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Ecological Taxes and Mineral Coal

Blanca Lyda Bogota Galarza¹, Fernan Alonso Cardona Quintero², Ricardo Javier Aragón Gómez³, Moises Edgardo Meriño Polo⁴, Gerardo Andres Moreno Guzman⁵

Abstract

This article intends to analyze the contribution of the ecological taxes of the mining sector focused on mineral coal to the conservation and preservation of the environment. In the same way, the participation of the resources collected by the National Government is studied through the review of development plans, territorial public finances, the component destined for environmental conservation and the incidences of the tax reform 2022 "For the justice and equity" Law 2277 of 2022. Thus, the municipalities of Lenguazaque, Simijaca and Tausa located in the province of Ubaté in Cundinamarca are taken as a sample, where coal mining activity has a high participation in the region and in the national economy.

Keywords: Ecological Taxation, Mineral Coal, Environment, Carbon.

Introduction

Ecological taxation has become a topic of great relevance in the current context, where environmental protection and the fight against climate change are priority aspects.

In Colombia, one of the measures implemented to address these problems is the carbon tax, a specific tax that seeks to incentivize the reduction of carbon emissions and promote more sustainable practices in the business sector. At the territorial level, environmental taxes are established that are collected by territorial entities and invest in environmental plans.

Coal mining is one of the most significant productive sectors in the country's economy; since it generates employment and economic growth in the regions where it is developed. Thus, Colombia ranks twelfth as a coal producer in the world and the first in Latin America; Studies have shown that the mining sector is one of the fragments that use the least water in its operation, as water conservation, reforestation and air quality improvement programs have been promoted. It also manages various circular economy, clean energy, energy efficiency and emissions reduction programmes. (Mining Association of Colombia, 2021).

For the purposes of this analysis, the municipalities of Lenguazaque, Simijaca and Tausa belonging to the province of Ubaté, Cundinamarca, where coal mining activity has a high participation in the regional and national economy at present, are taken as a sample.

¹ Fundación Universitaria Los Libertadores, sede Bogotá, Colombia, Email: blbogotaglibertadores.edu.co, ORCID: <https://orcid.org/0000-0003-0431-363X>.

² Politécnico Gran Colombiano, Bogotá, Colombia, Email: facardonaq@poligran.edu.co

³ Fundación Universitaria Los Libertadores, Bogotá, Colombia, Email: ricardo.aragon@libertadores.edu.co

⁴ Fundación Universitaria Los Libertadores, Bogotá, Colombia, Email: moises.merino@libertadores.edu.co

⁵ Escuela de Policía Provincia del Sumapaz, Fusagasugá, Colombia, Email: gerardo.moreno9251@correo.policia.gov.co



Therefore, the general objective of this research is to characterize ecological taxation and to evidence the sources and application of environmental resources

Methodology

For this research, a qualitative approach was used, since the general context of the subject of study was addressed by reviewing the literature on the concept of environmental taxes; and descriptive, contextualizing the coal mining activity in the region analyzed and its contribution through taxes.

To this end, the activity of the coal industry was characterized from a tax point of view based on the analysis of the different regulations that regulate it. Subsequently, the income statutes of the municipalities under study were analyzed in order to establish the tax resources that are allocated to the protection of the environment.

Conceptual Framework-

Ecological taxation is the set of fiscal instruments established by States in order to internalize the environmental costs derived from economic activities that generate environmental pollution. These taxes seek to make polluters pay for the damage caused and their objective is not only to collect revenue, but also to encourage changes in the behavior of producers and consumers, promoting clean technologies, saving resources and the transition to a sustainable economy (DIAN, 2010).

The theoretical background of the tax to correct externalities, such as pollution, is based on the economic theory of Pigou, who proposed taxing activities that generate social costs not contemplated in their market price (Friedrich Ebert Stiftung Foundation, 2011).

As for the first experiences at a global level of the implementation of environmental taxes, it dates back to France (1964) when it introduced an environmental tariff with the intention of protecting water management, aimed at financing treatment facilities and water resource saving programs. For their part, the Nordic countries implemented carbon taxes; such is the case of Finland (1990), which was a pioneer with the tax applied to energy and fuels (DIAN, 2010).

Subsequently, Sweden (1991) and Norway (1992) adopted similar taxes on CO₂ and other pollutants. Similarly, Denmark (1992–1993) integrated carbon taxes; Germany (1999) introduced an environmental tax on electricity consumption and mineral oils.

Colombia implemented (1993) a 5% environmental surcharge for works in protected areas, along with value-added tax exemptions for recycling equipment and incentives for companies that invest in the environment. Subsequently, Law 139 of 1994 introduced modifications to the National Tax Statute to integrate fiscal instruments of an ecological nature and in 2016 Law 1819 was issued, which incorporated the carbon tax (Lozano, 2019).

In the case of coal mining, some conflicts can be identified in Colombia derived from extraction, such as the pollution of air, soil and water resources, land occupation, destruction of the ecosystem, erosion, among others (Martínez, 2004).

In the municipalities of Lenguazaque, Simijaca and Tausa, Cundinamarca, the entire chain of production, marketing, transformation and transport of mineral coal is developed, and therefore the presence of ecological conflicts.

In the coal industry in the municipalities under study, positive factors are identified such as the

generation of employment for low-skilled labor and with it, the revitalization of the local economy. Likewise, negative factors related to the impact on the environment, demographics and territory are detected.

Companies in the mining sector (Coal) located in the municipalities studied must contribute with an ecological tax for the conservation and sustainability of the environment in which they operate.

Regarding the creation of taxes for environmental protection, the OECD mentioned the commitment that member countries had at the time to the collection of environmental taxes, under the premise "the polluter pays" (OECD, 1970).

Results

Tax Characterization in Mining

In accordance with the Colombian legal system, the mining activity contemplates compensations that are summarized in the following table:

Tribute	Regulations	General
National Carbon Tax	Law 1819 of 2016	The aim of the tax is to reduce greenhouse gas emissions. The fuels derived from this tax are: gasoline, kerosene, jet fuel, ACPM, fuel oil, natural gas for industrial use. Likewise, coal is subject to the tax.
Royalties	Article 225 of the Mining Code (Ley 685 de 2001, 2001)	It is a consideration for the exploitation of natural resources. It consists of a percentage that the operator must pay for each ton found at the mine mouth.
Surface fees	Article 230 of the Mining Code.	It is paid when the mining project is in the exploration phase. The payment is for annuities in advance from the perfection of the contract, according to the concession area.
Remuneration rates	Law 99 of 1993, Article 42; Article 211 of Law 1450 of 2011	They shall be paid for the direct or indirect use of the atmosphere, water and soil to introduce or dispose of wastes resulting from any activity carried out by man. This fee is intended for the decontamination and monitoring of the quality of the

		affected resource
Compensatory Rates	Law 99 of 1993; Law 1450 of 2011	It will be paid to pay for the maintenance of the renewability of natural resources. They will be used for the protection and renewal of the respective natural resource
Remuneration Rate for Punctual Discharges	Decree 1076 of 2015	It is the one that will be charged by the competent environmental authority to users for the direct or indirect use of water resources as a recipient of direct and indirect punctual discharges and their harmful consequences.
Compensatory Rate for Timber Forest Harvesting in Natural Forests	Decree 1076 of 2015	It is the one that is applied to those who carry out the felling of trees to obtain the timber resource. For coal mining activity, this tax could constitute an indirect tax, as it is a higher value of the wood used to build the tunnels through which the mineral is extracted.

Table 1 Tax Characterization in Mining

Source: Authors' elaboration based on national legislation

As can be seen in the table above, Colombia has various national and territorial taxes for the mining sector which are intended for the conservation and sustainability of the environment in which they operate.

On the other hand, the geological resources and reserves of coal measured in the country are around 6648 million tons (MT), while the reserves indicated are in the order of 2322 MT, and are located in the following areas of the country, as follows:

zone	Measured reserves	Reservations indicated	Type of coal
Antioquia	90	225	Thermal
Boyacá	170.4	682.7	Thermal and Coking
Cauca	16.4	66.8	Thermal
Cease	1933	589	Thermal
Córdoba	381	257	Thermal
Cundinamarca	241.9	538.7	Thermal and Coking
Guajira	90	-	Thermal
N. Santander	68	101	Thermal and Coking
Santander	57.1	114	Thermal and Coking

Valle del Cauca	20.1	22.4	Thermal
Country Total	6647.9	2596.6	

Table 2 Coal Resources and Geological Reserves

Source: Mining-Energy Planning Unit, 2019

As can be seen in the table above, the main large-scale and open-pit coal projects are located in the departments of Cesar and La Guajira, while the small and medium-scale operations, mostly underground, are mainly located in the departments of Cundinamarca and Boyacá (National Mining Agency, 2020).

Destination of Taxes for the Protection of the Environment

The taxable base to calculate the tax that is destined for the protection of the environment is the property tax that the owners of the mines must pay. From this base, a percentage is applied that is different in each municipality and for this purpose the corresponding Income Statutes were consulted. It should be noted that this percentage is transferred to the Regional Autonomous Corporations CAR, whose entities are responsible for the administration and protection of the environment and renewable natural resources in their respective jurisdictions. The different rates applied are detailed below:

Municipality	Percentage destined for the car	Norm
Lenguazaque	15% of the total collected property tax from urban, rural and specific destination properties.	Agreement of August 5, 2019, Article 42
Simijaca	1.5*1000 of the value of the appraisal base of property tax settlement	Agreement of December 25, 06, 2021, Article 44
Tausa	15% of the total collected from property tax	Agreement 045 of 2013, Article 37

Table 3

Percentage of property tax allocated to environmental protection

Source: Prepared by the authors based on the income tax statutes subject to revision.

As can be seen in the table above, the municipality of Lenguazaque applies a rate of 15% of the total property tax collected from urban, rural and specific destination properties, while the municipality of Tausa applies 15% on the total property tax collected. As for the municipality of Simijaca, it contemplates a different base and charges 1.5*1000 of the value of the cadastral appraisal base of the property tax.

The adequacy of the resources collected for environmental protection depends, among other aspects, on the invoicing of property tax in accordance with the updated taxable bases; collection management; the actions against the prescription of the tax; the implementation of the Multipurpose Cadastre in accordance with Law 1955 of 2019.

Environmental Tax Collections for the Period 2019 To 2024

In order to determine the collections of the environmental tax, the budget executions of each municipality under study were consulted with the following results:

Municipio	2.019	2.020	2.021	2.022	2.023	2.024	Total
Lenguazaque	157.855.840	149.680.461	163.577.121	124.607.200	140.560.534	130.465.936	866.747.092
Simijaca	308.452.812	301.424.230	350.244.970	365.989.056	458.208.452	298.806.597	2.083.126.117
Tausa	112.281.745	126.673.836	157.271.824	131.740.477	332.173.862	413.649.352	1.273.791.096
Total	578.590.397	577.778.527	671.093.915	622.336.733	930.942.848	842.921.885	4.223.664.305

Source: elaboration based on budget executions located in the chip system of the General Accounting Office of the Nation

Table 4 Environmental Tax Collection

As can be seen in the table above, the own revenues collected from the environmental surcharge for the period 2019 to 2024 in the municipality of Simijaca amounted to \$2,083,126,117, followed by the municipality of Tausa with \$1,273,791,096 and finally the municipality of Lenguazaque with \$866,747,092.

Sources of Financing for Environmental Expenditure

Municipalities	Own resources	Managed Resources	Royalties	Other sources	General system of SGP shares	Total Resources
Lenguazaque	25.692	0	0	0	85.701	111.393
Simijaca	574.397	17.000	0	19.269	86.486	697.152
Tausa	0	0	0	212.105	16.797	228.902

Table 5 Sources of Environmental Financing Expressed in Thousands Of Pesos

Source: Authors' elaboration based on the SIEE report, indicative plans 2016 to 2019 DNP.

The information corresponds to the execution of the municipal development plan found on the SIEE platform for each of the municipalities under study.

Own resources, corresponding to territorial taxes such as industry and commerce, property tax, among others; the resources managed, which are the product of the fulfillment of the functions of the local representative and that can be obtained from Non-Governmental Organizations, Multilateral Organizations, individuals, etc.; resources from other sources correspond to the Regional Autonomous Corporation; the resources of royalties are those from the General System of Royalties and the resources of the General System of Participations are those that are transferred directly from the National Planning Department.

As evidenced in the table above, the largest financier of environmental expenditure corresponds

to own resources, followed by other sources of resources, which can lead to the conclusion that actions aimed at protecting and conserving the environment are being financed with the taxes paid by taxpayers in each municipality under study.

Tax Reform Law 2277 of 2022

The 2022 tax reform called "For equality and social justice", contemplates, among others, the repeal of the deductibility of royalties in income tax. This situation leads to an increase in the taxable base for taxpayers who exploit the subsoil, as is the case in the mining sector. However, the Constitutional Court's ruling C-489 of 2023 declared unenforceable paragraph 1 of article 19 of Law 2277 of 2022, which established that royalties for the exploitation of non-renewable natural resources would not be deductible in income tax.

According to the Colombian-American Chamber of Commerce Amcham Colombia, the general royalty system (SGR) for the period 2023-2024 will have an amount of \$31.3 billion, which exceeds the amount expected to be collected with the tax reform (\$23 billion).

Regarding the rate, Law 2277 of 2022 amended article 240 of the ET and in paragraph 3 establishes the income tax rate for coal or lignite coal extraction companies based on the average monthly price of the last 120 months with rates ranging from 40% to 45%. This situation does not encourage this sector.

Mining Sector in Colombia

Colombia is a country with great potential for investment in mining exploration; only 3.1% of its surface is dedicated to mining, that is, 1.35% is dedicated to exploration, 0.35% to construction and assembly and 1.42% to exploitation, according to information collected by EITI Colombia.

According to the bulletin of the Ministry of Mines and Energy (2020), the existence of a high potential for mineral resources has been evidenced, especially such as gold-silver, copper, iron and emeralds, which have been established as strategic by the Ministry of Mines and Energy.

In terms of energy resources, Colombia has the largest proven reserves of coal in Latin America, which allows it to have some of the largest projects of this mineral worldwide and to rank as the fifth exporting country and eleventh producer in the world context.

Economic Information

Year	Production (million tons)	Royalties (million usd)	Exports (million tonnes)
2019	85.4	610.0	74.7
2020	53.5	292.2	71.2
2021	52.9	498.7	59.7

Table 5 Economic Information

Source: National Mining Agency (2022)

According to information from the national mining agency (dated May 31, 2022), Colombia ranks twelfth (12th) worldwide as a coal producer and first place in Latin America. At the end

of 2021, Colombia had proven reserves of 4,554 Mt of anthracitic and bituminous coal, the largest in Latin America (46.6%); they correspond to approximately 0.6% of the World Reserves.

Compared to GDP, in 2021 coal represented 56% (USD 2,393 million) of mining GDP, 0.72% of national GDP and 82.83% of total mining royalties collected.

Discussion

As evidenced in the results obtained, Colombia has great potential in the mining sector (coal) placing itself in the first places as exporters of coal in Latin America and worldwide. However, this economic sector faces high tax rates at the national and territorial levels.

As for ecological taxes, there is a carbon tax at the national level and at the territorial level a series of taxes that present difficulties in their collection due to different items, namely:

- The territorial entities do not maintain uniformity in the determination of the taxable base for the calculation of the tax

- Lack of updating of the cadastral appraisal

- The administrative structure of the territorial entities needs to be strengthened in order to achieve the budgeted collection

Conclusions

- At a global level, ecological taxation was born as a response to the economic need to correct environmental externalities through the imposition of carbon taxes, eco-taxes and market systems.

In Colombia, ecological taxation has had a gradual process, starting with the imposition of environmental surcharges and consolidating with the creation of the carbon tax in the national tax system with the issuance of Law 1819 of 2016.

- The taxes invested in the conservation and preservation of the environment in the municipalities under study are not representative to compensate for the effects of mining activity.

The Income Statutes do not clearly show the contribution to the environmental component

- There is a lack of cadastral updating, in order to obtain greater resources for the Regional Autonomous Corporation CAR. It should be noted that, on this basis, the property tax is settled and a percentage of the collection is allocated for the protection of the environment.

- Law 2277 of 2022 amended Article 115 of the tax statute, not allowing royalties to be deducted as of January 1, 2023, increasing the taxable base on which the income tax rate is applied. However, the Constitutional Court, through ruling C-489 of November 16, 2023, declared this rule unenforceable, generating equity with the mining sector.

- The coal sector is a generator of employment

- The coal sector contributes to the country's economy, taking into account that it ranks sixth as a coal exporter in the world with 4.45%, after Australia, Indonesia, Russia, the United States and South Africa.

Neuro management provides managers with the tools they need to manage their own decisions on environmental impact and responsibility, contributing to better communication and a more collaborative work environment. This is crucial in industry, where interaction between managers according to the equitable distribution of the environment. (Aragón, 2024)

-The rate of coal or lignite coal extraction companies based on the average monthly price of the last 120 months will have a rate between 40% and 45% as of January 1, 2023, causing an increase in income tax.

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