹ *Id.* at 162; INDC, *supra* note 117; Replogle, *supra* note 129.

¹⁶² Market Readiness Proposal, *supra* note 16, at 20.

¹⁶³ *See Generally*, Emissions Reduction Program, *supra* note 15; Updated Emissions Reduction Program, *supra* note 21.

¹⁶⁴ Market Readiness Proposal, *supra* note 16, at 20.

¹⁶⁵ Emissions Reduction Program, *supra* note 15, at 61; Updated Emissions Reduction Program, *supra* note 21, at 45.

¹⁶⁶ Paris Agreement, *supra* note 2.

¹⁶⁷ *Id.*; INDC, *supra* note 117, at 4.

developed countries, party to the agreement, to take the proverbial bull by the horns on climate change mitigation because it is felt that they are in a better position to start the process than developing countries.

One provision that Costa Rica must continuously comply with is Article 13, which requires each party state to provide “a national inventory report of anthropogenic emissions by sources and removals by sinks of greenhouse gases” and “information necessary to track progress made in implementing and achieving its nationally determined contributions under article 4.”¹⁶⁸ In accordance with Article 4, Costa Rica has submitted its Nationally Determined Contributions, which once again announced its goal of achieving decarbonization.¹⁶⁹ Cost Rica must submit its Nationally Determined Contributions every fifteen years.¹⁷⁰

At the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change, COP21, the Paris Agreement was created and Costa Rica played a large role in the negotiations.¹⁷¹ One of the main supporters of the creation of the Paris agreement during the COP21 negotiations was Costa Rican Christiana Figueres.¹⁷² Costa Rica had a major role at the COP21, not only through Christiana Figueres, but also by advertising its achievement of having powered the nation’s infrastructure relying solely upon renewable energy for 255 days.¹⁷³ Due to Costa Rica’s outstanding example of environmental stewardship, Paris decided to honor the country by decorating the Eiffel Tower with glowing gems that read “100% Pura Vida,” which is Costa Rica’s national slogan

¹⁶⁸ Paris Agreement, *supra* note 2, at art. 13(7).

¹⁶⁹ *NDC Country Outlook: Costa Rica*, NDC PARTNERSHIP (Nov. 2017), https://ndcpartnership.org/sites/all/themes/ndcp_v2/docs/country-engagement/countries/NCDP_Outlook_Costa-Rica_v4a.pdf.

¹⁷⁰ Paris Agreement, *supra* note 2, at art. 4(9).

¹⁷¹ *Costa Rica’s Pivotal Role in the Climate Change Agreement*, THE COSTA RICA STAR (Dec. 13, 2015), <https://news.co.cr/costa-ricas-pivotal-role-in-the-climate-change-agreement/43342/>.

¹⁷² Jill Replogle, *A Paris Climate Change Talks Primer for Costa Rica*, TICO TIMES NEWS (Nov. 28, 2015), <http://www.ticotimes.net/2015/11/28/a-paris-climate-change-talks-primer-for-costa-rica> [hereinafter *A Paris Climate Change for Costa Rica*].

¹⁷³ *Costa Rica Honored at Paris Climate Talks with Message on Eiffel Tower*, THE TICO TIMES (Nov. 30, 2015), <http://www.ticotimes.net/2015/11/30/costa-rica-honored-at-paris-climate-talks-with-message-on-eiffel-tower>.

since the start of COP21.¹⁷⁴ During the negotiations at COP21, most of Costa Rica's proposals were "people-centric and mindful of human rights."¹⁷⁵

Even though Costa Rica played a pivotal role in the Paris Agreement, the Paris Agreement is not nearly as ambitious as Costa Rica's own declaration. Unlike Costa Rica's goal of zero carbon emissions by the year 2021, the Paris Agreement only requires parties to lower greenhouse gas emissions just enough to create a balance between emissions and sequestration.¹⁷⁶ Also, even though participation in Costa Rica's carbon neutral programs was originally on a voluntary basis, it will eventually become mandatory, while the Paris Agreement relies solely on voluntary participation.¹⁷⁷ In Costa Rica, parties will eventually be taxed for greenhouse gas emission to create financial incentives for them to reduce their carbon footprint, but under the Paris Agreement regime there are no repercussions for not complying besides the international pressure countries can place on each other.¹⁷⁸

Another main difference between Costa Rica's goals and the Paris Agreement is the timeframe established. Costa Rica intends to be carbon neutral by the year 2021, which means the "pre-2020 period will be critical to improve metrics, test new productive low emission . . . , and fine tune and negotiate the regulatory and institutional framework required to be able to implement these new climate change policies."¹⁷⁹ Comparatively, the Paris Agreement's actions are much slower; Article 14 states that the parties will not reconvene to reassess the global situation until 2023, and this reassessment will only occur once every five years.¹⁸⁰

¹⁷⁴ *Id.*

¹⁷⁵ *Costa Rica's Pivotal Role in the Climate Change Agreement*, *supra* note 171.

¹⁷⁶ Dernbach, *supra* note 1, at 3.

¹⁷⁷ Market Readiness Proposal, *supra* note 16, at 8; Paris Agreement, *supra* note 2, at art. 6(1) ("Parties recognize that some Parties choose to pursue voluntary cooperation in their implementation of their nationally determined contributions to allow for higher ambition in their mitigation and adoption actions and to promote sustainable development and environmental integrity.").

¹⁷⁸ Market Readiness Proposal, *supra* note 16, at 91.

¹⁷⁹ INDC, *supra* note 117, at 9.

¹⁸⁰ Paris Agreement, *supra* note 2, at art. 14(2).

In both the Paris Agreement and in Costa Rica's plan there are major concerns for the lack of funding to developing countries like Costa Rica and other Latin American countries which are also trying to stand off climate change.¹⁸¹ Both plans incorporate the understanding that in order to achieve the common goal of preventing the Earth's temperature from increasing two degrees Celsius, or of achieving carbon neutrality, developing countries will need financial assistance from developed countries like the United States. The Paris Agreement specifically lists this financial support duty in Article 9.¹⁸² However, after the United States' current presidential election, Costa Rica and other countries that are similarly situated are not likely to receive U.S. financial support.¹⁸³ The United States' current presiding political party also presents a problem for getting financial support from other developed countries. Former U.S. President Barack Obama was a leading force in getting almost every other country to agree to sign the Paris Agreement.¹⁸⁴ However, on June 1, 2017, President Trump declared that he was withdrawing the United States from the Paris Agreement.¹⁸⁵ Costa Rica's Presidency,

¹⁸¹ Emissions Reductions Program, *supra* note 15, at 83-92; Paris Agreement, *supra* note 2, at art. 9(1) ("Developed Country parties shall provide financial resources to assist developing country parties with respect to both mitigation and adaptation in continuation of their existing obligations under the convention.").

¹⁸² Paris Agreement, *supra* note 2, at art. 9.

¹⁸³ Anthony Zurcher, *Donald Trump Would 'Cancel' Paris Climate Deal*, BBC (May 27, 2016), <http://www.bbc.com/news/election-us-2016-36401174> (explaining that President Donald Trump repeatedly has said that he does not believe that there is any evidence of human responsibility for climate change and that President Trump plans to withdraw the U.S. from participation in the Paris Agreement).

¹⁸⁴ *Costa Rica's Pivotal Role in Climate Change Agreement*, *supra* note 171.

¹⁸⁵ Johannes Urpelainen, *Trump's Withdrawal from the Paris Agreement Means Other Countries Will Spend Less to Fight Climate Change*, THE WASHINGTON POST (Nov. 21, 2017), https://www.washingtonpost.com/news/monkey-cage/wp/2017/11/21/trumps-noncooperation-threatens-climate-finance-under-the-paris-agreement/?utm_term=.30eae3708b44; *but see* Paris Agreement, *supra* note 2, at art. 28 (stating that a country may not formally withdraw from the Paris Agreement until three years from conception have passed and written notice is given to the Depositary; After written notice is given than the withdrawal shall take effect in one year).

its Ministry of Foreign Relations, and MINAE released a joint statement in the wake of President Trump's announcement.¹⁸⁶ In pertinent part, they state:

the reality of climate change is based on overwhelming scientific evidence. Its effects are visible and even catastrophic . . . This means that all countries must evaluate their ambitions beyond what is stipulated in the Paris Accord. To achieve, this we must continue to work with civil society, the private sector and local government, including those U.S. state that are willing . . . Costa Rica will continue to work hard with its allies . . . and continues moving forward on the initiative of becoming a decarbonization laboratory.¹⁸⁷

Even though Costa Rica remains hopeful that it will achieve carbon neutrality, the United States' rejection of the Paris Agreement means that it will not comply with Article 9 of the Agreement, which requires developed countries to provide developing countries with financial support.¹⁸⁸ Furthermore, this means that developed countries will not receive the financing needed to combat climate change because the remaining industrialized countries are unlikely to be able to provide the \$100 billion in climate finance that has been promised by 2020.¹⁸⁹ Consequently, the 2015-2020 period is a crucial time frame for "align[ing] the allocation of financial resources" needed to achieve mitigation and adaptation goals.¹⁹⁰ This means that Costa Rica needs to appropriate the financial support needed to support its goal as soon as possible if it is going to make its 2021 deadline.

¹⁸⁶ *Costa Rican Government Responds to Trump's Climate Accords Exit*, THE TICO TIMES (June 2, 2017), <http://www.ticotimes.net/2017/06/02/costa-ricas-response-trumps-climate-accords-exit>.

¹⁸⁷ *Id.*

¹⁸⁸ Paris Agreement, *supra* note 2, at art. 9(1).

¹⁸⁹ Urpelainen, *supra* note 185 (stating that in 2014 the United States offered about \$2.7 billion in climate finance while the Trump administration has refused to contribute).

¹⁹⁰ INDC, *supra* note 117, at 9.

D. Costa Rica's likelihood of success

Since proposing carbon neutrality Costa Rica has greatly decreased its carbon footprint, however, it has not obtained a level of neutrality. Costa Rica's first monitoring of emissions reductions was from 2012 to 2013, and during this time, the country reduced its emission rate a total of -3,013,712 t CO₂e compared to the historical reference point.¹⁹¹ However, there are many challenges that stand in Costa Rica's path that it must overcome before it can achieve complete carbon neutrality by 2021. Pascal Girot, a climate change adviser for the Minister of MINAE admits that "[i]ts going to be very difficult to reach [a carbon neutral level] by 2021."¹⁹² Everything must go as mapped out by the MINAE and there needs to be full cooperation from all involved parties, including the government, tourists, citizens, and the international community. There are still some challenges Costa Rica understands it needs to overcome as soon as possible to stay on track with the deadline.

One obstacle Costa Rica must address is the uncertainty involved in emission reduction data collection.¹⁹³ Measuring emission levels is vulnerable to statistical errors created when the actual value of emissions from a source is different than the computed value from one sample of that source.¹⁹⁴ However, Costa Rica's willingness to look outside for help in establishing its data collection system can help solve this issue.¹⁹⁵ The United Nations has pre-determined one way to combat statistical uncertainty through a "quality assurance/quality control plan."¹⁹⁶ Another uncertainty in data collection created by the ER-Program is determining exactly how much carbon is emitted from carbon sources and how much carbon is absorbed by carbon sinks because the "biomass above the land is not measured directly."¹⁹⁷ This indirect measurement creates errors because different models are used to look at the same selections of biomass and each model can produce different results.¹⁹⁸ To ensure at least

¹⁹¹ Updated Emissions Reduction Program, *supra* note 21, at 13.

¹⁹² Replogle, *supra* note 129.

¹⁹³ *See generally* Emissions Reduction Program, *supra* note 15, at 136.

¹⁹⁴ *See id.*

¹⁹⁵ *See id.*

¹⁹⁶ *Id.*

¹⁹⁷ *Id.*

¹⁹⁸ *See* Emissions Reduction Program, *supra* note 15, at 136.

some consistency in data collection, Costa Rica should plan to use a single biomass model that has shown to be the most reliable, and only use that model for all different selections of carbon sink biomasses. The government will have to ensure that all agency groups that are collecting data use this one model and calibrate and analyze the results. Similarly, Costa Rica is already aware that it needs to adjust its carbon emission estimates from these models conservatively.¹⁹⁹ Acknowledging that this adjustment needs to occur will better form reliable data in the long run.

Another concern identified in the ER-Program is the possibility of reversal events, which release large amounts of carbon dioxide. There are two risk factors that can cause reversal: 1) natural factors and 2) anthropogenic factors.²⁰⁰ Natural factors are natural disasters that contribute to deforestation such as forest fires, volcanic eruptions, and flooding.²⁰¹ The less catastrophic natural disturbances are more common and cause smaller impacts, but these events are harder to differentiate from anthropogenic factors.²⁰² On the opposite end of the spectrum, the large catastrophic events, such as volcanic eruptions, occur much less often but they are easily identified because they have substantial impacts on the surrounding environment.²⁰³ To prevent natural disasters from disrupting the ER-Program, Costa Rica plans to exclude deforestation caused by natural events from reference levels for measuring carbon emissions.²⁰⁴ Anthropogenic factors include domestic and international events that cause deforestation, and in turn impact carbon emission levels because these factors create carbon sources while also destroying

¹⁹⁹ *Id.* at 138.

²⁰⁰ *Id.* at 124 (“[A] ‘reversal’ means a situation where the cumulative monitored and verified [Emission Reductions] are less than the currently transferred [Emission Reductions].”).

²⁰¹ Updated Emissions Reduction Program, *supra* note 21, at 17 (explaining that from 1986 to 2013, volcanic activity impacted 6,105.42 hectares of land, destroying 1,580.67 hectares of forests, and that meandering rivers destroyed 16,693.29 hectares of forests).

²⁰² Emissions Reduction Program, *supra* note 15, at 124 (explaining that the most frequent low intensity natural disturbance that occurs in Costa Rica are landslides).

²⁰³ *See id.*

²⁰⁴ *See id.*

carbon sinks.²⁰⁵ One domestic event that is a possibility is an increase in Costa Rica's dependency on agricultural activities.²⁰⁶ Luckily, Costa Rica has already established a plan to combat these anthropogenic reversals.²⁰⁷ The main method is through the strict enforcement of the ER-Program's new and improved application of the Forestry Law, which makes it illegal to convert forests into cleared land.²⁰⁸ Costa Rica also plans to impose stricter sanctions for the practice of illegal logging to help incentivize people to stop with this harmful practice.²⁰⁹

More challenges are identified by the Market Readiness Proposal, which relies very heavily on private participation to achieve its goals. The MINAE predicts that its plan for reduction will be met with skepticism and resistance because many private stockholders are indigenous people that have been doing the same practices and businesses for generations.²¹⁰ It is believed that many indigenous groups and citizens will believe that the MINAE's mitigation methods are "too far removed from their daily practices."²¹¹ To overcome this resistance, the MINAE discusses the government's goal to communicate, listen, and receive feedback from all 24 indigenous groups through means that are more culturally appropriate to each group.²¹² If the indigenous citizens feel like they have a say in mitigation methods, then it is plausible that they will likely be more willing to participate in the program.

Another hurdle the MINAE faces is the lack of financial resources to enforce its new laws and regulations, as discussed in relation to the Paris Agreement above.²¹³ This is why international assistance is so crucial for Costa Rica's 2021 deadline. Another factor that still needs a solution is a deficiency in reporting systems, which

²⁰⁵ See generally *id.*

²⁰⁶ See *id.* at 124.

²⁰⁷ See generally Emissions Reduction Program, *supra* note 15, at 125.

²⁰⁸ See *id.* at 125 (explaining that Article 19 of the Forestry Law states that in lands covered by forests, land use change will not be allowed).

²⁰⁹ *Id.*

²¹⁰ See Market Readiness Proposal, *supra* note 16, at 70.

²¹¹ *Id.*

²¹² Emission Reduction program, *supra* note 15, at 67.

²¹³ See generally Market Readiness Proposal, *supra* note 16, at 70.

are crucial to track greenhouse gas emissions from the private stakeholders.²¹⁴ In order to create this system the MINAE needs to make Costa Rica's citizens, businesses, and tourists feel like they are emotionally and economically invested in the goal, so that they will want to help Costa Rica achieve a carbon neutral status. The Vice President of Costa Rica, Ana Helena Chacón, presented a solution to this challenge by explaining that the country needs to measure carbon emissions by "person rather than by country" because this "would allow people to measure their own carbon footprint" and understand the consequences of their actions.²¹⁵

These are just some of the challenges Costa Rica must face and overcome within the next couple of years. However, if Costa Rica fails to resolve these issues and is unable to become carbon neutral by 2021 it could be more consequential than just a failed declaration. If Costa Rica is unable to comply with its goal, then it is predicted that climate change will impact the country causing at least \$7 billion U.S. dollars in damage by the year 2030.²¹⁶ If things continue to remain unchanged, then climate change could cause Costa Rica \$30 billion U.S. dollars in damage by the year 2050.²¹⁷ This is why it is so crucial for Costa Rica to achieve its ambitious goal as soon as possible.

V. ONE SMALL STEP FOR EARTH

Costa Rica still has a long way to go before it can achieve its ambitious goal of becoming the first carbon neutral economy by 2021. However, Costa Rica's President, Luis Guillermo Solís, reaffirmed the country's ambitious goal during the 2017 Abu Dhabi Sustainability Week.²¹⁸ Nevertheless, if Costa Rica is able to accomplish this goal on time, it will be during the same year that Costa Rica will celebrate its 200th year of independence from Spain.²¹⁹ The combination of the two events would cause for a year of great celebration. However, Costa Rica is not alone in its grand strides

²¹⁴ *Id.*

²¹⁵ Replogle, *supra* note 129.

²¹⁶ INDC, *supra* note 117, at 15.

²¹⁷ INDC, *supra* note 117, at 15.

²¹⁸ *Costa Rica Pledges Carbon Neutrality by 2021*, *supra* note 125.

²¹⁹ Replogle, *supra* note 129.

toward sustainability. New Zealand's Prime Minister has announced that the country plans on becoming the "first truly sustainable nation on earth."²²⁰ In order to do this, New Zealand plans to increasing its renewable energy sources so that 90 percent of the country's electricity will be powered by renewable sources by 2025, and it plans to reduce transportation related greenhouse gas emissions by 50 percent by 2040.²²¹ Germany has also adopted economic and environmental policies through the Renewable Energy Source Act, which strives to have 45 percent of Germany's power come from renewable energy sources by the year 2030.²²²

However, these goals are nowhere near as time-crunched and all-encompassing as Costa Rica's. Even though Central America is only accountable for about 0.5 percent of global greenhouse gas emission, it is a "hotspot" for climate change damages, which is why it is so essential for Costa Rica's government to push forward with full steam to meet its 2021 deadline.²²³ One reason Central America, and Costa Rica specifically, are so vulnerable to climate change impacts is that the country is located between two oceans, causing it to receive negative impacts like coastal erosion from two of its main borders.²²⁴ As Costa Rica's government continues to change hands over the next five years, it needs to ensure that each newly elected party is just as committed to achieving a carbon neutral economy as its successor. If the government sees a dramatic change in a new party's political goals, similar to the United States' new administration under President Donald Trump, then all emission reduction programs could be put to a halt.

Now is the time for creating change towards sustainability. Countries have put off solving climate change issues too long, causing it to become a critical matter. Costa Rica is setting an example that at least developed countries should strive to achieve in order to truly slow down Earth's rapid temperature increase toward that critical two-degree Celsius threshold.

²²⁰ See *Costa Rica and New Zealand on Path to Carbon Neutrality*, WORLD WATCH INSTITUTE, <http://www.worldwatch.org/node/5439>.

²²¹ *Id.*

²²² Janet L. Sawin, *Germany Leads Way on Renewables, Sets 45% Target by 2030*, WORLD WATCH INSTITUTE, <http://www.worldwatch.org/node/5430>.

²²³ Replogle, *supra* note 172.

²²⁴ INDC, *supra* note 117, at 10.