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# COLOMBIA:

## An Emissions Trading Case Study



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# Key Dates

| Year | Event                                                                                                                |
|------|----------------------------------------------------------------------------------------------------------------------|
| 2004 | Approval of GHG emission reduction projects for CDM                                                                  |
| 2010 | Creation of the Adaptation Fund                                                                                      |
| 2011 | Strategy for Articulating Policies and Actions on Climate Change<br>Elaboration of REDD+ National Strategy start-off |
| 2012 | First phase of Low Carbon Development Strategy 2020-2030<br>National Plan for Adaptation to Climate Change           |
| 2013 | National Plan for Disaster Risk Management 2013-2025                                                                 |
| 2015 | Colombia submits INDC targets to the UNFCCC                                                                          |
| 2016 | Law 1819 - Establishment of a Carbon Tax<br>Launch of a Voluntary Exchange Carbon Market                             |
| 2017 | Launch of National Policy on Climate Change                                                                          |
| 2017 | Introduction of the carbon tax on liquid fossil fuels and industrial uses of natural gas                             |

Table 1: Key Dates

# Background

Colombia's 2012 total greenhouse gas emissions account for 0.36% of global emissions<sup>1</sup> with 178.3 Mton CO<sub>2</sub>e and the country contains about 4.4% of the world's stocks of tropical forest carbon (Baccini et al. 2012). The energy sector and the agriculture, forestry and land-use change (AFOLU) sector have consistently been the largest emitters, representing 44% and 43% of the country's 2012 emissions respectively.

The national inventories from 1990, 1994, 2000, 2004, and 2010 showed energy consistently accounting for about 30-32% of emissions and increasing in absolute terms between each inventory. Meanwhile, the AFOLU sector has accounted for 58-62% of emissions and has seen both substantial increases and decreases in absolute emissions between different inventories. The 2012 inventory departs from historical inventories inasmuch as the relative importance of the AFOLU sector has diminished due to a significant decrease in absolute emissions whilst the energy sector has relatively increased in



importance, although AFOLU and energy sector emissions remain the two largest sources of emissions.

With respect to the energy sector, transport GHG emissions from the 2012 inventory account for 38% of the total energy use, followed by the energy and manufacturing industries with 14% each; fugitive emissions and

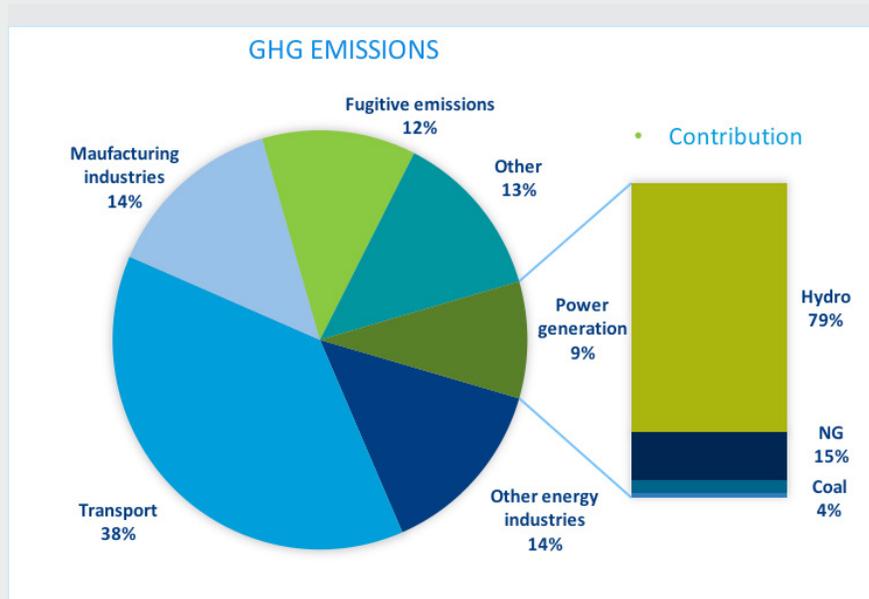
electricity generation account for 12% and 9%, respectively (IDEAM; PNUD; MADS; DNP; CANCELLERÍA, 2015). See Figure 1.

<sup>1</sup> Estimate made from approximate data of global emissions of 49 billion tonnes, from the IPCC Fifth Assessment Report, Work Group III, as cited in Colombia's INDC.

Given the large participation of hydroelectricity in the energy mix, the emissions share of the power sector (9%) in Colombia is very low compared to the sector world's contribution (25%) (IPCC, 2014). In 2012, hydraulic generation represented 79%, followed by gas generation (15%), coal (4%), and other technologies such as wind and small generators with only 2%. However, one major factor has influenced the energy situation in the region: the multiplication and frequency of extreme weather events such as floods and droughts have generated pressure on the water supply; creating a set of energy security concerns (IRENA, 2016). This has incentivized the use of more fossil fuels in the mix, like natural gas and coal. During the period 2011-2013, the generation with coal increased from 3% to 9%, natural gas generation accounted for 15% and the hydro power decreased from 80% in 2011 to 70% in 2013 (IDEAM; PNUD; MADS; DNP; CANCELLERÍA, 2015).

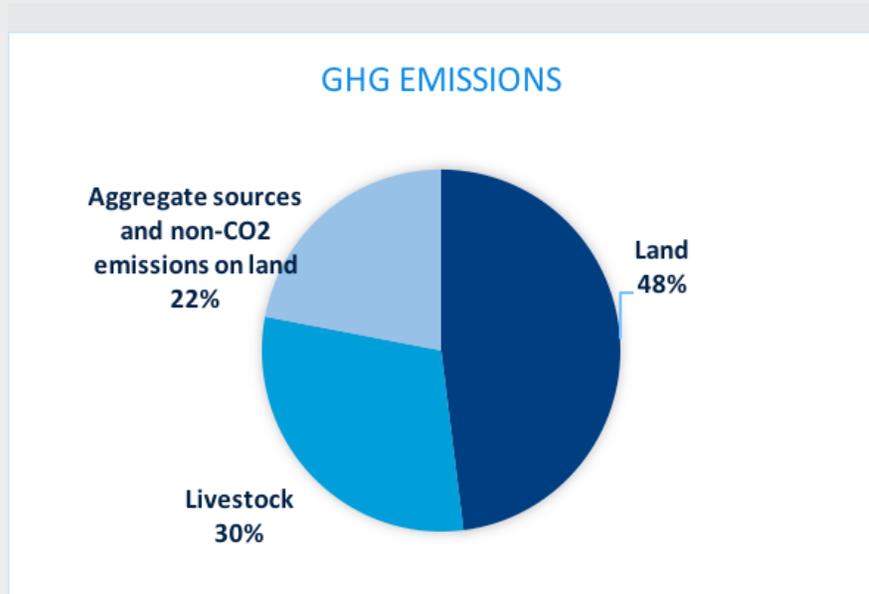
With respect to AFOLU, the main contribution of emissions came from the Land sub-sector accounting for 48% of the total AFOLU emissions, followed by the livestock sector with 30% of the total emissions, where enteric fermentation, especially from bovine cattle, is the highest contributor. As livestock in Colombia is extensive, an important part of the emissions corresponds to land with vocation for agriculture and forestry. Finally, emissions from aggregate sources and non-CO2 emissions source on land represented 22% of total AFOLU emissions in 2012 (IDEAM; PNUD; MADS; DNP; CANCELLERÍA, 2015). See figure 2.

Even when the GHG emissions from the AFOLU sector have diminished, deforestation continues to be an important source of emissions in Colombia and has recently shown a rapid increase, rising by 44% from 2015 to 2016 (IDEAM 2017). This is generally attributed to the greater



**Figure 1: Contribution of GHG by sub-sector in Energy (%)**

Source: Own preparation with data from the Biennial Report



**Figure 2: Contribution of GHG by sub-sector in AFOLU (%)**

Source: Own preparation with data from the Biennial Report

opening of the Amazon region to economic activity in the wake of the peace process, with a ceasefire in mid-2016 and formal demobilization of the Revolutionary Armed Forces of Colombia (FARC) in February 2017, which ended more than 40 years of civil war in the country. During the conflict, the FARC kept population away from certain territories and controlled their activities, but now people are freer to convert forests into agriculture and cattle ranching, road infrastructure developments, and illegal mining.

In recent years Colombia has embarked on a series of policies and laws with the aim of mitigating and adapting to climate change. In 2015, at the COP21 in Paris, Colombia presented its commitment to reduce its greenhouse gas emissions by 20% (or by 30% with international support) by 2030 compared with the business-as-usual scenario (INDC) (Gobierno de Colombia, 2015). Within its NDC, Colombia also stated that it would explore the use of market or economic instruments to help achieve this target.

In 2016, the National Government approved the Decree 298 that created the National System of Climate Change (SISCLIMA). The SISCLIMA consists of state, private and non-profit entities, policies, rules, processes, resources, plans, strategies, instruments, mechanisms to coordinate and articulate actions and measures to combat climate change. This Decree will allow the signatory ministries to commit themselves to work together throughout the national territory (Ministerio de Ambiente y Desarrollo Sostenible, 2016).

To achieve the climate change goals under SISCLIMA, in 2017, Colombia published its National Policy on Climate Change, which encompasses all the main policies and actors and provides guidelines

for climate planning and management at the sectoral, local, departmental, regional, and national levels. The policy integrates several key climate plans such as the National Climate Change Adaptation Plan (PNACC), the Colombia Low Carbon Development Strategy (ECDBC), the National REDD+ Strategy, the Strategy for Financing Protection in the Face of Disasters, the National Plan of Risk and Disaster Management, and the National Climate Financing Plan (MADS, 2017).

A great challenge in Colombia is to strengthen the monitoring, transparency and implementation of climate change policies in a post-conflict era. To achieve this, Colombia has established a carbon tax and has been developing a range of other mechanisms, including Payment for Environmental Services, Clean Development Mechanism and other offsetting programs, Reduced Emissions from Deforestation and Forest Degradation (REDD+), Comprehensive Rural Reform Programs, and measures to address the illegal drugs problem (Camila & Jaramillo, 2016).

In 2016, Law 1819 established a National Carbon Tax as part of a broad tax reform package, (Republica, 2017). In 2017, this was followed by Decree 926 which established requirements for reducing tax liability through carbon neutral certification via offsets (Tributaria et al., 2016). Additionally, in 2017, Law 1844 ratified the Paris agreement (Republica, 2017). In August of 2017, the Ministry of Environment and Sustainable Development presented Law 73 to Congress that would establish guidelines for climate change management and compliance. This notably includes the legal basis for the creation of a national emissions trading system (i.e. sistema de cupos y créditos) as one of the instruments

to achieve GHG emissions reductions in the country. Under this proposed law, the Ministry of Environment would have the faculty to define who will be regulated under this mechanism. This law is still simply a proposal (Colombia, 2017).

Colombia has also joined international initiatives on carbon pricing. In December of 2015 in Paris, Colombia joined eighteen other countries in a ministerial declaration on carbon markets, calling for collaboration on the development of standards and guidelines for the environmental integrity of international market mechanisms to help meet NDCs. In June 2017, the Pacific Alliance Countries (Chile, Colombia, Mexico and Peru) signed the Cali Declaration, in which they reaffirmed the Paris Agreement and the need for green growth strategies to address climate change. They also pledged to intensify efforts in MRV of CO<sub>2</sub>e emissions to identify voluntary market mechanisms in the region. Colombia also joined of the World Bank-managed Carbon Pricing Leadership Coalition (CPLC) to help foster discussions on carbon pricing for both developed and developing countries. In December 2017, at the One Planet Summit in Paris, Colombia joined Canada, Chile, Mexico, Costa Rica and the states of California, Washington, Alberta, British Columbia, Nova Scotia, Ontario and Quebec to launch the Carbon Pricing in the Americas cooperative framework to create a platform to promote and align carbon markets across the hemisphere.

# Domestic market

The Colombian government is part of the Partnership for Market Readiness (PMR) Initiative since 2014 as an Implementing Country. With support of PMR, Colombia has worked on developing the Low Carbon Development Strategy in priority sectors for reducing GHG emissions, including the transport sector, via various instruments including crediting NAMAs, a domestic offset system and a performance standard for vehicles combined with alliances. The PMR work has also supported the analysis and formulation of policies related to carbon pricing, including both tax and market-based programs. The PMR team is comprised by representatives of the Ministry of Environment and Sustainable Development (focal point for the PMR), Ministry of Transport (sector ministry) and Ministry of Finance and the National Planning Department.

## Carbon Tax

The carbon tax came into force on 1 January 2017, and applies to the sales and imports of all fossil fuels, including all petroleum derivatives, except for coal. The National Directorate of Taxes of Colombia (DIAN) is in charge of the revenue collection and administration, whereas the Ministry of the Environment and Sustainable Development oversees the emissions reporting as well as the accredited verification entities. Currently, all of the funding raised from this tax goes towards the Fund for a Sustainable Environment and Rural Sustainable Development to support the peace process in areas affected by conflict. In June 2017, the Colombian government approved Decree 926 establishing the rules and conditions that allow certain entities to offset their carbon tax obligation under the Carbon Tax Law (Law 1819).

| Fuel                          | Unit        | Tax/unit (COP) |
|-------------------------------|-------------|----------------|
| Natural Gas                   | Cubic meter | \$29           |
| Liquefied petroleum gas (LPG) | Gallon      | \$95           |
| Gasoline                      | Gallon      | \$135          |
| Kerosene and Jet Fuel         | Gallon      | \$148          |
| ACPM (Diesel)                 | Gallon      | \$152          |
| Fuel Oil                      | Gallon      | \$177          |

**Table 2. Colombia carbon tax rates (COP\$)**

Source: LAW 1819 of 2016. Article 221.

The carbon tax obligation applies to producers and importers of liquid fossil fuels and industrial uses of natural gas, at the time of sale or import—for commercialisation or own consumption—and is currently set at a level of approximately US\$5/tCO<sub>2e</sub>. For example, liquefied petroleum gas (LPG) is taxable when sold to industrial users and natural gas is taxable when sold to the refining and petrochemical industry. Commercialisation for refuelling international ships and airplanes is considered an export and therefore, is not subject to the carbon tax in the country. Gasoline-blend alcohols and biofuels for diesel engines are also excluded. Additionally, there is no tax on gasoline and diesel fuel in the departments of Guainía, Vaupés and Amazonas.

The tax is set to increase annually by 1 point plus inflation until the price reaches 1 UVT (approximately US\$10/tCO<sub>2e</sub>). The expected tax revenues are of approximately US\$220 million per year (See Table 2).

The tax covers the 16%<sup>1</sup> of Colombia's total emissions and 50% of emissions from fossil fuels. This is because coal and the consumption of natural

gas in the generation of electricity is excluded. Regarding coal, it represents 12% of the total primary energy supply (TPES) of the country, where electricity generation and the industry sectors consume the majority, with 48% and 41% respectively, followed by the coal transformation process with 8% and by other final consumption sectors (3%). Within the industrial sector, coal represents 23% of its total energy consumption, while for the electricity sector represents 22% (IEA, 2014). This could have consequences, as most coal reserves in Latin America are located in Colombia and because of its quality and high energy content, Colombia has quintupled its coal mining activity, becoming one of the five net coal exporters worldwide (IEA, 2014). This exemption could create a perverse incentive to increase coal consumption, considering that natural gas for industry uses is taxed. This could also compete against other cleaner sources such as co-generation and the use of biofuels and renewables.

On the natural gas side, the impact is also important. The use of natural gas for the generation of electricity accounts for 27% of the TPES,

<sup>1</sup> Colombia's Biennial Update Report 2010

and has been increasing over time, especially because of the challenges hydro power has been facing. The generation based on gas and coal, could be taking out low carbon technologies as renewable energy like wind and solar could represent an alternative to reduce this risk, especially when their generation patterns are different from the hydropower patterns. This is the case of Colombia, where wind seems to be available during El Niño, when hydropower suffers the highest exposure (Vergara et al., 2010). However, wind accounts with less of 1% of the total generation (IDEAM; PNUD; MADS; DNP; CANCELLERÍA, 2015)

#### Offset rules

Under the newly adopted Decree 926, regulated entities may be certified as 'carbon neutral' and consequently be exempted from the tax liability. The projects eligible to be certified under this scheme must occur after January 1st, 2010 within Colombian territory and must comply with one of the following methodologies:

- Clean Development Mechanism (CDM)
- Those developed by certification programs or carbon standards that have been either publicly consulted and verified by a third party appropriately accredited or issued by the UNFCCC, or recognized by the national government through a National Normalization Body, or meet the requirements for the registration of initiatives established by the REDD+ registry.

To qualify for the neutrality, entities need to submit an exemption request ahead of the tax compliance deadline, accompanied by a "Voluntary Cancellation Certificate" and a "Declaration of Verification" of eligible offsets equal to its emissions. The

Voluntary Cancellation Certificate will be issued by certification programmes or carbon standards and must include a report of the emission reductions according to the National Emissions Register. These emissions or removals must be cancelled previously in the GHG certification program of origin before being issued in the National Emissions Register. According to Decree 926, for emissions reduced through a CDM project activity, this voluntary cancellation document is equivalent to the cancellation of a certified emissions reduction (CER).

The Declaration of Verification must contain the name of the mitigation activity, the amount of verified emissions reductions and removals, and the verification methodology implemented. This verification statement must be issued by an authorised verification body duly accredited under the National Accreditation Body of Colombia (ONAC, for its acronym in Spanish). The verification body shall issue a statement indicating that the GHG emission reductions or removals were performed in accordance with the ISO 14064-2:2006 methodology and the results obtained under ISO 14064-3 or other suitable norms. All verifications carried out by a CDM-accredited entity will only be valid until 31 December 2018. In view of the creation of a national accreditation system, after that date, only verifications carried out by accredited bodies (i.e. ONAC) will be accepted.

The carbon tax can also be offset with voluntary carbon offsets, if they have been verified according to the methodology established by ISO 14064-2:2006 or other suitable standard, in compliance with Decree 926. Reductions and removals that have been implemented outside the national territory will be valid until December 31, 2017, except for the CDM projects that are not eligible at

all to be certified under the 'carbon neutral' scheme.

The fact that Colombia allows entities to compensate 100% of their tax obligation via offsets, has encouraged the development of projects that have been registered, verified, and certified to mitigate carbon emissions. In the first semester of 2017, 2 million tons of CO2 emissions were compensated via offsets, representing 5% of the expected tax collection.

Although Colombia is very advanced in the development of emission reductions mechanisms, the National Register of Greenhouse Gas Emission Reductions is still in the process of design and regulation and still must establish the link with the National Emissions Register, which is not yet mandatory in Colombia.

# International Markets

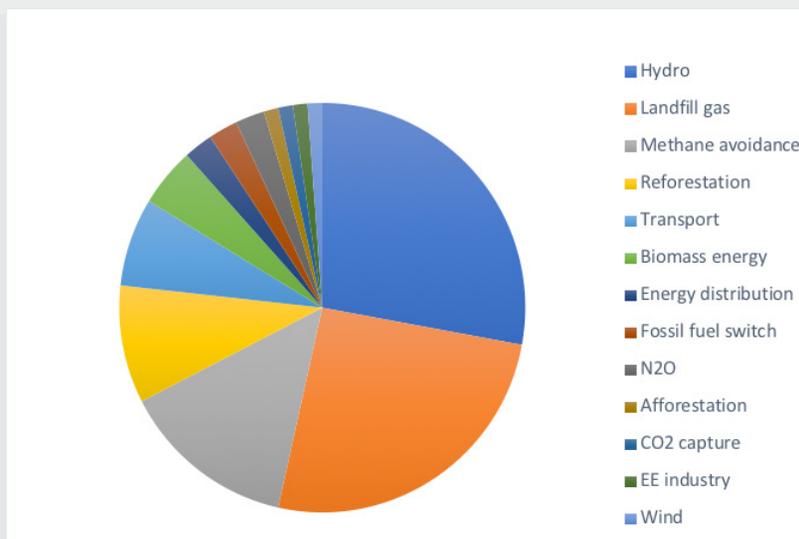
## Clean Development Mechanism

In spite of the relatively low Latin American share in the world (compared with China and India), the CDM has catalyzed and leveraged considerable low emissions investments in the region. Until September 1st, Colombia has registered 86 CDM projects that account 7% of the total in Latin America, after Brazil, Mexico and Chile and has issued 6% of the total volume of CERs. Most of the projects have come from renewable energy (especially hydro), landfill gas management, methane avoidance and reforestation.

## REDD+

The government of Colombia, as part of the REDD+ preparation work (including participation in a future system of financial incentives), is currently developing the preparation proposal (R-PP) for the REDD+ National Strategy, a roadmap that will indicate what activities can be carried out, how they can be carried out and what economic resources will be needed. This preparation phase is estimated to last for two years.

Under this strategy, Colombia will implement a national monitoring system, with regional and local accounting systems ensuring coherence between different levels to ensure that there is no double counting of emissions reductions. In turn, regional scenarios will be consolidated in a national scenario, ensuring the integrity of the mechanism (Ministerio de Ambiente y Desarrollo Sostenible, 2017). Through the REDD+ system Colombia pledged in 2015 a zero-deforestation rate in the Amazon up to 2020, there has been a sharp rise in deforestation since the signing of the peace treaty.



**Figure 3. Distribution of CDM Projects in Colombia by type (September, 2017)**

Source: CDM Pipeline, 2017. Available at: [cdmpipeline.org](http://cdmpipeline.org)

In addition, and to enhance financing of REDD+ efforts, Colombia has been an active player in the Forest Carbon Partnership Facility (FCPF). This partnership helped Colombia to develop a reporting framework following the FCPF monitoring and evaluation structure which aims to systematize all the data analysis from FCPC country members. The support of the FCPF to Colombia has focused in providing support on their elaboration of its National REDD+ Strategy, with the enrolment of a team of specialists that brought capacity building to the project, developing a consultancy process with key actors in the several regions. It has also developed an assessment of social and environmental impacts, which results showed the drivers of deforestation for each region, who is causing it, the actions needed to reduce it and the risks and benefits

(both social and environmental) involved in those actions (FCPF, 2015).

# Carbon Price Evolution

Currently, the national policy mechanism is the carbon tax as a means to define a price on carbon, which is set to increase annually from US\$5/tCO<sub>2e</sub> by 1 point plus inflation until approximately US\$10/tCO<sub>2e</sub>. Over time, the carbon tax might expand or perhaps Colombia might transition into an emissions trading framework. The Law 73--presented to Congress on August 9th, 2017 but

as of January 2018, still waiting to be placed for the first debate at the Senate--enables the creation of a national emissions trading system and defines that the method to obtain "allowances" will be through yearly auctions. The Ministry will also define a set of criteria for entities eligible for free allocation. Additionally, the proposal establishes that the tax would serve as a floor price and that offset

projects could receive allowances that would be sold on the market. Non-compliant firms would be fined for up to 2 times the value of the emissions generated, providing an indicator of a price ceiling. These features could potentially affect Colombia's carbon price evolution in the future.

# Commentary on Market Functioning

Colombia has been implementing policies which show a possible roadmap for the development of carbon pricing mechanisms. The most relevant is the development of the Mechanism for Voluntary Mitigation of Greenhouse Gases Emissions<sup>1</sup>, whose main objective is to create and establish a technological and institutional platform that serves as a basis to adopt a Voluntary Emission Reductions (VERs) market mechanism and facilitate voluntary activities to reduce GHG emissions in Colombia. The voluntary market has the effect of generating a learning process in terms of climate change policy, which provides the groundwork of capacity building when the regulatory policy takes place.

In 2016, the first voluntary exchange carbon market was inaugurated, where it is possible to carry out transactions in the carbon offsets market. This platform will be operated by the Mercantile Exchange of Colombia, an entity legally constituted and authorized by the Financial Superintendence to commercialize

carbon credits and environmental services in the country. The market will be both national and international and, for the time being, it prioritizes national forest carbon projects. The registration methodology is linked to a recognized international registry that guarantees the transparency and traceability of the VERs, including the development, validation and verification of VERs from a portfolio of forest carbon projects and a transactional mechanism that takes advantage of the technological resources of the Mercantile Exchange of Colombia (BMC). A web-based registration platform for verified emission reductions has been created and is operating in a pilot phase.

To date, most of the emission reductions come from forestry reforestation projects; productive forest systems in areas degraded by livestock; improvement of ecological corridors and ecological restoration of natural forests; REDD+ projects being implemented in ecological corridors and mangroves and several projects implementing efficient firewood stoves

(MCV, 2017).

Still, there is a clear challenge to articulate the mitigation instruments with the MRV system under an integrated information system that allows establishing the accounting rules that ensure the proper management of GHG emissions. The planned MRV system will have the capacity to register official GHG emissions information year to year (National Inventory, BUR), information and accountability on GHG mitigation projects (i.e. NAMAS, CDM) and the information on financial flows, transfer of technologies, capacity building and their impact.

Over the longer term, the potential to link of markets from the Pacific Alliance countries under the Cali declaration would undoubtedly strengthen the capacities of the member countries and encourage the creation of mechanisms to establish a carbon price with the quality of international standards.

<sup>3</sup> An initiative launched by from Fundación Natura and supported by the International Development Bank and the Global Environmental Facility.

# What Distinguishes this Policy?

## UNIQUE ASPECTS

### Point 1

Colombia presented its unconditional commitment to reduce its greenhouse gas emissions by 20% by 2030 compared with the business-as-usual scenario. Colombia's post-conflict era has brought negative impacts on its natural resources, so has strengthened its environmental policy including this situation in their national contributions. Within this, Colombia also stated that that it would explore the use of market or economic instruments to achieve this target.

### Point 2

The fact that regulated entities may be certified as 'carbon neutral' via offsets in place of paying the carbon tax has established a hybrid market mechanism, stimulated a market for offsets, and strengthened the learning of the different market instruments, how they co-exist and its environmental objectives. This would serve as a basis of preparation for a future ETS. Within the first semester of 2017, 2 million tons of CO<sub>2</sub> emissions taxed were compensated, representing 5% of the expected tax collection. CDM projects outside Colombia will not be eligible after 2017, which will encourage and boost the development of offset projects within the country.

### Point 3

The collection of the carbon tax goes to support the peace process via the Fund for Environmental Sustainability and Sustainable Rural Development. This will allow the investment in low carbon projects, adaptation, technological innovation, and other potential uses.

## CURRENT CHALLENGES

### Point 1

The establishment of a carbon tax is an important achievement and begins to give a clear signal on which direction Colombia's climate policy is going. However, the exemption of coal, one of the fossil fuels with the highest carbon content, could generate a perverse incentive to use more coal or make more difficult to switch to cleaner fuels.

### Point 2

The National Register of Greenhouse Gas Emission Reductions is fundamental for the non-taxation via offsets. In addition, a National Emissions Registry needs to be created to link the tax with any other climate mechanism accounting, and especially with an ETS.

### Point 3

The proposal in Law 73 shows a great step towards the implementation of a future ETS in the country, but it just entered to the Congress and could have modifications before its publication. While the current government has shown leadership in the implementation of policies to mitigate climate change, in August 2018, there will be presidential elections, so it will be of great interest whether the Law passes before this date and how the next administration prioritizes climate policy.

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# Acknowledgements

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