

COMBATING CLIMATE CHANGE WITH EXTRACTIVES REVENUES

Colombia and Peru Case Studies and
Implications for Latin America

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Foreword

I am pleased to present “Combating Climate Change with Extractives Revenues: Colombia and Peru Case Studies and Implications for Latin America,” a report by Lisa Viscidi, director, and Nate Graham, associate, of the Energy, Climate Change & Extractive Industries Program at the Inter-American Dialogue.

Latin America is one of the world’s richest regions in natural resources, and the oil and mining sectors contribute a significant share of fiscal revenues in many of the region’s economies. But these industries are on the cusp of major longer-term shifts in their operations and will face likely declining demand for their emissions-generating products as a result of efforts to combat climate change. The production of fossil fuels, minerals and metals also directly generates significant emissions. As economies seek to rebuild in the aftermath of the Covid crisis, there is an opportunity to do so in a way that accelerates climate change mitigation and adaptation and shapes more sustainable economic models. Revenues from the extractive industries can provide crucial resources in this effort. Leveraging these funds in the fight against climate change could also offset the negative environmental impacts of these industries and boost countries’ efforts to diversify away from fossil fuels for energy consumption.

This report examines the cases of Colombia and Peru, two resource-rich nations that distribute revenues from extractive industries to subnational governments. Based on analysis of the mechanisms for allocating these funds and their spending patterns to date, as well as interviews with experts, it seeks to spark an important conversation about how these funds can catalyze progress toward these countries’ climate goals and contribute to a sustainable recovery from Covid-19. The report concludes with some suggestions for a path forward.

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INTRODUCTION

Latin America is rich in natural resources. The region is home to 19 percent of the world’s oil reserves and 8.5 percent of its oil production, as well as 4.1 percent of natural gas reserves and 5.3 percent of global gas production.¹ Brazil, Mexico, Colombia, Argentina, Ecuador, and Venezuela are all important oil producers, while Argentina, Trinidad & Tobago, Mexico, Brazil, Bolivia, Peru, and Colombia are major producers of natural gas.

Latin America’s metal and mineral wealth is even greater (see Figure 1). Chile is by far the world’s largest copper producer, followed by Peru, and Mexico is also in the top ten.² Peru, Mexico, Brazil, and Argentina are all top-15 gold producers.³ Several Latin American countries are also major producers of lithium, zinc, nickel, tin, silver, and iron ore.

Because of the region’s vast natural resource endowments, extraction of these resources accounts for an outsized share of its gross domestic product (GDP). Natural resource rents accounted for 4.4 percent of GDP in Latin America and the Caribbean in 2018 compared to

a global share of 2.6 percent. In certain countries this share is much higher—for instance, Chile (12.0 percent), Peru (8.9 percent), Bolivia (7.8 percent), and Ecuador (7.7 percent).⁴ During periods with higher commodity prices, the weight of natural resource extraction in regional GDP grows—in 2008, the regional average was 7.8 percent. Though the extractive industries are largely capital-intensive, they are also an important source of employment, accounting in 2015 for 134,000 direct jobs in Chile, 202,000 in Colombia, 345,000 in Mexico, and 190,000 in Peru. Indirect employment is several times greater—between three and seven times greater in Colombia, for example, and up to nine times greater in Peru.⁵

Natural resource revenues also frequently represent a significant share of fiscal revenues. In 2018, fiscal revenues from hydrocarbon extraction averaged 2.7 percent of GDP (unweighted) across nine hydrocarbon-producing Latin American and Caribbean countries, led by Ecuador (8.0 percent), Bolivia (4.6 percent), and Mexico (4.2 percent).⁶ The figures for mining were lower across 11 mining countries in the region—the average share was 0.4 percent of GDP, led by Chile (1.4 percent), Peru

FIGURE 1: LATIN AMERICA’S SHARE OF GLOBAL NATURAL RESOURCE PRODUCTION AND RESERVES

Sources: BP Statistical Review of World Energy 2020, USGS Mineral Commodity Summaries 2020

RESOURCE	SHARE OF GLOBAL PRODUCTION (%)	SHARE OF GLOBAL RESERVES (%)
Oil	8.5	19.0
Natural gas	5.3	4.1
Copper	43.9	39.1
Lithium	32.1	61.1
Gold	12.0	15.0
Silver	51.1	36.6
Nickel	4.4	18.5
Tin	17.4	25.7
Zinc	19.6	18.3
Iron ore	21.3	17.1

(0.9 percent), and Bolivia (0.9 percent).⁷ Fiscal revenues from hydrocarbons and mining as a share of GDP most recently peaked in 2011, during which the regional averages were 6.0 percent and 0.9 percent, respectively.

Although international demand for and prices of commodities have fallen somewhat in 2020 amid a global economic slowdown, and production has been delayed by Covid-19-related restrictions, extractive industries are expected to play an important role in an eventual economic recovery in many Latin American countries. Latin America is among the regions hardest hit by the virus, both in terms of Covid-19 cases and deaths and in terms of economic impacts. Credit rating agency S&P expects an 8.5 percent economic contraction in 2020. Within this context, it is more important than ever that fiscal revenues from the extractive industries be invested smartly and effectively.

However, the oil and mining industries are also confronting radical longer-term shifts in their operations and demand for their products as a result of climate change. As the world's greatest source of greenhouse gases, the fossil fuel industry has a direct impact on emissions, and oil, natural gas, and coal will likely face a decline in demand as countries impose measures to fight climate change. On the other hand, demand for other commodities, such as copper, lithium, and cobalt, will likely increase as consumption of these metals for clean energy applications, from batteries to electric vehicles, accelerates. Thus, the contributions of these industries to government coffers could increase. The production of natural resources also generates significant emissions through energy generation, transport, and fugitive emissions during extraction. The oil and gas sector is directly responsible for 10 percent of global greenhouse gas emissions,⁸ while mining of minerals and metals causes another 10 percent of the world's energy-related emissions.⁹

Many Latin American countries have set goals to reduce their emissions by cutting fossil fuel consumption, investing in cleaner energy, and fighting deforestation, driven in part by their own vulnerability to the impacts of climate change. Some of the region's oil- and mining-dependent countries have made ambitious pledges within the framework of the 2015 Paris Agreement, which aims to limit the global temperature rise to "well below" 2 degrees Celsius—and preferably below 1.5 degrees—above pre-industrial levels. In 2020, amid one of the most active hurricane seasons on record in the Caribbean and an unusually intense year for forest fires in Brazil and elsewhere, countries are set to submit plans that raise the mitigation ambitions declared in Paris. One of the

first countries to do so, for example, was Chile, which has a 2050 goal of carbon neutrality.¹⁰ Meanwhile, Amazon countries have long struggled to keep deforestation in check, and forest protection is a key area for both climate change mitigation and adaptation. Finally, several of the region's resource-producing countries, including Colombia, Peru, and Bolivia,¹¹ are particularly vulnerable to increasingly frequent or severe natural disasters, making adaptation a priority.

Extractive industries are expected to play an important role in an eventual economic recovery from Covid-19 in many Latin American countries.

Therefore, Latin American countries could develop plans to use extractive industry revenues to meet their climate change goals, offset the negative environmental impacts of the extraction and consumption of natural resources, and diversify away from the use of fossil fuels for energy, thereby reducing their carbon footprints. As governments ponder potential economic recovery measures in the wake of Covid-19, they are presented with a unique opportunity to channel stimulus to sustainable development and address the climate crisis.

Colombia and Peru are both examples of Latin American countries with significant natural resource production and a need to more effectively drive climate change mitigation and adaptation. In Colombia, the region's third-largest oil producer and its largest coal producer, fiscal revenues from the extractive industries surpassed \$7 billion in 2018.¹² In Peru, one of the most important global producers of a number of different metals, the mining sector accounts for 11 percent of tax revenues.¹³ Under the Paris Agreement, these countries have both pledged 20 percent reductions in their greenhouse gas emissions relative to a business-as-usual scenario by 2030 (and 30 percent reductions conditional on international support). Their plans include major changes in land use and energy, as well as adaptation measures to address their vulnerability to climate-related weather events.

Furthermore, both Colombia and Peru have systems for allocating fiscal revenues from the extractive industries to subnational governments, both inside and outside resource-producing regions. This means there is an opportunity to design innovative projects tailored to specific local contexts, but this framework can also stymie spending if the system for accessing the funds is inefficient or poorly designed. In both countries, conversations are taking place over how to improve the system, and in Colombia a major reform is being implemented. Funds from the extractive industries could be leveraged to create the low-carbon, sustainable development that communities will need more than ever in the wake of the pandemic. Though Colombia's economy is performing slightly better than the regional average (a contraction of 8.0 percent), it will be in dire need of stimulus. Peru, meanwhile, is experiencing the region's most severe contraction (13.5 percent).¹⁴

To that end, based on data analysis and interviews with local experts, this report seeks to identify the challenges to and opportunities for increasing climate-related spending of subnational fiscal revenues from extractive industries. It analyzes the cases of Colombia and Peru to identify conclusions that may be applicable to other countries. For each country, the report will describe the current sources of extractive industry revenue and how they are distributed to subnational governments. It will consider the ways in which the designs of these systems favor or disfavor spending on projects related to climate change mitigation and adaptation, such as reforestation, sustainable agriculture, energy efficiency, renewable energy, clean transport, and disaster risk reduction, and how this may be affected by the Covid-19 crisis. The report will also characterize the extent of these types of spending to date and assess how and to what extent current policies on the use of extractive revenues contribute to each country's environmental and climate-related goals and promote long-term sustainable and inclusive development.

The report finds that countries could more effectively use extractive revenues for climate-related projects if central governments provided more clear and specific guidance to subnational governments on climate priorities and offered technical assistance to subnational governments for climate-related projects. For their part, subnational governments could educate local communities on the benefits of climate change mitigation and adaptation and build stakeholder buy-in for using funds to these ends. The report also concludes that in the longer term, governments may need to dedicate funds directly for sustainable development while ensuring earmarked funds are spent effectively. Finally, the economic recovery from Covid-19 presents an opportunity to reform systems for spending extractive industry revenues and reorient them towards a more resilient and sustainable development model rooted in climate change mitigation and adaptation.



COLOMBIA

The hydrocarbon and mining industries are important economic sectors in Colombia and generate significant funds that could be leveraged to mitigate Colombia's contribution to climate change and to help the country adapt to its deleterious effects. Royalties from the extractive industries are distributed to subnational governments to spend on investment projects and these municipal and departmental governments have considerable autonomy over their use. Colombia's current royalty system provides numerous potential avenues for projects related to climate change mitigation and adaptation and a reform initiated in 2019 will create channels explicitly for climate change spending. However, this type of spending is currently only a small share of total royalty spending, and a number of obstacles stand in the way of increasing the share. These include problems related to the functioning of the royalty system in general as well as specific barriers for climate-related projects.

Countries could more effectively use extractive revenues if central governments provided more guidance to subnational governments on climate priorities.

Sources of Extractive Revenue

OIL & GAS

Colombia is a major regional oil producer, accounting for 11 percent of Latin American production in 2019 (see Figure 2). The oil sector represented 3.7 percent of

FIGURE 2: COLOMBIAN OIL & GAS PRODUCTION AND RESERVES, 2019

Source: BP Statistical Review of World Energy 2020

METRIC	QUANTITY	SHARE (GLOBAL, %)	SHARE (LATAM, %)
Oil production	886,000 b/d*	0.9	10.9
Proved oil reserves	2 billion barrels	0.1	0.6
Natural gas production	1.3 Bcf/d*	0.3	6.4
Proved natural gas reserves	3.6 Tcf*	0.1	1.2

*b/d = barrels per day, Bcf/d = billion cubic feet per day, Tcf = trillion cubic feet

Colombia's GDP in 2019 and accounted for 40.4 percent of exports, more than any other good.¹⁵

The Colombian state extracts rents from oil and gas production through several mechanisms. The most important for the purposes of this study are royalties, since these funds are distributed to subnational governments and are more flexible than other revenue sources. Since subsurface minerals in Colombia legally belong to the state, companies extracting oil and gas pay royalties to the National Hydrocarbons Agency (ANHⁱ). Law 756 of 2002 established a sliding scale of royalty rates, from 8 percent of the value of production on oil fields producing up to 5,000 barrels per day (b/d) to 25 percent on fields producing more than 600,000 b/d. The royalties paid for natural gas are a fraction of those for oil—80 percent for onshore extraction and offshore extraction less than 1,000 feet in depth, and 60 percent for extraction in deeper waters.¹⁶ In 2018, oil and gas extraction yielded roughly \$2.2 billionⁱⁱ in royalties.¹⁷

The sector also provides other sources of state revenue, including corporate income tax, economic rights paid to the ANH, and dividends from state oil company Ecopetrol (see Figure 3).

The Covid-19 crisis and the crash in global oil demand and prices that it triggered will have a considerable impact on Colombia's oil revenues. According to Colombia's Ministry of Mines and Energy (MME), average oil output for the first eight months of the year was down 10.6 percent to about 800,000 b/d,¹⁸ well below the initial 2020 projection

of 900,000 b/d.¹⁹ Recovery has been slow, with only a 1.4 percent increase in production between May and August of this year.²⁰ The impact of this shock on royalties depends not only on production but also on the oil price. International oil benchmark Brent dropped from \$60 per barrel in January to just \$20 per barrel in April and has since only partially recovered to around \$40/barrel between June and October.²¹ However, while oil revenues are somewhat lower this year than last, government officials have said repeatedly that they envision the sector serving as a key source of income to help drive Colombia's economic recovery.

MINING

Colombia is also a major producer of several minerals. In 2019, coal (89 percent), nickel (5.3 percent), and precious metals (4.3 percent) were the mined resources that produced the greatest royalty revenues for the country.²² Coal production of 82.4 million metric tons accounted for 80 percent of Latin America's output and 1 percent of the global total.²³ Coal also represented 14.4 percent of the country's exports.²⁴ In addition, Colombia produced 1.5 percent of the world's nickel²⁵ and 1.1 percent of its gold²⁶ in 2019.

Mining companies pay a royalty for the extraction of resources. The rate depends on the product being mined, as outlined by Law 756 of 2002, which revised article 16 of Law 141 of 1994.²⁷ The royalty rate is highest for nickel, at 12 percent. For coal it is 5 percent for extraction below 3 million metric tons per year and 10 percent for extraction above that level. For gold and silver the royalty is 4 percent. Other sources of government revenue from mining are summarized in Figure 4.

i For ease of reference, the abbreviations of all Colombian entities in this paper employ the Spanish initials used in the country.

ii All currency values in USD unless otherwise indicated.

Mining activity and revenues have also been affected by Covid-19. Although mining operations were exempt from Colombia's lockdown,²⁸ several large coal miners reduced their activities anyway, and the head of the Colombian Mining Association (ACM) said in April that mining activity had fallen 75 percent.²⁹ Gold mining has been an exception, with activity continuing, possibly driven by high gold prices.³⁰ Coal

prices, meanwhile, were already low before the pandemic and experienced a sharp drop but have since recovered.³¹ The sector has rebounded somewhat—by July 6, only one major Colombian miner still had its operations on hold.³² However, revenues for 2020 will be damaged nonetheless by the sharp fall in activity early in the pandemic.

FIGURE 3: SOURCES OF FISCAL REVENUE FROM OIL & GAS IN COLOMBIA

Sources: EY Global Oil and Gas Tax Guide 2019, MME Informe Final EITI 2018

SOURCE	DESCRIPTION	2018 REVENUES*
Royalties	Compensation for extraction of resources owned by the state. Sliding scale from 8 percent of value of production for fields < 5,000 b/d to 25 percent on fields > 600,000 b/d.	\$2.2 billion
Corporate income tax	Corporate taxation of oil and gas activities. Rate of 33 percent in 2019, decreasing by one percentage point each year until reaching 30 percent from 2022 onward.	\$2.2 billion
Economic rights	Several bonuses are paid to the ANH, including rights for use of the subsoil and subsurface during exploration and production, rights for extension of production, and rights paid during periods of high prices.	\$307 million
Dividends	The Colombian state receives dividends from Ecopetrol, which accounts for most of the country's production and in which the state has an 88-percent interest.	\$1.1 billion

*Colombian pesos converted to USD using average 2018 exchange rate according to Exchange Rates UK

FIGURE 4: SOURCES OF FISCAL REVENUE FROM MINING IN COLOMBIA

Sources: ANM, EY Colombia Mining and Metals Tax Guide, EY Global Oil and Gas Tax Guide 2019, MME Informe Final EITI 2018, MME

SOURCE	DESCRIPTION	2018 REVENUES*
Royalties	Compensation for extraction of resources owned by the state. Rate varies from 1 percent to 12 percent depending on the resource.	\$586 million
Corporate income tax	Corporate taxation on mining activities. Rate of 33 percent in 2019, decreasing by one percentage point each year until reaching 30 percent from 2022 onward.	\$547 million
Surface canon	Fee paid during the exploration and construction and assembly phases. Depends on the area and the length of the phase, varying from 0.5 to 3 minimum legal monthly wages per hectare. Established by Law 1753 of 2015, which modified the mining code.	\$2.1 million
Economic compensations	Additional compensations may be included in contracts and may have to do with negative environmental impacts of mining.	\$204 million
Gold/silver/platinum tax	Decree 1073 of 2015 established a 3 percent tax on alluvial gold, silver, and platinum mined on private property, and 2 percent on vein mining of these metals.	\$3.3 million

*Colombian pesos converted to USD using average 2018 exchange rate according to Exchange Rates UK

Current Distribution of Oil & Gas and Mining Royalties

Though Colombia has multiple streams of government revenue from extractive industries, royalties are the extractives revenues spent by departmental and municipal governments. Governments also have great flexibility in how they spend royalties. In contrast, the revenue from corporate income taxes paid by oil and mining companies goes directly into the budget of the central government, which has many fixed obligations and little ability to earmark further funds for specific purposes like climate change mitigation. This is especially true in light of the Covid-19 crisis, which will increase the demands on the central government to provide flexible funds to finance the economic recovery (the possibility of a “green recovery” notwithstanding) and has highlighted the need for such flexible funds to deal with future crises.

The system whereby Colombia currently allocates royalties from extractive industries is rooted in a 2011 constitutional reform, which amended articles 360 and 361 of the constitution and created the General Royalties System (SGR, the system of entities, procedures, and regulations that manages the spending of Colombia’s royalties), through Legislative Act 05 of 2011. This reform took place amid expected growth in fiscal revenues from extractive industries and in an effort to more effectively leverage these revenues to address inequality and poverty. It also sought to distribute royalties more evenly—previously, 80 percent were reserved for territories producing natural resources³³—and resolve problems such as misuse of funds and institutional inefficiency and weakness under the existing system.³⁴

During the process of reaching a peace agreement between the Colombian government and the Revolutionary Armed Forces of Colombia (FARC) after decades of conflict, Legislative Act 04 of 2017 further modified article 361 of the constitution to allocate additional funds for 20 years to subnational governments, especially those most affected by the violence. The Peace Allotment established by Legislative Act 04 of 2017 represents 6.6 percent of the SGR’s funds and is dedicated to financing investment projects that implement the peace agreement signed with the FARC in 2016. Rather than being distributed proportionally to territorial entities (subnational governments), funds are awarded to projects as they are submitted, and competitive tenders may also be held. This fund has a particular focus on sectors related to rural

development, improving competitiveness and productivity, and repairing the social fabric in post-conflict areas.³⁵

Another 9.5 percent of SGR revenues are distributed to municipalities and departments through the Science, Technology, and Innovation Fund. The purpose of this fund is to increase the scientific, technological, and innovative capacity and competitiveness of the territorial entities, including in sectors such as biotechnology, information technology and communications, and sustainable growth.

In addition to the Peace Allotment and the Science, Technology, and Innovation Fund, more flexible funds are also distributed to departments and municipalities. The amount set aside for these funds grows annually at a rate equal to half the growth rate of the total SGR revenues, meaning the percentage share of royalties varies by the year. According to the MME, these funds currently combine for about 56 percent of all royalties.³⁶

Direct Allotments (ADs) account for 20 percent of these funds and are distributed to producing departments and municipalities (as well as those through which natural resources are transported) in amounts proportional to the volumes produced/transported, prices, and other conditions as determined by the MME, ANH, and National Mining Agency (ANM). ADs account for about 11.2 percent of the current distribution of royalties.

Two funds, the Regional Compensation Fund (FCR) and Regional Development Fund (FDR), account for the other 80 percent of funds distributed directly to territorial entities. The royalties split between these funds are further distributed to municipalities and departments based on formulas incorporating poverty and population criteria. Through the FCR and FDR, about 10.7 percent of all royalties are assigned to municipalities and 34 percent to departments under the current system.

The royalties distributed through ADs, the FCR, and the FDR must be used for development projects that meet certain investment criteria discussed in the next section. Each of these funds plays a role in the government’s goal to create more equitable resource-based development both inside and outside of producing regions—ADs provide extra compensation for areas where extraction and transportation of natural resources take place, FCR funds are directed toward financing projects with either regional or local impact in the poorest areas, and FDR funds are meant to be reserved for projects with regional impact.

Finally, after all of these funds have been distributed, the remaining revenues are deposited in the Regional Savings and Stabilization Fund. These funds can be drawn upon to smooth royalty income over time, saving during years with higher income in order to mitigate the impact of years with lower income.

Current Procedure for Spending Royalties

Under Colombia's current system, the responsibility for approving projects that use funds from the General Royalties System lies with specially designated groups called Collegiate Bodies for Administration and Decision-making (OCADs). The OCADs were created by the 2011 reform and are tasked with evaluating and approving the projects developed by territorial entities.

According to Law 1530 of 2012 (which governs the functioning of the SGR), in their decisions, OCADs are meant to prioritize projects with specific development objectives³⁷ such as improving infrastructure and education, investing in minority communities, deepening regional integration, and meeting the goals outlined in the national development plan and those of the territorial entities. Among the priorities relevant for this study are ecosystem restoration and reforestation and the expansion of non-conventional renewable energy such as wind, solar, and geothermal.

Each OCAD is composed of three votes, each from a different level of government or from universities, with two votes required to approve a project. Each funding source is overseen by the corresponding OCAD. For instance, for the use of royalties assigned to a municipality, the relevant municipal OCAD would be responsible, whereas for royalties belonging to the Peace Allotment, the Peace OCAD would assess the project.

Any projects using royalty funds must go through the OCAD approval process. This complex process involves numerous administrative entities and may vary depending on the OCAD, but it is generally structured as follows. In theory, any person or entity can formulate a proposal using a designated methodology, but in reality, the complex structuring process incurs major costs and, in most cases, projects can only be presented to the corresponding OCAD by the government of the territorial entity. The DNP or departmental planning secretariat verifies that the proposal meets methodological and other requirements. The project

is then reviewed by an advisory committee which may include members of business and professional groups, social organizations, ethnic communities, and universities.³⁸ The committee issues an opinion about the suitability and technical, financial, and environmental robustness of the project, but the OCAD is not bound by its opinion. Technical roundtables are also convened to issue an opinion by the national ministry or administrative department in charge of the project's sector. Following these opinions, the OCAD determines whether or not the project is viable. Projects deemed viable then go through a prioritization process based on criteria of pertinence, viability, sustainability, impact, and consistency with local and national plans and policies. In practice, there are rarely more funds requested than available.³⁹ After being deemed viable and prioritized, projects are approved in the order of priority based on the availability of funds. In response to the Covid-19 crisis, the process for approval of projects funded by royalties was expedited.⁴⁰ The Colombian government's Emergency Mitigation Fund (FOME) drew 14.8 trillion Colombian pesos (about \$3.7 billion USD) from the royalty system—12.1 trillion from the Regional Savings and Stabilization Fund and 2.7 trillion from the Territorial Pension Fund, Fonpet.⁴¹

Criticisms of the Royalty System

The royalty system put in place by the 2011 reform has been subject to a number of criticisms. One is that, although the 2011 reform succeeded in expanding the geographic distribution of revenues by increasing revenue-sharing with non-producing regions, this has resulted in a fragmentation of the SGR's resources into too many small projects and a failure to achieve the large-scale regional development that was envisioned. In many cases, individual municipalities have received too little money to accomplish anything of scale.

Though departmental governments have received greater sums, a lack of sectoral prioritization and regional vision on the part of the national government has inhibited the strategic allocation of funds and led to governors and mayors instead executing projects to satisfy their own political interests. Although there is a list of qualified categories for spending royalties, it is very long, with over 100 investment subsectors.⁴² A lack of vision of what "regional" means and the assignment of regional development funds to individual departments has led to funds intended to have a regional impact being spent

within a single department or even a single municipality. The absence of a regional institutional framework is a principal obstacle to the approval of interdepartmental projects and has left the allocation of regional funds primarily to the political will of governors.

Another criticism is that the OCADs do not serve their stated purpose. In the absence of a concrete investment strategy, instead of assessing and prioritizing projects, they effectively only fulfill the function of technical revision of projects. In practice, royalties have served as an extension of funding for the development plans of territorial entities, rendering the stated “prioritization” function of the OCADs obsolete. Ultimately, the technical roundtables that precede OCAD approval, which are seen as valuable in technically improving projects, are where the assessment of projects takes place, as well as the approval, effectively. Projects that are approved by the technical roundtables are rarely not approved by the OCAD, and are usually approved unanimously, especially in the regional OCADs. A December 2017 report by Colombia’s auditor-general reported that of 567 projects approved by regional OCADs, only eight had received a negative vote.⁴³ Since all of the governors in a region have a single combined vote in the regional OCAD, and projects are executed by the departments, there is a tacit agreement that governors do not oppose proposals in other departments.

Critics have also pointed to a slow approval process, which is complex and suffers from bottlenecks such as changes in personnel, discrepancies about the criteria for project approvals, and the subjectivity of reviewers. When added to the fact that territorial entities also often lack the technical capacity to develop effective projects, much of the royalties available for investment remain unused—the auditor-general found that 54 percent of the royalties available for investment in 2017-18 were not spent.⁴⁴ The execution of projects is also slow—there is no penalty for the failure of territorial entities to spend funds in a timely manner. Of more than 10,000 projects analyzed by the auditor-general, at least 30 percent took six months to sign their first contract percent.⁴⁵ A separate report found that at the end of 2018, 942 projects with cumulative value of around \$847 million were frozen.⁴⁶

Corruption risks and a lack of transparency have also plagued the system. Accountability during project execution is weak—there is no reliable way to track the state of projects that are in progress, and the semesterly progress reports produced by OCADs lack meaningful analysis of the projects presented and approved.

Systematic and transparent communication channels between local governments and citizens are lacking, weakening the potential role of civil society in project oversight. According to Colombia’s auditor-general, during one five-year period, 840 billion pesos were lost (about \$232 million at current exchange rates), including 40 percent sunk in inconclusive or useless “white elephant” projects.⁴⁷ The same study found that 70 percent of projects awarded through a tender ended with only one offer. The fact that many of the funds that remain unused due to the system’s inefficiency lie in the coffers of the territorial entities also raises the risk of corruption.⁴⁸

Finally, citizen participation is also low—the participation of civil society through advisory committees during the project approval process are considered a mere formality, and there are no more robust mechanisms. As a result, the system has not achieved its goals for social inclusion and equity. A 2020 study found that since 2012, less than 30 percent of the funds available for a “differential focus” on Indigenous, Afro-Colombian, and other ethnic groups have been spent, and most of this has been spent by municipal governments rather than ethnic communities themselves.⁴⁹ It is worth noting that the development plans of these communities often have a focus on protecting their territory, making them more closely aligned with conservation objectives. The net impact of all these flaws in the royalty system is that it has failed to reduce poverty and meet other goals.

Ongoing Reform to the Royalty System

To address these shortcomings and other issues, at the end of 2019, Colombia’s legislature approved Legislative Act 05 of 2019, which again amended article 361 of the constitution and modified the distribution of royalties. A proposal made by the MME to regulate the new law and make major modifications to the procedure for using royalties was approved by Congress and signed by President Iván Duque in September. The new system will take effect on January 1, 2021.

According to the MME, the bill has objectives in four areas:⁵⁰

- **Distribution of resources:** Increase the amount designated for producing regions and invest more in the poorest municipalities. Analysts have noted that

the increase for producing regions is partly an effort to improve an increasingly frayed social license to operate for the extractive industries, especially as the government attempts to move forward with hydraulic fracturing (“fracking”) in Colombia amid declining domestic conventional hydrocarbon reserves.

- **Investment cycle for projects:** Shorten timelines, eliminate bottlenecks, and update procedures.
- **Governance:** Reduce the number of actors in the viability, approval, and execution process of projects. Use regional-level decision-making to ensure the creation of projects with interdepartmental impact.
- **Follow-up, evaluation, and control:** Improve project performance.

There are several important changes in the distribution breakdown, summarized in Figure 5.

A few changes, including several new designations for environmental spending, are worth highlighting for the purposes of this study. First, the share of funds designated for producing regions is more than twice the current share, and poor municipalities also receive more funds. The funds for poor municipalities provided by the FDR and FCR, in addition to receiving a share almost 50 percent greater, will now all be directed to municipalities with a level of poverty greater than 25 percent, whereas before, all municipalities

in categories 4, 5, and 6ⁱⁱⁱ received some funds. Resources will also be specially designated for minority ethnic groups. For this study, it is important to note that of the 15 percent that constitute municipalities’ share of the FDR and FCR, 2 percent (of total royalties) is now reserved for projects related to the environment and sustainable development. Meanwhile, the funds available for departments as part of the FDR and FCR maintain their share of 34 percent, and the Science, Technology, and Innovation Fund receives a slightly increased share of 10 percent, of which 20 percent (2 percent of total royalties) must be spent on projects related to the environment and sustainable development.

Finally, a new “environment” category encompasses 1 percent of funds, which will be directed toward conservation of strategic environmental areas and the national fight against deforestation. In addition, in the event that SGR budget projections are surpassed, 20 percent of excess revenues are placed in this fund.⁵¹ These funds are to be awarded through calls for proposals but the guidelines for their use are yet to be defined. Part of the impetus for this addition is the fact that the government has deemed the environmental impact compensations paid by companies to be insufficient. In

iii Municipalities in Colombia are categorized in seven categories (special, and 1-6) based on criteria that include population and fiscal revenue, generally descending from “special,” which has the highest population/revenue to category 6 with the lowest.

FIGURE 5: CHANGES TO ROYALTIES DISTRIBUTION UNDER 2019 REFORM IN COLOMBIA

Source: MME

FUND CATEGORY	CURRENT SHARE (%)	NEW SHARE (%)
Direct Allotments (ADs)	11.2	25
Municipal Gov’ts – FDR/FCR	10.7	15
Departmental Gov’ts – FDR/FCR	34	34
Science, Technology, and Innovation Fund	9.5	10
Peace Allotment	6.6	7
Environment	N/A	1

total, combining this share of funds with the 2 percent of funds from both the municipal poverty and Science, Technology, and Innovation designations, 5 percent of funds under the new distribution are earmarked for environmental protection.

In order to free up funds for these across-the-board increases for royalty distribution to territorial entities, the costs of operating the SGR are being lowered to 3 percent of royalties (from 5 percent) and the savings rate is being reduced, which may prove controversial given the important role that the Regional Savings and Stabilization Fund has played in the Covid-19 response. Under the current system, this fund and Fonpet together receive more than 20 percent of royalties, a share that will now be reduced to less than 8 percent.⁵²

In an effort to streamline the use of royalties to fund projects, departmental and municipal OCADs were eliminated and subnational governments will take over decision-making on these levels. The national government is expected to provide development guidelines and focus on coordinating entities on the interdepartmental level (through the regional OCADs) to create a greater vision for projects with a regional impact, while giving departmental and municipal governments greater autonomy.

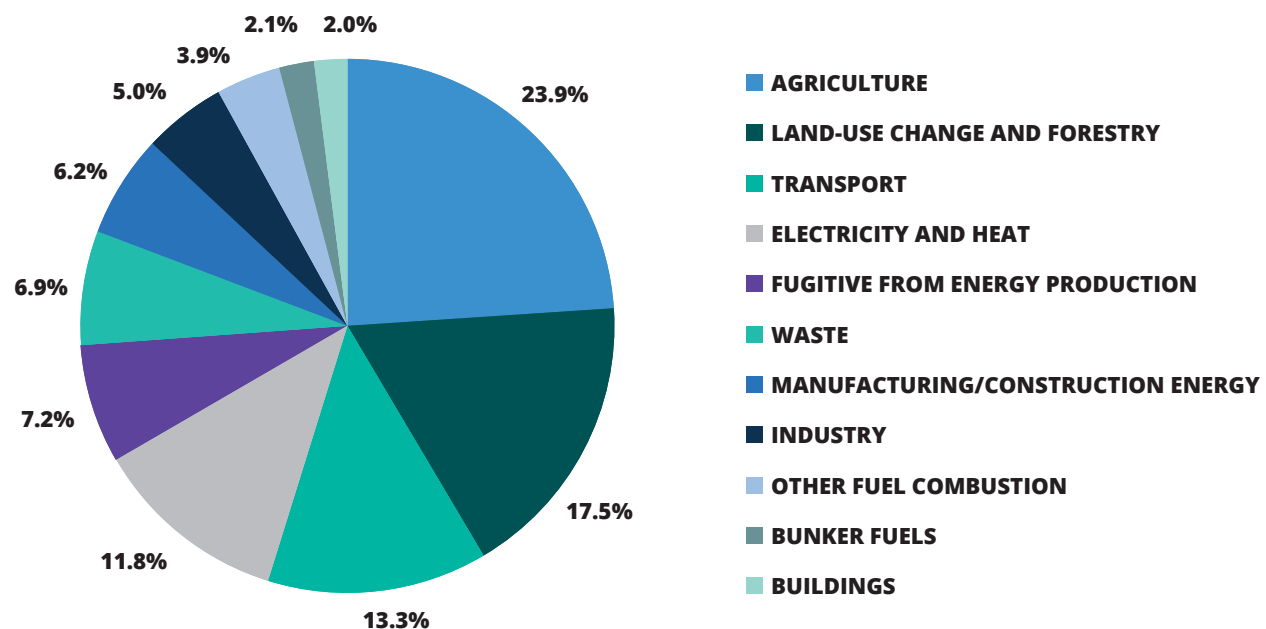
Climate Change Goals

Colombia has an extensive framework of policies and goals related to climate change mitigation, sustainable development, and the environment. The country has made an effort to embed climate action into its national planning and goals, especially since it began developing its Low-Carbon Development Strategy in 2011.⁵³ As a country particularly vulnerable to climate change, due in part to its heavy dependence on hydroelectricity (which accounted for more than 80 percent of generation in 2018⁵⁴), Colombia has also been active in global and regional forums related to climate change. Agriculture and land use together account for more than 40% of Colombia's greenhouse gas emissions (see Figure 6).

Colombia's most important international climate commitment is the Paris Agreement, which it ratified in 2017. In its Nationally Determined Contribution (NDC) under the agreement, Colombia pledged a 20-percent reduction in CO₂-equivalent emissions relative to a business-as-usual scenario by 2030—a 30-percent reduction conditional on support from the international community.⁵⁵ An important set of tools for implementation of Colombia's NDC is the country's Sectoral Mitigation

FIGURE 6: SHARE OF 2016 GREENHOUSE GAS EMISSIONS (CO₂-EQUIVALENT) BY SECTOR, COLOMBIA

Source: CAIT Climate Data Explorer via Climate Watch/Our World in Data



Action Plans, which were created in the context of the Low-Carbon Development Strategy.⁵⁶ These eight plans, which encompass transportation, energy, hydrocarbons, mining, industry, agriculture, housing, and waste, include many concrete mitigation measures and could serve as a potential instrument for guiding climate-related projects funded by royalties.

Colombia’s commitment to climate change on the global stage continued at the 25th Conference of the Parties (COP 25) of the United Nations Framework Convention on Climate Change (UNFCCC), which took place in Madrid in

December 2019. The country declared several additional goals for 2022: a 50 percent reduction in deforestation, the planting of 180 million trees on close to 300 hectares, and an 11 percent share of wind and solar energy in the power matrix (30 percent by 2030).⁵⁷ At COP 25 Colombia also signed a joint declaration of intent with several European governments in which it built on previous forest protection and restoration measures in exchange for financial support, and the country is expected to present a more ambitious NDC by the end of 2020 as part of the first five-year update.⁵⁸

FIGURE 7: CLIMATE-RELATED GOALS AND INDICATORS OF COLOMBIA’S AGENDA 2030

Source: DNP

UN SDG	INDICATOR	CURRENT LEVEL*	2030 GOAL
7. Affordable and Clean Energy	Electricity access	96.5 percent (2018)	100 percent
	Share of installed power capacity from renewable energy	86.7 percent (2019)	73.3 percent
	Energy intensity (terajoules/billion Colombian pesos of GDP)	3.6 (2017)	2.9
	Installed power capacity	17.5 GW (2019)	23.5 GW
11. Sustainable Cities and Communities	Electric vehicles in circulation	1,695 (2016)	600,000
	Hectares of protected areas**	30,271 (2018)	30,620
	Share of municipalities and departments with climate change components in land-use plans†	0.1 percent (2018)	100 percent
	Departments with integral climate change mitigation and adaptation plans†	23 (2019)	32 (100 percent)
	Share of departments and capital cities that incorporate climate change criteria into their development plans†	93.8 percent (2019)	80 percent
13. Climate Action	Greenhouse gas emissions	Baseline	-20 percent
	Integral sectoral climate change plans	2 (2018)	8
15. Life on Land	Share of land surface covered with natural forest	51.9 percent (2017)	51.1 percent
	Annual loss of natural forest	Not provided	0
	Hectares of land under restoration	624.7 (2018)	1,000,000
	Share of GDP from the forest economy	0.79 percent (2017)	2 percent

*Most recent year reported. **Also appears in “Life on Land” category. †Also appears in “Climate Action” category.

Climate change is also incorporated into Colombia's National Development Plan and the country is making efforts to integrate it to a greater degree into municipal and departmental development plans as well (see Figure 7). Two of the 2018-2022 plan's 20 central goals relate directly to climate change: a 30 percent reduction in deforestation (more ambitious plans have since been announced) and an increase in non-conventional renewable energy capacity to 1.5 gigawatts (up from 22.4 megawatts).⁵⁹ The plan also includes other goals related to environmental sustainability, including a reduction of greenhouse gas emissions by 36 million metric tons CO₂-equivalent, climate change adaptation actions taken in every department, and a doubling of the number of hectares with sustainable and conservation-based production systems (such as restoration, sustainable forestry, and agroforestry systems).⁶⁰

Colombia has also developed a sustainable development roadmap called Agenda 2030 within the framework of the United Nations Sustainable Development Goals (SDGs). Colombia has concrete goals for all 17 of the SDGs, including four that demonstrate the country's priority areas in climate change mitigation and adaptation (see Figure 7).

Various other mechanisms already in place could be leveraged to provide greater coordination on climate issues to municipal and departmental governments and to advise subnational governments on the importance of climate change mitigation and adaptation as well as the actions they can take using royalty revenues. For example, Law 1931 of 2018, Colombia's Climate Change Law, served as an important step in planning climate change mitigation and adaptation in Colombia.⁶¹ On the national level, it directed each ministry to identify, evaluate, and incorporate both mitigation and adaptation measures into its respective sector, building on the Sectoral Mitigation Action Plans. On the regional level, the law defined Integral Territorial Climate Change Management Plans (PIGCCTs)—planning instruments for governments and environmental authorities to identify, evaluate, prioritize, and define mitigation and adaptation measures that could be implemented in their jurisdiction. By 2019, 23 of 32 departments had created these. Municipal governments must also design Territorial Climate Change Plans aligned with the PIGCCTs and national policies. The law mandates that climate change mitigation and adaptation also be incorporated into regional development plans and other planning instruments, including departmental and municipal risk management plans. Finally, the law ratified Colombia's National Climate Change Policy, a strategy developed in 2017 to meet Colombia's international climate commitments.

The National Climate Change System (SISCLIMA)—established by Decree 298 of 2016—is a coordination mechanism that could be used to more effectively leverage royalties for climate change mitigation and adaptation. This system of state, private, and nonprofit entities and policies, plans, processes, and information includes nine geographic “nodes” intended to provide inter-institutional regional coordination to promote climate change mitigation and adaptation efforts.⁶²

Finally, other plans that form part of Colombia's climate change framework are the National Climate Change Adaptation Plan and the National Strategy for the Reduction of Emissions from Deforestation and Forest Degradation (REDD+, a UN-based framework).

Recent Spending of Royalties on Climate Change Mitigation and Adaptation

Royalty spending on climate change mitigation and adaptation in Colombia has been extremely limited to date. Using the publicly available MapaRegalías database, which tracks projects that use SGR funds, we identified just 132 climate-related projects accounting for around \$140 million dollars of investment that have been approved since 2012. This is only around 0.75 percent of the nearly 18,000 total projects approved, and 0.9 percent of more than \$15 billion of investment.⁶³ Figure 8 gives a general sectoral breakdown of royalty spending, showing that transport, predominantly roads, has been by far the most popular sector for royalty spending since 2012, followed by education and housing and urban and rural development.

Figure 9 shows investment in climate-related projects for each year since 2012 and the share of total royalty spending that these projects represented. Though climate-related spending remains low, it nearly tripled from 2017 to 2018. This can be attributed to the greater role of climate change in subnational planning and coordination on climate issues following the approval of the National Climate Change Policy in 2017.⁶⁴ The first half of 2020 saw a dip in this share, possibly due to an increase in projects directly responding to the Covid-19 crisis, but the share remains above pre-2017 levels.

FIGURE 8: ROYALTY SPENDING (COLOMBIAN PESOS) BY PROJECT SECTOR SINCE 2012, COLOMBIA

Source: SGR – MapaRegalías database

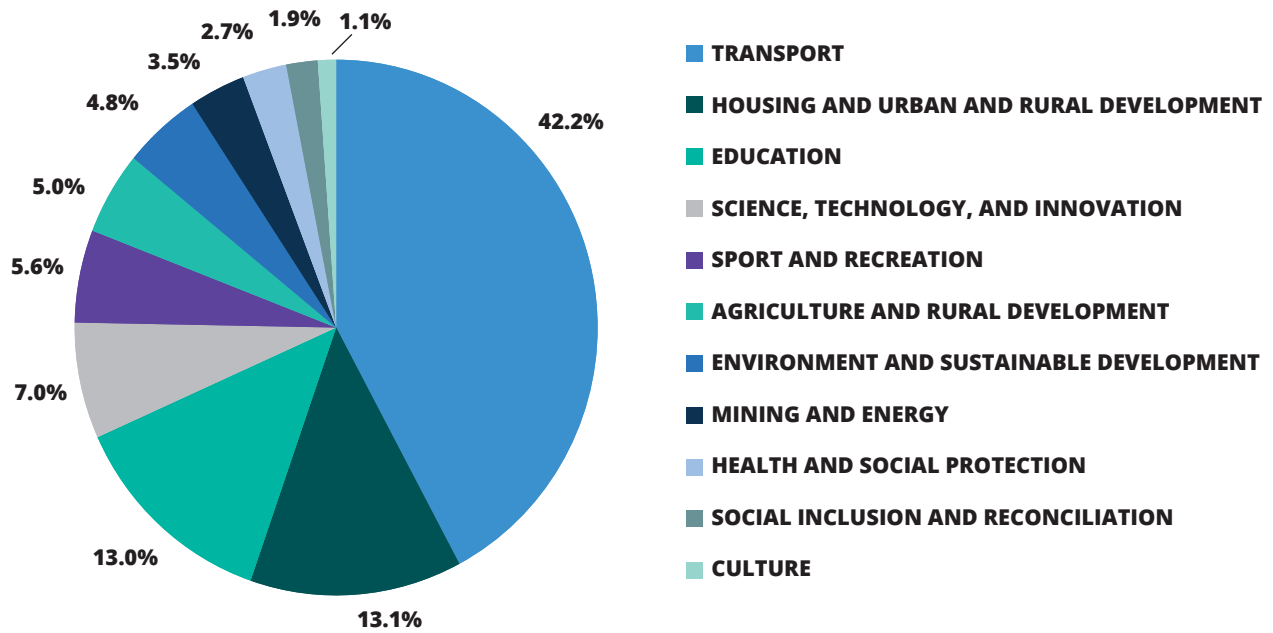
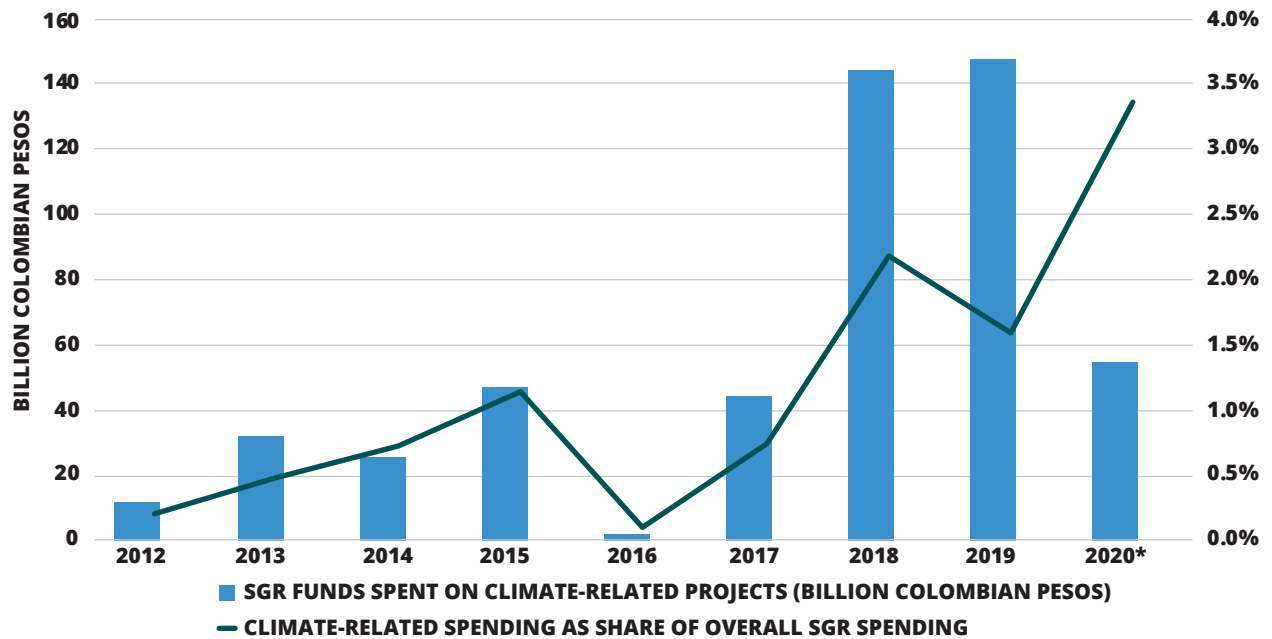


FIGURE 9: ANNUAL SGR RESOURCES SPENT ON CLIMATE-RELATED PROJECTS AND SHARE OF TOTAL ANNUAL SGR SPENDING

Source: Authors' calculations based on SGR – MapaRegalías database

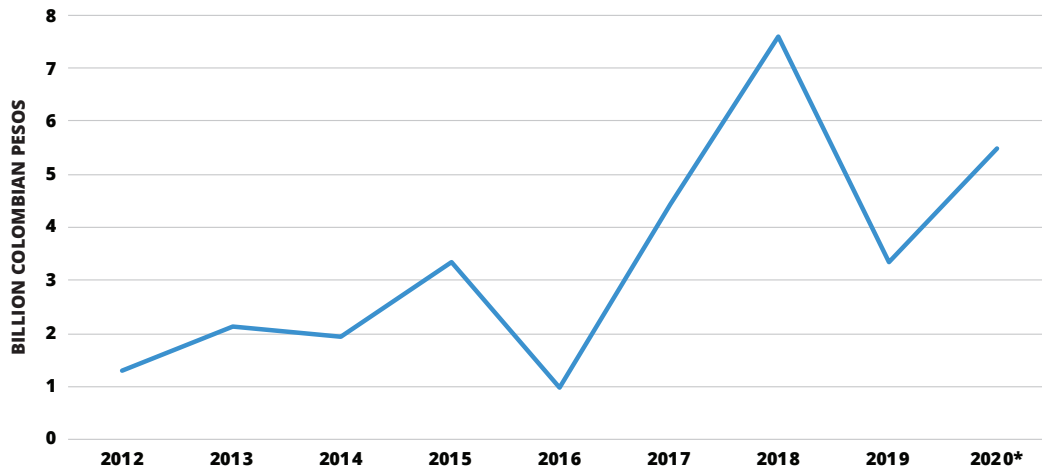


*To June 26

Figure 10 shows that the average size of these projects, in terms of the value of their SGR funding, has significantly increased, including a sevenfold jump from 2016 to 2018. This indicates increasing interest in and/or capabilities to develop larger-scale, more impactful projects responding to climate change mitigation and adaptation needs.

FIGURE 10: ANNUAL AVERAGE SGR VALUE OF CLIMATE-RELATED PROJECTS

Source: Authors' calculations based on SGR – MapaRegalías database



*To June 26

Figures 11 and 12 show how different sources of SGR funding have been utilized in support of these projects, in terms of the number of projects funded by each source and the sum of resources provided by each source. Direct Allotments have funded the greatest number of projects, whereas the Regional Development Fund has provided the greatest share of resources. It is worth noting that the Peace Allotment has provided a disproportionate share of the funding for climate-related projects—almost a quarter, making it the second-greatest funding source, even though it receives less funding than the Regional Compensation Fund, Direct Allotments, and the Science, Technology, and Innovation Fund. The climate-related projects that we identified from the Peace Allotment consist of 16 renewable electrification projects.

FIGURE 11: CLIMATE-RELATED PROJECTS AND SPENDING BY SGR FUNDING SOURCE SINCE 2012

Source: Authors' calculations based on SGR – MapaRegalías database

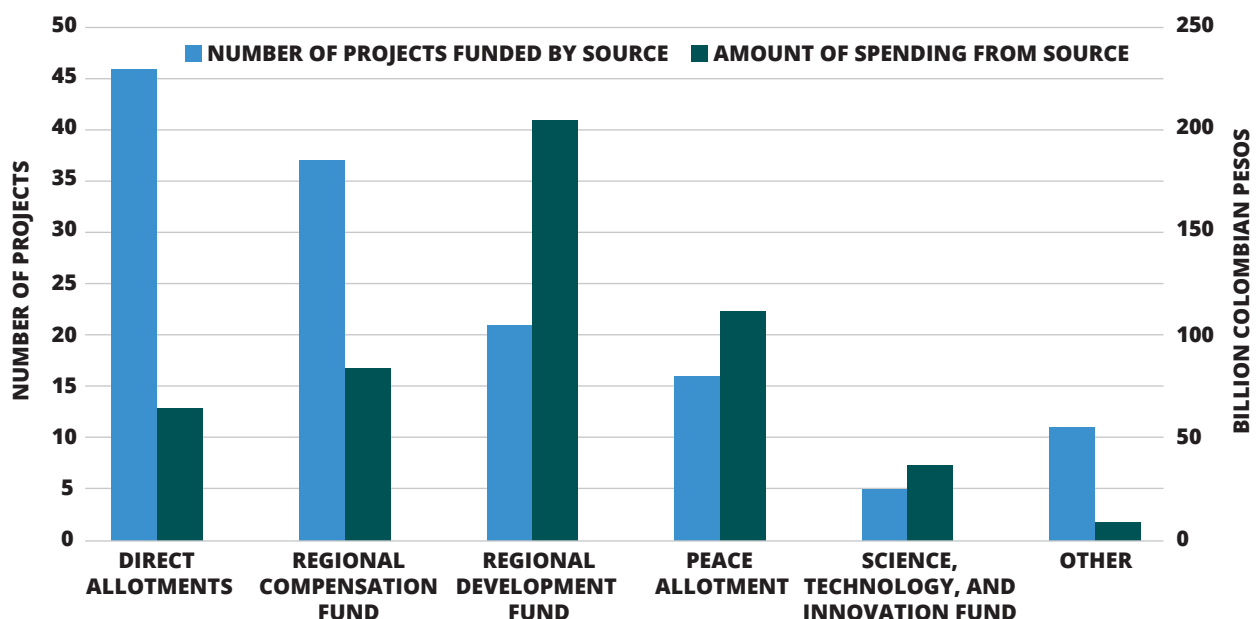
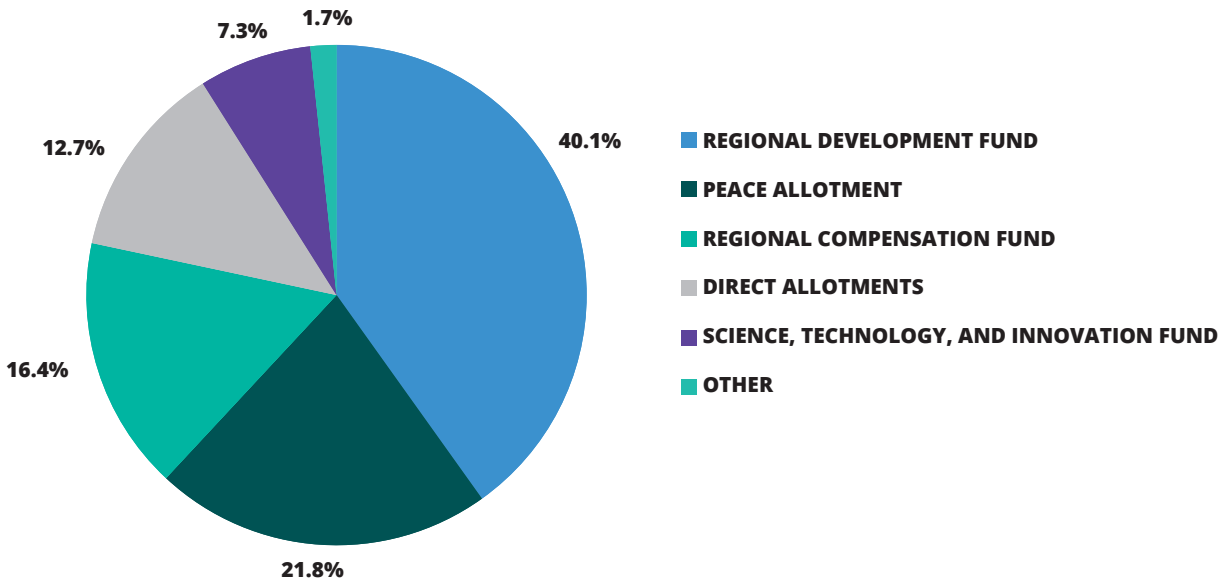


FIGURE 12: SHARE OF CLIMATE-RELATED SPENDING (COLOMBIAN PESOS) BY SGR FUNDING SOURCE SINCE 2012

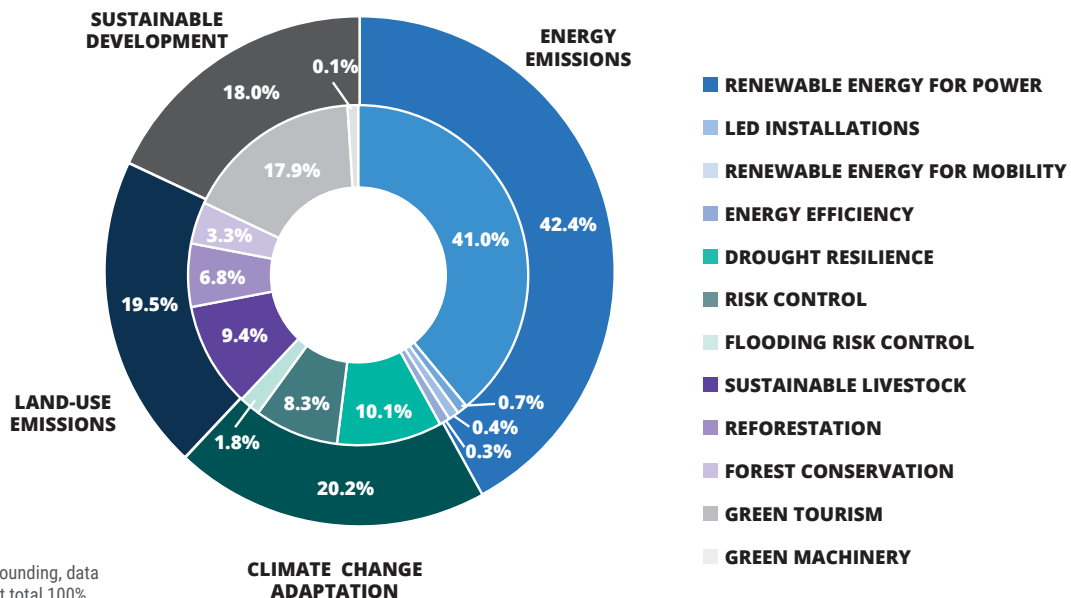
Source: Authors' calculations based on SGR – MapaRegalías database



The outer circle of Figure 13 shows that in terms of direct climate impact, projects that reduce energy emissions through renewable energy and energy efficiency account for the greatest share at 42 percent. Climate change adaptation, reduction of land-use emissions, and sustainable development (through ecotourism and the acquisition of green machinery) all account for roughly equal shares of the remainder. The inner circle shows how spending is broken down by the specific project type. Renewable energy for power holds the greatest share at more than 40 percent, of which more than half of the funding comes from the Peace Allotment. This is consistent with the central role of rural electrification in implementing the peace agreement. Green tourism, drought resilience, and sustainable livestock are the next greatest funding destinations.

FIGURE 13: SHARE OF SGR CLIMATE-RELATED SPENDING (COLOMBIAN PESOS) BY AREA OF CLIMATE CHANGE IMPACT SINCE 2012

Source: Authors' calculations based on SGR – MapaRegalías database

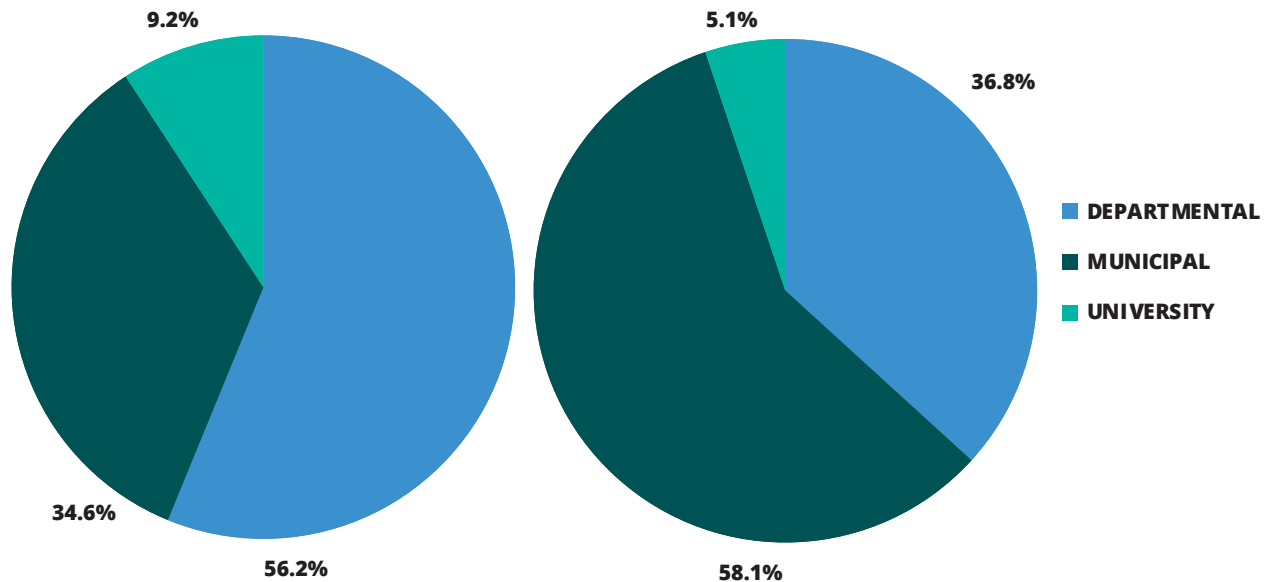


Note: Due to rounding, data labels may not total 100%.

Finally, Figure 14 shows that more than half of climate-related spending has been carried out by departmental governments, while municipalities have executed a little over a third, and universities have accounted for a fairly robust 9 percent. This disproportionate share may derive from the often technical and specialized nature of climate change mitigation and adaptation projects and highlight the need for greater technical assistance to subnational governments, or greater involvement of the universities in their territories. On the other hand, municipalities have executed a greater number of projects than departmental governments, illustrating their smaller average size.

FIGURE 14: SHARE OF SGR CLIMATE-RELATED SPENDING IN COLOMBIAN PESOS (LEFT) AND PROJECTS (RIGHT) BY LEVEL OF PROJECT EXECUTOR SINCE 2012

Source: Authors' calculations based on SGR – MapaRegalías database



Challenges for Climate Change Spending within the Royalty Framework

As underscored in the previous section, only a small share of royalties has been spent on advancing Colombia's climate change mitigation and adaptation goals. However, although there is considerable untapped potential to increase this share, a number of barriers stand in the way of realizing these possibilities.

Bureaucracy and a very complicated process for project approval is a general barrier to the use of SGR resources.

This was one of the general criticisms of the SGR that spurred the 2019 reform. A significant share of funds is not spent in a timely manner or at all due to the complex process for project approval. The rules for the new reform eliminate the municipal and departmental OCADs, leaving

the six regional OCADs as the only geographic OCADs. However, it remains to be seen whether the process that replaces the OCADs will be more efficient, and those that remain could still prove to be overly complicated, especially if they continue to add little value in terms of prioritizing and effectively evaluating projects.

The lack of an overarching regional and national strategy for spending royalties, which leaves prioritization to local political officials, puts climate change efforts at a particular disadvantage because they have historically been a low priority for subnational governments.

Currently the list of possible uses for royalty funds is extensive, providing communities with a high degree of flexibility in terms of the projects they design. Climate change mitigation and adaptation are diverse and often unknown areas whose positive effects are not always tangible and often accumulate in the long term. For instance, the benefits of constructing a system that will prevent increasingly severe floods for several decades may not be obvious, because such

floods have not yet happened (and if they are successfully prevented, they never will). The benefits of mitigation measures are even more abstract. By contrast, mayors and governors often prefer projects that are visible and whose positive effects on the community translate into short-term political support. This is part of the reason that transport infrastructure, especially roads, is so popular, accounting for more than 40 percent of approved project funds since 2012.

The political incentives of officials, which make them inclined to focus on benefits to their own jurisdiction, have also contributed to the fragmentation of funds into many small projects, diluting their impact.

This is often particularly significant for climate change because projects related to protection or restoration of ecosystems tend to be large-scale and cross political boundaries, requiring a coordinated response. Thus, a focus on climate change is at a political disadvantage because of its long-term nature, addressed in the previous point, and its geographic breadth.

The Covid-19 crisis may also make governments at all levels less inclined to prioritize climate change.

Given the economic devastation the pandemic has wrought, communities may be more inclined to spend funds in areas perceived to be greater contributors to economic recovery, and more spending may go to healthcare. The finance ministry will also hesitate to earmark more money for specific purposes like climate change because it would lose access to flexible funds to deal with such emergencies. Thus, royalty spending on climate change is likely to continue falling by the wayside if a more explicit emphasis on climate change is not incorporated into municipal and departmental priorities.

A focus on climate change is at a political disadvantage because of its long-term nature and its geographic breadth.

More specific guidance from the national government on where to direct projects must be balanced with respect for the autonomy of communities to choose how to allocate their royalties.

Direct measures like creating quotas for spending on climate change could simply lead to the development of low-impact, poorly developed projects in order to meet the minimum criteria for accessing the funds. Moreover, subnational governments may be more resistant than usual to restrictions on the use of royalties in light of efforts to recover from the economic effects of Covid-19.

Local communities lack the technical capacity to design and implement climate-related projects effectively.

Even if there were a strong desire to develop climate-related projects, local governments lack the resources to design and execute such complex projects. This is another factor that has contributed to the proliferation of spending on transport infrastructure. With respect to the Science, Technology, and Innovation Fund, many municipalities don't have strong universities or research centers, meaning there is little opportunity in these places to use those funds on local projects.

Citizen participation, already low, will decrease even further under the new reform.

Under the new reform, the advisory committees that accompanied the OCADs are not mandatory. Although these committees were a weak instrument of citizen participation, there remains a risk that they will not be replaced with other mechanisms and the role of civil society in royalty spending will be diminished even further. Given that local governments' political priorities often do not align with climate goals, citizen participation is very important, and a lack of new participation mechanisms under the current reform would be a cause for concern.

The SGR's measures for accountability, transparency, and monitoring of project implementation are poor overall.

Furthermore, there is a risk that the limited mechanisms that the OCADs do furnish in these areas will not be replaced as they are eliminated.⁶⁵ Corruption is a significant problem and the ability to sanction bad actors is limited. This damages climate change efforts just as it damages the whole royalty system—by reducing the funds, which rightfully belong to communities, that are available to them to execute projects.

Opportunities for Further Spending of Royalties on Climate Change Mitigation and Adaptation

Colombia has ambitious goals for climate change mitigation and adaptation and a wealth of revenues from extraction of natural resources that could be leveraged in pursuit of these goals. Though this potential has not been realized to date, and in spite of the challenges presented by the royalty system, there are a number of steps the country could take to seize this opportunity.

Colombia could craft a royalty spending strategy with a clear vision and priorities that are in line with its development plans and climate goals.

Colombia has a fairly robust framework of policies and goals related to both climate change mitigation and adaptation, including its NDC, Climate Change Law, and national and regional development plans. These could lay the groundwork for the prioritization of climate change in royalty spending and serve as guidance to subnational governments. Ongoing efforts to incorporate climate change into development planning at all subnational levels are an important step in raising the profile of climate change in subnational development. The central government could build on these efforts to ensure that royalty spending, which is currently almost completely unrestricted, actually reflects the incorporation of climate criteria into development planning.

Colombia's central government could play a major role in actively disseminating information about climate change to subnational government leaders and citizens. This could serve as an impetus for a greater number of projects.

Rather than explicitly imposing minimum levels of royalty spending on climate change, the central government could more actively communicate with subnational governments and their constituents about the importance of climate change, its effects, and the economic co-benefits of climate-related projects. It could also provide guidelines on what such projects might look like, given that certain types of projects may be unfamiliar. This may be the most effective way to get communities to propose meaningful projects that they are truly invested in. Ensuring the local population appreciates the importance of climate

change mitigation and adaptation and understands how addressing climate change benefits them is also critical to building political support for such projects.

The creation of green jobs in the aftermath of Covid-19 could serve as a catalyst for greater royalty spending on climate change.

Building upon a wider understanding of the economic co-benefits of climate action, royalties could be used to create green jobs as Colombia recovers from the devastation of Covid-19. For instance, jobs could be created through construction of renewable energy projects and reforestation programs. Covid-19 recovery efforts could also leverage royalties to help communities adapt to the effects of climate change. Finally, these efforts could simultaneously increase productivity and strengthen Colombia's economy in the longer term. The DNP itself has stressed the potential for growth offered by an economic recovery focused on creating sustainability and resilience.⁶⁶

The small number of climate-related projects that have already been executed with royalty funds could be used as examples of how such projects can contribute to holistic local and regional development.

The examples already set by existing projects are diverse and hint at some of the potential ways to combat climate change using royalties while contributing to development. Distributed generation and energy storage are indispensable for expanding rural electrification, which also advances the goals of Colombia's peace process. Reforestation and forest conservation present opportunities to compensate communities for the services provided by the ecosystems that they protect and restore, creating sustainable livelihoods and alternatives to those that drive deforestation. According to the DNP, the nation's goal of planting 180 million trees by 2022, for instance, could employ as many as 52,000 people.⁶⁷ The development of an ecotourism industry similarly creates incentives to protect forests rather than raze them. Resilience to climate-related weather events like drought, flood, and fire improves productivity down the line. Investment in education and training related to clean energy technologies can poise communities to seize opportunities for development as Colombia forges ahead with its ambitious renewable energy expansion.

The existing examples also provide lessons about which projects would not be feasible to fund with royalties. For instance, though the transport sector accounts for a significant share of emissions in Colombia, the greatest

impetus to reduce transport emissions exists in large cities where vehicle use is concentrated and air quality is poor. These cities are not typically major destinations for royalties, which are largely channeled to poor areas and those producing natural resources.

In the future, the Colombian government could build on the positive steps made in the 2019 reform of the royalty system, including the special designations for environmental spending.

The new distribution of royalties created by the 2019 reform is likely to increase the use of royalties for climate-related projects by setting a baseline share to be spent on environmental protection. As relevant technical capacity and familiarity with these projects increases, this share could be increased in the future.

Though it is viewed by some as largely symbolic, and a very small share, the 1 percent of funds dedicated to environmental protection for the first time carves out an explicit role for royalties to be used in this area, and creates a potential role for climate change spending specifically. The quotas in the Science, Technology, and Innovation Fund and in the designations for poor municipalities, which bring the minimum spent on environmental protection to 5 percent, also provide some previously absent guidance on spending these funds for sustainable development (though they are not specifically earmarked for climate change). Colombia's NDC, Sectoral Mitigation Action Plans, and other climate-related strategies could be held up as guides to inspire projects to meet these requirements. For the Science, Technology, and Innovation Fund, strategic research and development areas related to climate change mitigation and adaptation could be identified. Royalties from these funds and others could also be blended with other sources of finance to create more impactful projects.

The results of the 2019 reform in addressing issues of corruption, inefficiency, and citizen participation remain to be seen, but continued attention to improving these areas may be necessary to ensure climate-related projects and others can succeed.

Colombia could continue to build on the use of the Peace Allotment for sustainable development and hold it up as an example.

The Peace Allotment is a fund with unique potential to contribute to climate change mitigation in Colombia and represents an outsized share of climate-related royalty projects to date. Due partially to economic insecurity (a

lack of governance in formerly FARC-controlled areas is a greater factor), much of the rampant deforestation that drives up Colombia's emissions takes place in post-conflict areas. The use of royalties to develop local industries such as ecotourism or fund reforestation efforts could create economic alternatives to the farming, cattle grazing, and coca cultivation that contribute to deforestation in these areas. Additionally, expanding rural electrification is a central element of the implementation for the peace agreement, and off-grid solar photovoltaic (PV) solutions are an optimal way to achieve this objective. This is one clear opportunity for climate change mitigation to pair with an important driver of development—nationwide, around 700,000 Colombians still lack electricity access.⁶⁸

The DNP could make climate change a strategic priority on the subnational level and increase technical assistance to municipalities and departments.

The DNP has already transitioned from an organization with a national focus to one with a greater presence in the regions. This process could be continued, further leveraging the DNP as a tool to improve regional coordination and emphasis on climate change, proffer much-needed assistance in technical and governance aspects of projects, and pass along best practices learned by the national government.



Peru receives significant public revenues from extractive activities (particularly mining) that it distributes to subnational governments. The distribution mechanisms differ slightly between mining, oil, and gas, but in all cases, subnational governments have considerable discretion over how to spend funds. In Peru, there has been very little use of these revenues for climate change mitigation and adaptation, despite the country's high level of awareness of its exposure to climate-related risks. There is no dedicated system for extractive revenue spending—projects merely pass through the country's general approval system for public investments. Though this system is flawed and there is little support for increasing climate change spending using extractive revenues, there are measures the government could take in order to catalyze this process and reap its benefits.

Sources of Extractive Revenue

Extractive industries are a very important source of revenue for subnational governments in Peru, financing 26 percent of the budgets of subnational governments from 2009 to 2018, according to the National Society of Mining, Petroleum, and Energy (SNMPE).⁶⁹ In four regions (Áncash, Moquegua, Tacna, and Cusco) this figure was between 45 percent and 53 percent.

MINING

Mining is one of Peru's most crucial economic sectors, representing around 10 percent of GDP,⁷⁰ 60 percent of exports, and 11 percent of tax revenues.⁷¹ The country's mineral wealth places it among the top global producers of a number of metals (see Figure 15). For example, it is a top-five global producer of copper, silver, zinc, lead, tin, and molybdenum, and a top-ten producer of gold. On the Latin American regional level, it is the number-one or number-two producer for each of these metals. The mining sector is also an important source of employment—SNMPE reports that in November 2019 the mining sector employed 217,000 people.⁷²

The Covid-19 pandemic has had a significant impact on the mining sector, with important implications for public revenues. Peru's finance ministry reports that in the second quarter of 2020, mining activity fell 37 percent⁷³ as large mines suspended or restricted operations. This took place as health concerns mounted and in spite of the sector's designation as essential. By May 21, 718 mine workers had tested positive for the virus.⁷⁴ In addition to limitations on production due to health measures, the global slowdown in industrial activity and demand for metals brought down prices, including that of copper, a key Peruvian mining export. Thus, both low production and low prices will weigh on mining revenues (with the possible exception of gold, whose price increased significantly this year). Peruvian mining production has now reportedly returned to pre-pandemic levels,⁷⁵ and the central bank sees a recovery taking place during 2021, with the mining sector growing 14.4 percent.⁷⁶ Covid-19's effect on subnational mining revenues may not be apparent for some time—the mining “canon” (the primary source of mining revenue for subnational governments) consists of income tax collected in the previous year—but will likely be significant. Additionally, a major slowdown in 2020 exploration—a 41 percent drop year-on-year from January to August⁷⁷—will mean that project timelines are pushed back and production-based payments postponed.

FIGURE 15: PERUVIAN PRODUCTION, RESERVES, AND GLOBAL RANKINGS FOR SELECTED METALS, 2019

Source: *Anuario Minero 2019, Perú* (Ministry of Energy and Mines)

METAL	PRODUCTION (THOUSAND FINE METRIC TONS)	PRODUCTION RANK (WORLD)	PRODUCTION SHARE (% WORLD)	RESERVES (THOUSAND FINE METRIC TONS)	RESERVES RANK (WORLD)	RESERVES SHARE (% WORLD)
Copper	2,460	2	12.1	87,000	2	10.0
Gold	0.128	8	3.9	2.1	7	4.2
Silver	3.86	2	14.3	120	1	21.4
Zinc	1,400	2	11.0	19,000	5	7.6
Lead	308	3	6.8	63,000	4	7.0
Tin	19.9	4	6.4	110	9	2.3
Molybdenum	30.4	4	10.3	2,900	2	16.1

OIL & GAS

Peru’s role in regional and global oil and gas production is minor relative to its prominence as a producer of minerals (see Figure 16). Oil production is only 142,000 b/d, but gas production (concentrated in the large Camisea project in the Cusco region) is more significant, accounting for 6.5 percent of Latin America’s total output. Government revenues from hydrocarbons nonetheless play an important role in the country’s development, particularly in the areas where extraction takes place.

Hydrocarbon production is more geographically concentrated than mining in Peru, taking place in only a handful of regions. Oil production is concentrated in five regions, and most gas production takes place in the Cusco region.

Designated an essential sector, oil and gas production was exempt from lockdown restrictions imposed as part of the government response to Covid-19. Still, as oil demand and prices plummeted, some companies suspended production. According to SNMPE, at 21,000 b/d in October, oil production is only around one third of its levels from December 2019, with 15 of 26 producing projects suspended due to Covid-19 measures or social conflict, and nine of 13 exploration projects having declared force majeure.⁷⁸ Though it has returned to pre-pandemic levels, natural gas production was down 13.7 percent year-on-year in September, and 14.4 percent for the first nine months of the year.⁷⁹ The effect of this shock on subnational government revenues is immediate, since oil and gas royalties are paid to subnational governments on a monthly basis. Oil regulator Perupetro reported nearly a 50 percent drop in oil and gas royalties from February to March 2020.⁸⁰ Though the mining sector is far more significant than the hydrocarbons sector

in Peru, the few regions whose subnational government budgets are highly dependent on oil and gas revenues (for example, Cusco (close to 50 percent), Loreto (18 percent), and Piura (25 percent)) may experience immediate fiscal stress due to Covid-19.

Distribution of Mining and Oil & Gas Revenues

MINING

The Peruvian state collects revenue from the mining industry through five main streams (see Figure 17), three of which are subsequently allocated to subnational governments to be spent on investment projects. Because of the flexibility of these funds compared to those received by the public treasury, subnational government funds have the greatest potential to be specifically dedicated to climate change.

The largest revenue distribution mechanism is the mining canon, which consists of half of the corporate income tax revenue collected from mining companies in the previous year and amounted to almost \$1 billion in 2018. Mining royalties, generated by a variable tax on operating income, amounted to about half that in 2018. A mining sub-surface fee based on the surface area of operations is also transferred to subnational governments but represents a comparatively small share. Overall, in 2018, 65 percent of mining revenues collected by the state were transferred to subnational governments.⁸¹

FIGURE 16: PERUVIAN OIL & GAS PRODUCTION AND RESERVES, 2019

Source: BP Statistical Review of World Energy 2020

METRIC	QUANTITY	SHARE (GLOBAL, %)	SHARE (LATAM, %)
Oil production	142,000 b/d*	0.15	1.8
Proved oil reserves	900 million barrels	0.05	0.3
Natural gas production	1.3 Bcf/d*	0.34	6.5
Proved natural gas reserves	10.2 Tcf*	0.15	3.5

*b/d = barrels per day, Bcf/d = billion cubic feet per day, Tcf = trillion cubic feet

The distribution of revenues from the mining canon, royalties, and the sub-surface fee is dedicated entirely to producing areas (see Figure 17).

In Peru, there are few limitations on how mining revenues can be spent. A 2006 budget law stipulated that in the case of the mining canon and royalties, funds must be

spent on the financing or co-financing of public investment projects aimed at providing universal services that benefit the community, align with the competencies of the level of government, and are compatible with sectoral policies.⁸² Funds generally may not be spent on current expenditures, but up to 40 percent of funds may be spent on

FIGURE 17: SOURCES AND SUBNATIONAL DISTRIBUTION OF FISCAL REVENUE FROM MINING IN PERU*

Sources: Propuesta Ciudadana, Natural Resource Governance Institute, INGEMMET

SOURCE	DESCRIPTION	2018 REVENUES**	DISTRIBUTION TO SUBNATIONAL GOVERNMENTS
Canon	Consists of half of the revenue collected by a 28 percent corporate income tax on mining companies	\$961 million	<ul style="list-style-type: none"> Producing municipality: 10 percent All municipalities in producing province: 25 percent <ul style="list-style-type: none"> – Based on a proportional measure of poverty and population All municipalities in producing region: 40 percent <ul style="list-style-type: none"> – Based on a proportional measure of poverty and population Government of producing region: 20 percent Public universities in producing region: 5 percent
Royalties	1-12 percent tax on operating income, depending on the operating margin	\$472 million	<ul style="list-style-type: none"> Producing municipality: 20 percent All municipalities in producing province: 20 percent <ul style="list-style-type: none"> – Based on a proportional measure of poverty and population All municipalities in producing region: 40 percent <ul style="list-style-type: none"> – Based on a proportional measure of poverty and population Government of producing region: 15 percent Public universities in producing region: 5 percent
Mining sub-surface Fee	Tax applied based on surface area of mining operations. General regime: \$3/hectare; small-scale: \$1/hectare; artisanal: \$0.5/hectare	\$64 million	<p><u>Regular mining</u></p> <ul style="list-style-type: none"> Producing municipality: 75 percent Geological, Mining, and Metallurgical Institute (INGEMMET): 20 percent Ministry of Energy and Mines: 5 percent <p><u>Small-scale/artisanal mining</u></p> <ul style="list-style-type: none"> Producing municipality: 75 percent Government of producing region: 25 percent
Special tax on mining	2-8 percent tax on operating income, depending on the operating margin	\$234 million	Not distributed to subnational governments
Special obligation on mining	4-13 percent tax on operating income, depending on operating margin	\$27 million	Not distributed to subnational governments

*Excludes corporate income tax not distributed to subnational governments in the form of canon

**Peruvian soles converted to USD using average 2018 exchange rate according to Exchange Rates UK

maintenance of projects.⁸³ In the case of mining royalties, 50 percent of the funds that municipalities receive must be dedicated to the community where extraction takes place.⁸⁴ In early September 2020, the congressional Energy and Mines Commission approved a proposal that the funds for local communities be prioritized for development related to agriculture or ranching, artisanal development, or sustainable productive development.⁸⁵ However, the future of this measure is unclear given that the Covid-19 crisis and political turmoil have recently overwhelmed the legislative agenda. Finally, the funds that universities receive from the canon and royalties can be used for “financing and co-financing scientific research related to public health and prevention of endemic illness, agricultural health, biodiversity preservation, and use of renewable energy and educational projects.”⁸⁶

In the case of mining sub-surface fees, revenues must also be used only for investment projects as opposed to current expenditures. An additional earmarking rule stipulates that revenues for regional governments from artisanal and small-scale mining must use such funds for “financing the responsibilities acquired in the process of decentralization, and in particular those related to environmental protection.”⁸⁷

OIL & GAS

Public subnational revenues from oil production consist of the oil canons and sobrecanons, which apply to five regions and for which the exact legal framework depends on the region where extraction takes place. The canon and sobrecanons consist of 12.5% of the value of production of oil, associated natural gas, and condensates (10% for the Puerto Inca province of Huánuco).⁸⁸ In 2018, canon and sobrecanon funds amounted to roughly \$231 million, with the Piura region receiving 58.4 percent of these resources, followed by Tumbes (17.0 percent), Loreto (13.7 percent), Ucayali (6.6 percent), and Huánuco (4.4 percent).⁸⁹ The oil canon and sobrecanons are divided differently between regional and local governments depending on the region (see Figure 18).

The utilization of the oil canon and sobrecanon funds is similar to that of mining revenues. They can be used to finance or co-finance projects or infrastructure works with regional and local impact, with up to 20 percent available to maintain public investment projects and 5 percent to fund project design and pre-investment studies. Local governments must dedicate 5 percent of funds to

FIGURE 18: DISTRIBUTION (%) OF OIL CANON (C) AND SOBRECANON (S) BY REGION, PERU

Source: SNMPE

	LORETO		UCAYALI		PIURA		TUMBES		HUÁNUCO*
	C & S	C	S	C	S	C	S	C	
Regional government	52	20	52	20	20	40	20		
Local governments	40	70	40	70	70	50	70	100	
Prod. municipality		10							
Municipalities in prod. province		20		20				100	
Municipalities in prod. region	40	40	40	50	70	50	70		
National Universities	5	5	5	5	5	5	5		
Peruvian Amazon Research Institute	3	2	3						
Institutes of Higher and Technological Education		3		5	5	5	5		

*Puerto Inca province only

communities located where extraction takes place, and regional governments must invest 10 percent.⁹⁰

Home to the large Camisea field, with estimated reserves of around 10 trillion cubic feet (95 percent of Peru's proven reserves),⁹¹ only the Cusco region receives funds from Peru's gas canon. The gas canon consists of 50 percent of gas royalties and 50 percent of the 29.5 percent⁹² income tax on gas-producing companies. The royalty rate depends

on the contract, but in 2015 the Camisea Consortium (which operated Blocks 56 and 88, accounting for most of Camisea's production) was paying royalties of 37.2 percent of production value, and Repsol, which operated Block 57, was paying 6.7 percent.⁹³ In 2018, the gas canon brought the Cusco region around \$500 million.⁹⁴ The gas canon is distributed between the local and regional governments in the same proportions as the mining canon⁹⁵ (see Figure 19).

FIGURE 19: SOURCES AND SUBNATIONAL DISTRIBUTION OF FISCAL REVENUE FROM OIL & GAS IN PERU*

Sources: SNMPE, Ministry of Economy and Finance, *EY Peru Oil & Gas Tax Guide*, Propuesta Ciudadana

SOURCE	DESCRIPTION	2018 REVENUES**	DISTRIBUTION TO SUBNATIONAL GOVERNMENTS
Oil canon and sobrecanon	<u>Canon</u> : 15 percent levy on production value and 37.5 percent of income tax collected from oil producers.	\$231 million	Varies by region. See Figure 18.
	<u>Sobrecanon</u> : 3.75 percent levy on production value and 12.5 percent of income tax collected from oil producers.		
	<u>Canon (Huánuco)</u> : 15 percent levy on production value and 50 percent of income tax collected from oil producers.		
Gas canon	50 percent of gas royalties (rate varies by contract), and 50 percent of the 29.5 percent income tax on gas-producing companies. Cusco only.	\$500 million	<ul style="list-style-type: none"> • 10 percent to producing municipality • 25 percent to all municipalities producing province of (split based on poverty and population) • 40 percent to all municipalities in the Cusco region (split based on poverty and population) • 20 percent to the regional government • 5 percent to public universities in the region
FOCAM	14.25 percent of Camisea gas royalties (drawn from the 50 percent of gas royalties received by the central government). Regions through which Camisea pipelines pass only (Ayacucho, Huancavelica, Ica, Ucayali, Lima excl. metropolitan area).	\$110 million	<p>Distributed based on population, poverty, and the length of pipeline in each jurisdiction.</p> <ul style="list-style-type: none"> • 30 percent to regional governments • 30 percent to municipalities in pipeline province • 15 percent to municipalities with pipelines • 15 percent to municipalities without pipelines • 10 percent to public universities <p>Distribution differs for the Ucayali region.</p>

*Excludes corporate income tax not distributed to subnational governments in the form of canon

**Peruvian soles converted to USD using average 2018 exchange rate according to Exchange Rates UK.

The rules for spending the gas canon are the same as for the mining canon—in short, the funds generally must be spent on public capital investment projects rather than current expenditures.

Some of the 50 percent of royalties corresponding to the central government are re-directed toward investment in regions through which gas pipelines pass by way of the Camisea Socioeconomic Development Fund (FOCAM). To be exact, 14.25 percent of all gas royalties from Camisea are redistributed to the regions of Ayacucho, Huancavelica, Ica, Ucayali, and Lima (except for the Lima metropolitan region)⁹⁶—\$110 million in 2018.⁹⁷ These funds are then distributed between municipal, provincial, and regional governments and must be spent on public investment projects, maintenance of existing social and economic infrastructure, formulation of pre-investment and other studies, technical capacity and assistance, and environmental and ecological preservation.⁹⁸

Procedure for Spending Extractive Revenues

In Peru there is not a special process for the spending of revenues from the extractive industries in particular. However, local and regional projects using canon and royalty resources must pass through Peru’s system for public investment projects, the National Multiannual Planning and Investment Management System (known as *Invierte.Pe* for short).

The *Invierte.Pe* system was created at the end of 2016, as a replacement for the National Public Investment System (SNIP), for multiple reasons, including to make the public investment process more efficient and to create a multi-year planning process focused on closing specific development infrastructure gaps.⁹⁹ *Invierte.Pe* is intended to ensure projects produce social and economic returns consistent with goals produced by the country’s local, regional, and national governments. The system encompasses a number of processes and entities.

Under *Invierte.Pe*, each regional or local government, through its Office of Multiannual Investment Planning (OPMI), identifies the gaps to consider, designs a multiannual investment plan (PMI), and creates and updates a portfolio of prioritized investment projects to close their gaps. The OPMI is also responsible for

monitoring the results of the PMI and issuing periodic reports.¹⁰⁰

The Decision-Making Body (OR) of the regional or local government (headed by the governor or mayor) appoints the OPMI, approves the gaps identified by the OPMI and the criteria for prioritization of projects, and ultimately approves the PMI and presents it to the national government for incorporation in the national PMI.

Peru’s public investment system currently does not include prioritization criteria for climate change mitigation and adaptation, although projects that provide public goods and/or services do evaluate and address vulnerability to various risks, including climate-related risks. The evaluation parameters employed by the *Invierte.Pe* system do also include a “social price of carbon” assigned to each mitigated metric ton of CO₂. At around seven dollars, this is significantly lower than the \$50-\$100 that some experts say is required to fulfill the Paris Agreement.¹⁰¹

In response to the Covid-19 crisis, in early July, usual restrictions governing the spending of extractive revenues on investment projects were suspended, allowing subnational governments to spend up to 25 percent of canon, *sobrecanon*, royalty, and FOCAM resources on healthcare, including on operating costs.¹⁰² Peru has experienced one of the world’s deepest pandemic-induced economic contractions, including a GDP decline of 40.5 percent in April. Overall, Peru’s central bank projects a 12.5 percent annual contraction in 2020.¹⁰³

Criticisms of the Extractive Revenues System

The system by which Peruvian subnational governments spend fiscal revenues from the extractive industries has come under criticism for a number of reasons. These have important implications for both climate-related projects and the general health of Peru’s mining industry, which perennially suffers from a host of local conflicts that stall projects—in part because communities do not see the benefits of the revenues that their governments receive from extractive projects in their area.

One of the most prominent criticisms is that municipal governments, especially in rural areas, frequently lack the

capacity and technical knowledge to execute infrastructure projects. From 2009-2018, only about 66 percent of canon, sobrecanon, and royalty funds were spent, according to SNMPE¹⁰⁴ (these funds are not returned to the central government, but rather accumulate in local and regional government coffers).¹⁰⁵

This underspending is exacerbated by the fact that the distribution of extractive revenues is highly concentrated in producing regions, and in particular in producing municipalities. According to the Institute of Peruvian Mining Engineers, six of the country's regions receive 70 percent of mining canon transfers while another 14 regions together receive just 3 percent. Meanwhile, just four of the country's 1,842 municipalities receive 50 percent of the funds destined for local governments.¹⁰⁶ The gas-rich Cusco region received 27 percent of all revenues from the oil and gas canons, mining royalties, and FOCAM in 2018,¹⁰⁷ despite accounting for just around 4 percent of the country's population.¹⁰⁸ The Cusco municipality of Echarate, with a population of about 26,600 in 2018 (0.08 percent of the Peruvian population), received around 4.5 percent of canon and royalty funds from 2009 to 2018.¹⁰⁹ Since municipalities where extraction takes place are triple-counted in the canon distribution (receiving 10 percent of funds, plus a share of the 25 percent of funds destined for municipalities in their province, plus a share of the 40 percent of funds destined for municipalities in their region), some municipalities receive massive sums that they simply lack the capacity to spend.

The concentration of extractive revenues in small areas can also lead to a form of subnational Dutch disease whereby extractive revenues drive up inflation in certain areas and can lead to a depletion of agricultural labor as extractive revenue projects become the main source of employment.¹¹⁰ The volatility of extractive revenues adds to the problematic nature of this effect, and some argue that subnational governments receiving canon/royalty payments should have a fiscal stabilization fund like the national government.¹¹¹ There are also serious concerns about equity in terms of development across regions as well as discussions about the need for greater compensation of non-producing regions or a reformulation of the canon distribution. It is worth noting that the central government does transfer greater amounts of non-extractive funds to non-producing areas than to producing areas in order to compensate for the inequality created by the greater natural resource endowments and revenues in producing areas. Finally, some argue that rural communities are neglected under current spending patterns, which has led to proposals of a communal

canon, which would dedicate a greater share of revenues to sustainable development in rural, native, Andean, and Amazonian communities in areas where resources are extracted.¹¹²

Despite the large sums that some municipalities receive, in general extractive revenues are fragmented, even between municipalities located in the same city, which can lead to development that is not cohesive or rooted in broader urban development plans. Since sub-regional funds are designated only for municipalities, provincial governments play a limited role in the execution of these funds, despite the coordinating role they could potentially provide. In applicable cases, universities (which also receive extractive revenues) could also be more involved in filling the technical capacity gap when it comes to designing projects.¹¹³

Corruption is also a concern in light of insufficient transparency and citizen oversight in the distribution and use of canon and royalty resources. Corruption is a problem not just because it reduces the funds available to spend on projects, but also because its prosecution can lead to a paralysis and a reluctance by subnational government officials to make decisions, as has reportedly happened in the wake of recent corruption scandals that have swept across Latin America. Some have called for an autonomous state entity tasked with oversight of the use of canon and royalty funds, as well as greater coordination between the state, public and private companies, and local populations, to improve the transparency of the process.¹¹⁴

There are other issues related to the quality of investment and concerns that there is not a sufficient prioritization process. Public tendering of projects could take the onus off of local governments with insufficient capacity to develop projects.¹¹⁵ Greater involvement of civil society in these projects could also contribute to more effective identification of communities' needs. As a more direct measure, some have proposed reforming the royalty system to distribute revenue more equally among regions.

Climate Change Goals

Peru's carbon emissions are dominated by land-use change. Deforestation in the Peruvian Amazon was 134,600 hectares in 2019, down slightly from 2018 but still high by historical standards,¹¹⁶ driven by small-scale agriculture, illegal gold mining and coca cultivation, and other factors.¹¹⁷ Peru's energy mix, while relatively clean

by global standards (about 50 percent hydropower and 50 percent natural gas-fired generation), has a low share of non-conventional renewable energy (which excludes large hydroelectric dams) compared to its neighbors (6.4 percent of power generation in July 2020¹¹⁸). However, solar irradiation levels are very high in the southern part of the country, meaning there is an opportunity for greater solar energy penetration, as has been capitalized on in Chile. The sources of Peru’s carbon emissions are summarized in Figure 20—land-use change and forestry accounted for 41 percent of the country’s net greenhouse gas emissions in 2016, the most recent year available.

Peru is also a country at high risk of experiencing the effects of climate change, cited as one of the top 50 countries most affected by weather-related loss events.¹¹⁹ According to the US Agency for International Development, extreme events such as flooding, landslides, droughts, frost, and hailstorms are concerns in parts of Peru, and some of these are exacerbated by the El Niño phenomenon, which may become more frequent due to climate change.¹²⁰ Changes in glacial melt and precipitation will have major implications for agriculture. Peru’s National Climate Change Strategy notes that Peru has seven of the nine characteristics of countries vulnerable to climate change as identified by the United Nations Framework Convention on Climate Change: low coastal areas, arid and semiarid areas, areas exposed to floods, drought, and desertification, fragile mountain ecosystems, disaster-prone areas, areas with high urban air pollution, and

an economy dependent on fossil fuel income.¹²¹ Thus, adaptation to the effects of climate change will likely be a priority in Peru in the coming years.

In light of these conditions, Peru pledged a 20 percent reduction in emissions relative to a business-as-usual scenario by 2030 as part of the Paris Agreement, with an additional 10 percent reduction conditional on international support.¹²² In pursuit of this goal, in 2019 a multisectoral working group produced a roadmap¹²³ with 62 specific mitigation measures, the implementation of which would reduce 2030 greenhouse gas emissions by about 23 percent, and 91 adaptation measures. Selected measures which may be applicable to regions receiving revenues from the extractive industries are displayed in Figure 21. Peru has more recently announced more ambitious goals: a 35 percent reduction in greenhouse gas emissions by 2030 and carbon neutrality by 2050.¹²⁴

Of the 23.3 percent of Peru’s emissions that could theoretically be mitigated by the measures proposed, 62 percent pertain to potential mitigation in land use and forestry, underscoring the importance of this sector. Peru has set deforestation reduction and reforestation goals at various points in time. According to the Monitoring of the Andean Amazon Project, deforestation in the Peruvian Amazon was slightly down in 2019, at 134,600 hectares, but still high compared to historic levels.¹²⁵ As part of the 2009 Copenhagen Accord (COP 15), Peru pledged zero net deforestation by 2021, a pledge repeated in 2014.¹²⁶ In

FIGURE 20: SHARE OF 2016 GREENHOUSE GAS EMISSIONS (CO₂-EQUIVALENT) BY SECTOR, PERU

Source: CAIT Climate Data Explorer via Climate Watch/Our World in Data

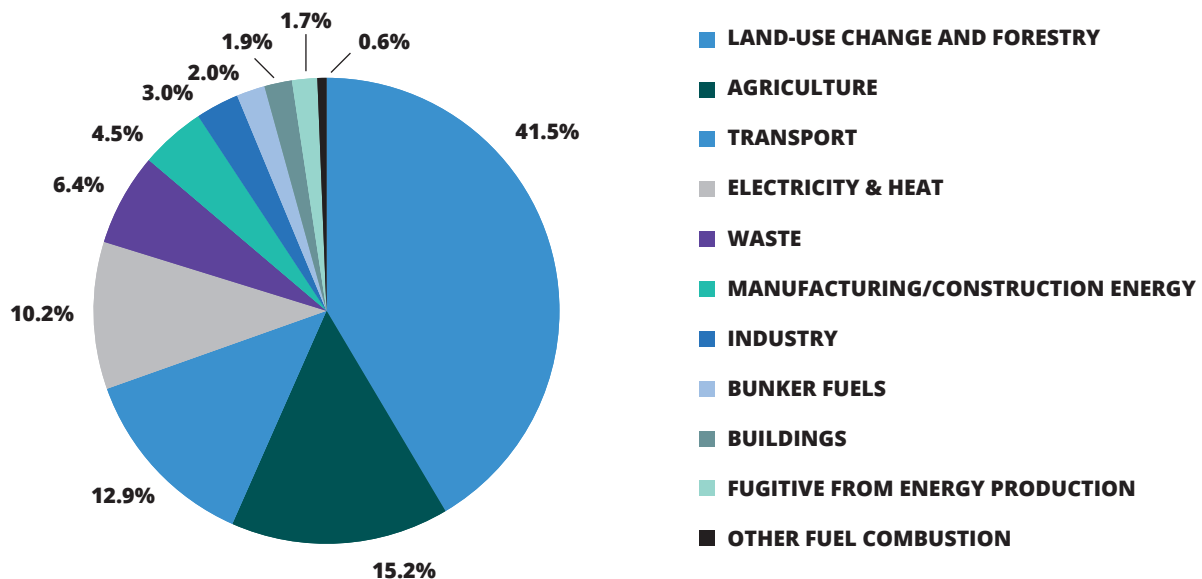


FIGURE 21: SELECTED MITIGATION AND ADAPTATION MEASURES PROPOSED BY PERU'S MULTISECTORAL NDC IMPLEMENTATION WORKING GROUP

Source: Report of Peru's Multisectoral NDC Implementation Working Group

MITIGATION MEASURES	
Energy Sector (Non-Transport)	
	Increase in the share of renewable energy to 6.8 percent in 2030
	Install 184,176 solar PV systems, allowing 88 percent rural public electricity access by 2030
	Replace 5.5 million public lights with LED bulbs by 2030
	Add 990 distributed generation systems in 12 cities by 2030
Agriculture Sector	
	Greater use of deferred grazing, natural pastures, forest "living fences," and improved livestock genetics to reduce emissions from livestock production
Land Use and Forestry	
	Sustainable forest management through forestry concessions
	Establishment of commercial forestry plantations on 144,000 hectares of degraded land
ADAPTATION MEASURES	
Agriculture	
	Implementation of soil erosion management and control technologies to mitigate the effects of heavy rain associated with climate change
	Integrated management of natural pastures to ensure food supply for livestock and reduce their vulnerability to climate change
	In situ and ex situ conservation of agro-biodiversity to increase the resilience of crops to climate change
Forests	
	Restoration of ecosystems to maintain landscape connectivity and reduce the impact of extreme climate events
Health	
	Implementation of technologies to reduce the vulnerability of health infrastructure to climate risks
Water	
	Improve and construct reservoirs to provide water for agricultural use in basins vulnerable to climate change
	Implement irrigation infrastructure in basins vulnerable to climate change
	Conservation and recovery of natural infrastructure for the provision of hydrological ecosystem services in vulnerable basins

2018, a 2021 reforestation goal of 170,000 hectares was announced.¹²⁷ Despite Peru’s stated goals with respect to deforestation (which have moderated over time), Climate Action Tracker currently projects that by 2030 emissions from deforestation will have increased more than 80 percent relative to 2012.¹²⁸

The next-most important mitigation sector in the roadmap is energy. The working group’s proposed measures would reduce energy emissions by 5.7 percent to 2030 (24 percent of the potential reduction). In 2019, then-President Martín Vizcarra stated Peru’s ambition to increase the share of nonconventional renewable energy in the power matrix from 5 percent to 15 percent by 2030.¹²⁹ This goal coincides with the country’s strategy of installing solar panels to expand rural electricity access, with a goal of 100 percent coverage by 2023.¹³⁰

Several pieces of legislation support Peru in pursuing its climate change goals. The national Climate Change Law, the country’s most important climate legislation, was passed in 2018 and its regulation was finalized early in 2020. This measure obligates regional and local governments to develop, implement, monitor, and update climate change strategies aligned with the National Climate Change Strategy, Peru’s NDC, and subnational planning instruments. It provides for incorporation of climate change into national and subnational education policy and establishes parameters for measuring

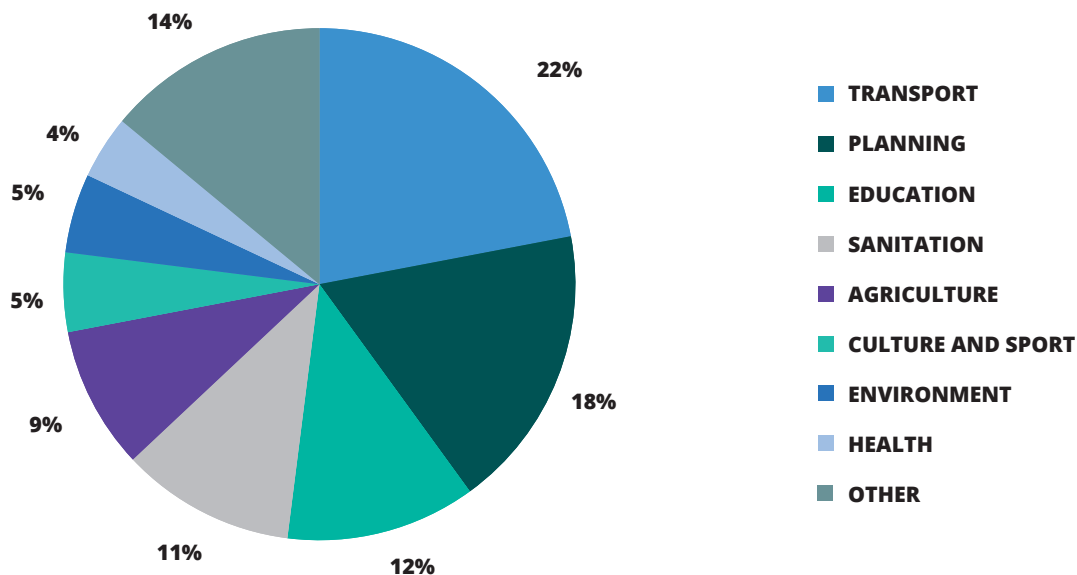
greenhouse gas emissions. It also provides parameters for the design and execution of Peru’s climate change mitigation and adaptation measures and creates a monitoring system for progress on these measures and the financing they receive.¹³¹ In addition to this law and Peru’s National Climate Change Strategy, the country participates in REDD+ through the implementation of its National Forest Conservation Program for Climate Change Mitigation.

Recent Spending of Extractive Revenues on Climate Change Mitigation and Adaptation

According to analysis by SNMPE, between 2009 and 2018, 64.6 billion soles (about \$18 billion at current exchange rates) were transferred to subnational governments. Transport was the largest expenditure category, accounting for almost a quarter of these funds (see Figure 22). Planning, education, sanitation, and agriculture followed. The “environment” sector received 5 percent of spending, however, not all of this spending was climate-related, and not all climate-related spending fell into this category.

FIGURE 22: CANON, SOBRECANON, AND ROYALTY SPENDING (PERUVIAN SOLES) BY PROJECT SECTOR, 2009-2018, PERU

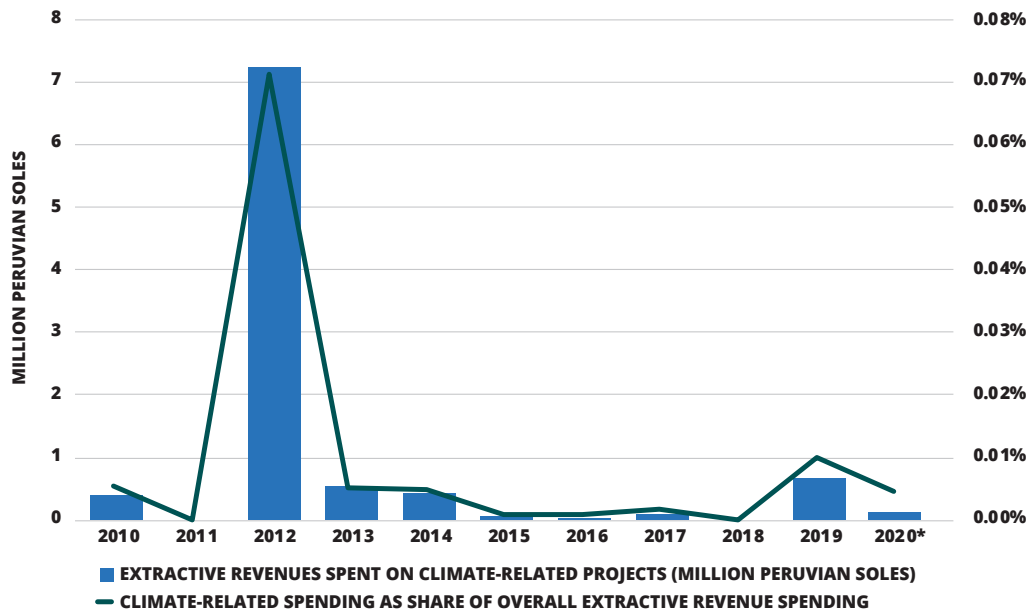
Source: SNMPE



In fact, our own analysis of government data identified climate-related projects in a diversity of sectors, but found that overall, only a very small fraction of a percent of canon and royalty funds have been directed to climate-related projects to date, as illustrated in Figure 23. There has also not been an identifiable trend over time towards investing greater canon and royalty revenues in climate-related projects. Overall, we identified just 26 projects in Peru's public investment database (MapalInversiones) related to climate change and funded by extractive revenues since 2010. The spike in 2012 is due to a large flood control project in the Cusco region.

FIGURE 23: ANNUAL EXTRACTIVE REVENUES SPENT ON CLIMATE-RELATED PROJECTS AND SHARE OF TOTAL EXTRACTIVE REVENUE SPENDING IN PERU

Sources: Authors' calculations based on Ministry of Economy and Finance – MapalInversiones, Economic Transparency Portal



*Through August

As illustrated in Figure 24, the few climate-related projects that have been funded by extractive revenues have come from diverse sources. Note that the sum of the projects represented in this graph exceeds 26 because some projects received funds from multiple source and are included more than once in this visualization.

FIGURE 24: CLIMATE-RELATED PROJECTS AND SPENDING BY EXTRACTIVE REVENUE TYPE SINCE 2010, PERU

Sources: Authors' calculations based on Ministry of Economy and Finance – MapalInversiones, Economic Transparency Portal

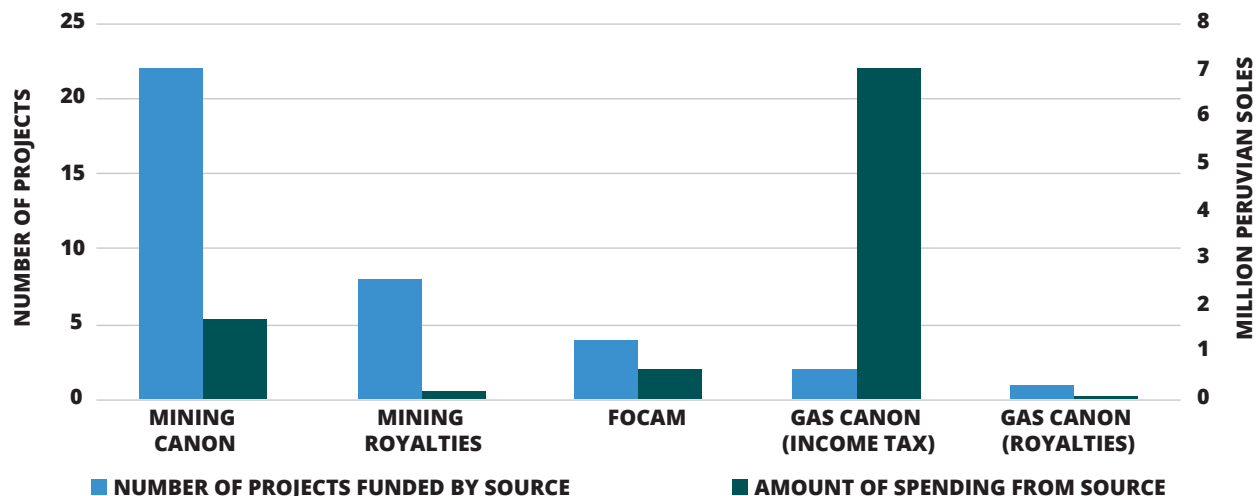


Figure 25 shows the same breakdown by the share of funding allocated rather than the number of projects receiving funding from a given source, though it is heavily skewed toward the gas canon because of a very large flood control project in the Cusco region.

FIGURE 25: SHARE OF CLIMATE-RELATED SPENDING (PERUVIAN SOLES) BY EXTRACTIVE REVENUE TYPE SINCE 2010, PERU

Sources: Authors' calculations based on Ministry of Economy and Finance – MapalInversiones, Economic Transparency Portal

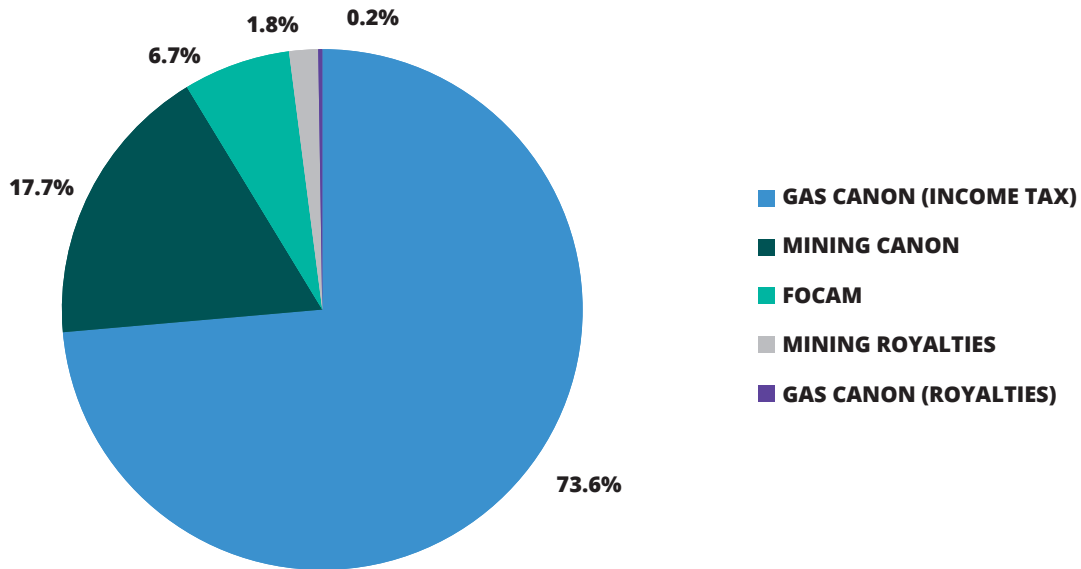
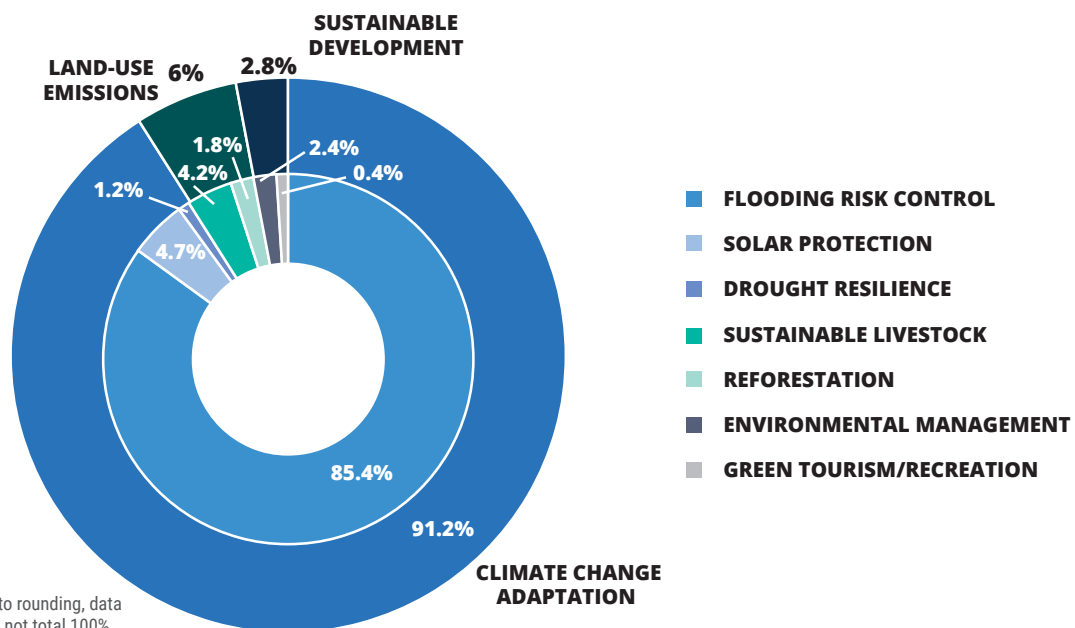


Figure 26 shows that the vast majority of climate-related spending has been on climate change adaptation, particularly flood control and management of other climate-related risks. An analysis published in 2009 by Oxfam and Grupo Propuesta Ciudadana, a Peruvian consortium of non-governmental organizations, also found numerous adaptation projects funded by subnational governments through the canon.¹³²

FIGURE 26: SHARE OF EXTRACTIVE REVENUE CLIMATE-RELATED SPENDING (PERUVIAN SOLES) BY AREA OF CLIMATE CHANGE IMPACT SINCE 2010, PERU

Sources: Authors' calculations based on Ministry of Economy and Finance – MapalInversiones, Economic Transparency Portal

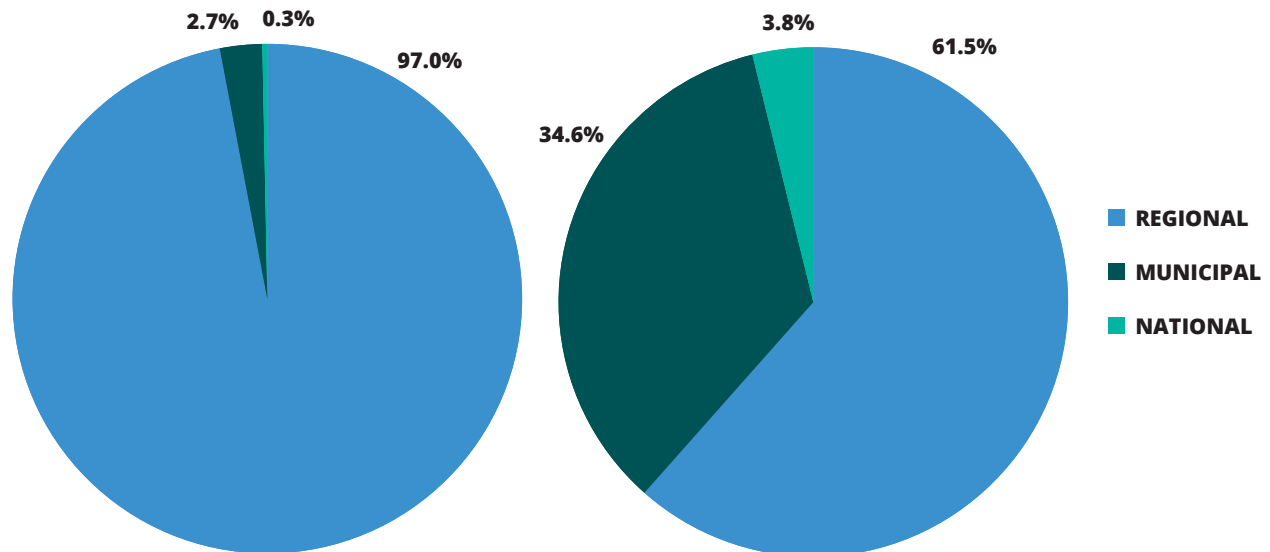


Note: Due to rounding, data labels may not total 100%.

Figure 27 shows that although more climate-related projects have been executed on the municipal level, almost all of the executed spending has been done by regional governments.

FIGURE 27: SHARE OF CLIMATE-RELATED SPENDING IN PERUVIAN SOLES (LEFT) AND PROJECTS (RIGHT) BY LEVEL OF GOVERNMENT EXECUTOR SINCE 2010, PERU

Sources: Authors' calculations based on Ministry of Economy and Finance – MapalInversiones, Economic Transparency Portal



Challenges for Climate Change Spending within the Extractive Revenues Framework

A number of obstacles will have to be surmounted if Peru is to capitalize on its considerable natural resource revenues in pursuit of climate change mitigation and adaptation.

Subnational, especially municipal, governments frequently lack the capacity to execute projects with the large sums of money they receive due to the concentration of canon and royalty resources.

According to SNMPE, on average just 66 percent of canon, sobrecanon, and royalty funds were spent from 2009-2018, and this figure was as low as 53 percent in Apurímac and 59 percent in Áncash, the region that received the second-most funds over the period and by far the most funds from the mining canon.¹³³ In rural areas in particular, there may be a lack of government contractors equipped to execute so many large projects. The fact

that, as of August 20, about two thirds of the country's regional governments had spent less than half of the emergency funds made available to address the Covid-19 health crisis¹³⁴ underscores the fact that underspending is generally due to a lack of capacity rather than desire. That said, corruption is cited as an issue with Peru's public investment system, both in the sense that funds are siphoned out of public coffers and that officials are reluctant to make investment decisions due to anti-corruption efforts.

For projects related to climate change mitigation, an area in which subnational governments have little experience, technical capacity is particularly restricted.

Most spending to date has been on primary services such as transport, sanitation, and schools, projects which are well understood, have relatively short timelines, and are politically visible, as opposed to forest conservation or preventive adaptation measures such as infrastructure resilience.

The high concentration of funds in producing areas also means that some regions with a greater impetus and/or capacity to invest in climate change do not receive funding.

For example, addressing transport emissions in cities like Lima is both an important mitigation and adaptation issue, yet the government of metropolitan Lima received just 0.1 percent of mining canon funds in 2018 and the local governments of the province just 0.4 percent.¹³⁵ Highland areas with agricultural systems vulnerable to changing weather patterns may also not receive funding while large sums go unspent in the coffers of the governments of producing areas. Since climate change often affects entire regions or countries, the high fragmentation of funds on a municipal level puts large, potentially impactful climate-related projects at a disadvantage. And despite the large share of extractive revenues that go unspent on a subnational level, most subnational governments and oil and gas and mining companies oppose reforming the current system of transferring revenue to producing regions, which helps secure local community support for extractives projects.

A lack of awareness and prioritization of climate change on the subnational level is another important challenge to the greater use of extractive revenues to combat it.

Analysis of Peru’s public investments database demonstrates that current spending on climate change mitigation is very low, and when projects with adaptation benefits such as flood control are executed, they are often not recognized as projects associated with climate change. Effectively, climate change mitigation and adaptation using extractive revenues to date has mostly been a positive side effect of projects not explicitly oriented toward climate action. Subnational decision makers also tend to favor traditional infrastructure projects without recognizing the benefits of “natural infrastructure” like forests—even though conservation and reforestation may be more effective ways to adapt to climate risks, preserve soil health, ensure water availability, etc. A lack of focus on climate change is likely to be exacerbated by attention to the Covid-19 health crisis and its aftermath.

Directing mining and hydrocarbon revenues to climate change projects may be a low priority for the national and subnational governments, especially in light of Covid-19.

Peru’s sense of urgency with respect to fulfilling its NDC and meeting other targets may be dampened by attention to Covid-19 and the decimation of the health system, economy, and tax revenue. The central government is less likely to earmark budgetary resources for climate change mitigation and adaptation because of the importance of budgetary flexibility highlighted by Covid-19.

Finally, recent Peruvian governments have been plagued by political uncertainty.

Peru’s next elections are scheduled for April 2021, meaning many policy discussions, including on extractives revenue distribution and climate change, will likely be put on hold until after the elections. Moreover, the country is in the midst of political turmoil following a toxic relationship between the recently removed President Martín Vizcarra and both the previous Congress (which he dissolved) and the current one (which was elected in late 2019). This hostility culminated in his impeachment and removal from office over alleged corruption on November 9, 2020. Vizcarra had taken office in 2018 following the resignation of his predecessor, Pedro Pablo Kuczynski, also amid corruption allegations and impeachment proceedings. A much greater degree of political stability than that currently existing in Peru is likely a prerequisite to an enhanced focus on climate change that encompasses a push for the greater use of extractive revenues in this area.

Opportunities for Further Spending of Extractive Revenues on Climate Change Mitigation and Adaptation

In spite of the aforementioned challenges, the Peruvian government could seize upon a number of opportunities to further leverage its extractive industry wealth in pursuit of its climate goals.

Peru could create a national strategy for royalty and canon spending, prioritizing climate change adaptation and measures related to land-use change. It could also set a minimum threshold for spending related to climate change and increase sustainability and resilience criteria in the public investment approval process from current measures that merely evaluate climate-related risks to projects and assign a (low) value to emission mitigation without expressly prioritizing climate change mitigation and adaptation in public investment.

The fragmentation of canon resources and lack of a strategic vision contribute to their limited use on climate-related projects. Peru’s central government could lead in

this area by setting priorities and corresponding guidelines for canon and royalty spending, if not explicit minimum levels. Prioritizing climate change adaptation would raise the profile of climate change among Peruvians, as increasingly frequent extreme weather events are a salient issue, and most climate-related spending using extractive revenues to date has been in this area, especially mitigating flood risk. Land-use change could also be prioritized as Peru's most important mitigation sector and in light of the government's deforestation reduction goals. Several Amazonian regions receive canon funding. Solar energy for increasing rural electrification would also be a fitting priority in some regions. Several regions in Peru's solar-rich south receive canon funding as well.

Peru's central government could provide greater technical assistance and project oversight to subnational governments, including climate-related education, assistance in developing subnational climate change plans, and data collection to build greenhouse gas emission inventories and climate vulnerability assessments.

One of the most frequently cited criticisms of Peru's extractive revenue framework is that local governments fail to spend the resources they receive due to a severe lack of technical capacity. The central government could increase technical assistance, including for climate-related projects, paired with awareness initiatives to mainstream climate change as an issue. It could also assist in the collection of data on greenhouse gas emissions to help set a baseline for regional and local climate change plans. Under Peru's Climate Change Law, 24 of the country's regions have developed climate change strategies to date, and the environment ministry can aid in their implementation and revision, in addition to assisting municipalities in developing their plans. It could also assist in identifying the primary climate change risks and thereby suggest the most appropriate adaptation measures. Peru's "Works for Taxes" scheme, which allows companies to substitute public works projects for income tax, has also been touted as a way to circumvent a lack of local capacity and execute projects more quickly, and could be explored within the framework of climate-related projects.

Canon and royalty funds could be re-distributed in order to increase the share of funds that are effectively spent and bring climate-related projects to more parts of the country.

The extreme concentration of canon and royalty funds in producing regions contributes to a failure to spend all

of these funds and to major subnational inequalities in development. As climate change adaptation and mitigation projects become more common, this trend will encompass these issues, leading potentially vulnerable regions to miss out on funds that are languishing in public coffers elsewhere, and creating geographical gaps in Peru's climate change efforts. Unfortunately, at the moment, the prospects for such a redistribution are low given the vested interests of communities in producing areas and companies in maintaining their social license to operate. On the other hand, more effective use of the canon, as opposed to current practices that lead to vast sums going unspent each year, could contribute to the reduction of the social conflicts that stall many mining projects in Peru.

Peru's central government could consider earmarking funds for climate change and incorporating a "green stimulus" into its Covid-19 recovery.

Despite opposition to date over earmarking resources for climate change mitigation and adaptation, doing so would further Peru's stated climate change goals and send a stronger signal to subnational governments about the central government's commitments to these goals. The recovery from Covid-19 could present an opportunity for such a move in the form of a "green stimulus," though this notion has not been a prominent issue as in other countries and the central government has generally been resistant to such earmarking. However, Peru's vice minister of environment for strategic natural resource development has made various promising statements about the importance of incorporating sustainability and climate change measures into the recovery from Covid-19.¹³⁶

More mechanisms for oversight, transparency, and the involvement of civil society could not only improve the functioning of Peru's public investment system but also create impetus for climate-related projects.

Corruption and the inefficient use of funds are general problems that plague Peru's public investment system, especially because canon and royalty funds are so disproportionately allocated to producing regions. Increasing the overall efficiency of the use of these funds and creating mechanisms for the enhanced involvement of civil society, which may push for climate-related measures against some of the incentives of subnational governments, may drive up the share of climate-related projects in the portfolio of canon- and royalty-funded projects.

CONCLUSIONS

In both Colombia and Peru, subnational spending of revenues from the extractive industries on climate-related projects has been extremely limited to date. This share has been somewhat higher in Colombia—a few percent as opposed to a fraction of a percent in Peru. Examining these two cases provides lessons learned about how to more effectively leverage natural resource revenues to drive climate change mitigation and adaptation at the subnational level.

1

Prioritization and mainstreaming of climate change mitigation and adaptation, led by the central government, is an important step in placing climate change on the agenda of subnational governments and guiding the use of extractive revenues.

For subnational governments, especially on the local level, climate change is often not as high a priority as more visible needs such as transport infrastructure and education. Local leaders have incentives to spend funds on tangible projects with short timelines, and the reasons for addressing climate change, and ways to do it, may not be well understood on the local level. Leadership from the central government is key to raising the profile of climate change on the local level and making sure the benefits of both mitigation and adaptation are understood. Requiring subnational development planning to include climate components, educating local leaders and communities, and sending signals about the importance of climate change through its own policies are steps that central governments could consider. The central government can also incorporate criteria related to climate change mitigation and adaptation, climate risks, and sustainability into the process for designing and evaluating all public investment projects. These criteria can not only direct spending toward climate-related projects but also direct it away from projects that increase emissions or climate risk. For example, infrastructure projects

could have climate resilience requirements. Road and highway tenders could include criteria on avoiding increased deforestation (which is often caused when previously inaccessible areas are opened up).

Additionally, governments can outline explicit national priorities or earmark a share of spending for climate-related projects (as Colombia has done). This could help bridge the current gap between national prioritization and real investment. As this report has explained, deforestation is a top driver of emissions and combating it is a national priority in both Colombia and Peru. Yet subnational governments have dedicated a large share of their climate-related spending of extractives revenues to rural electrification (Colombia) and climate change adaptation (Peru) rather than deforestation. On the other hand, experience demonstrates that earmarking often leads authorities to execute projects that are not truly beneficial merely for the sake of meeting budget requirements, so this approach should be combined with sound planning and technical capacity.

2

Subnational governments, especially local communities, often lack the technical capacity to spend resources effectively. Technical assistance from the central government could be a catalyst for a greater number of climate-related projects.

In both Colombia and Peru, a significant share of total revenues from extractive industries goes unspent because of a lack of local capacity. Technical assistance is especially important for developing and executing climate-related projects in areas like renewable energy, energy efficiency, sustainable agriculture and forestry, and drought and fire resilience, which may be unfamiliar to subnational governments. Such assistance could be provided by the central government in concert with initiatives to raise

awareness of the benefits of projects related to climate change mitigation and adaptation. “Works for Taxes” schemes, which already exist in both Colombia and Peru (Colombia’s is more recent), could also be engineered with a focus on climate change mitigation and adaptation, shifting the provision of technical capacity to the private sector and capitalizing on its existing efficiencies to more quickly and effectively execute projects.

3

In the longer term, more dramatic reconfigurations of extractive revenue distribution systems may be necessary to fully capitalize on the resources at countries' disposal, for climate-related projects and in general.

The concentration of funds in producing areas has led to small, fragmented projects and contributed to low levels of spending in both Peru and Colombia. This fragmentation presents a challenge to climate-related projects, which are often of a larger scale and more technical and require coordination on a regional or national level. It also contributes to an oversight challenge,

as placing such large amounts of funding in local coffers can contribute to white elephant projects and corruption. Ultimately, for extractive revenues to be most effectively leveraged for climate change mitigation and adaptation, it may be best for communities in non-producing areas and regional governments to receive greater shares of funding.

4

Stakeholder buy-in is a critical aspect of ensuring a greater share of extractive revenues are channeled to climate-related projects.

Engaging both civil society and industry is important to building support for a greater emphasis on climate action. Ensuring a robust role for civil society in project design and selection can insulate the process from short-term political incentives, and guaranteeing a seat at the table for minority ethnic groups and members of the communities where extraction takes place can create a process that is more inclusive, equitable, and reflective of local priorities. Because of the importance of royalty spending for companies' social license to operate, a more effective and holistic system of extractive revenue-funded sustainable development

is in the interests of mining and oil and gas companies. The paralysis that certain projects have recently experienced due to local opposition in both Colombia and Peru demonstrates that communities do not currently see themselves as beneficiaries of extraction in their areas. If systems for extractive revenue spending are to be modified to prioritize climate to a greater degree and to make spending more effective in general, vested industry interests will need to see that doing so would improve their relations with communities and reduce opposition to projects.

5

The economic recovery from Covid-19 represents an opportunity for governments to incorporate climate change mitigation and adaptation into their spending strategies on the national, regional, and local level and better position themselves for the economic transformation that climate change will bring in the coming decades.

In Colombia, and in Peru to a lesser extent, policymakers are discussing the prospect of a green recovery from the economic crisis of Covid-19. However, facing a dire need to improve healthcare systems and save millions of people from slipping into poverty, policymakers may also feel compelled to prioritize these urgent needs over environmental spending. But these objectives need not be mutually exclusive, and Latin American countries cannot afford to forsake the longer-term goal of fighting and adapting to climate change. In fact, investing in areas like renewable energy, energy efficiency, and disaster resilience infrastructure could put people back to work while making immense contributions to the long-term sustainability of countries' economic models. Reforestation, land restoration and conservation, and ecosystem-based adaptation are areas that could be particularly fruitful in creating rural jobs and preserving

ecosystem services, making poor rural communities, which are among those most vulnerable to climate impacts, resilient and sustainable, as noted in a recent paper by experts at Columbia University.¹³⁷ The authors also argue that governments could explore using extractive revenues in blended finance models to tap into the private investment that will be crucial for economic recovery. By leveraging public funds to reduce risk, governments can make projects in areas such as restoration more attractive to additional financing from private sources. Though governments will have to act quickly, the flexibility of extractive revenues relative to other fiscal resources, and the fact that these funds are currently very underutilized, mean that extractive revenues could provide a ready source of green stimulus, provided steps are taken to make their investment simultaneously more agile and more focused on job-creating, climate-related projects.

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