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The Role of Green Fiscal Mechanisms in Developing Countries: Lessons Learned

Case Study

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Acronyms

ETS	**Emissions Trading Scheme**
FAR	**Fourth Assessment Report**
FONAFIFO	**National Forestry Financing Fund**
GHG	**Greenhouse Gas Emissions**
IETU	**Impuesto Empresarial a Tasa Única**
IPCC	**Intergovernmental Panel on Climate Change**
LAC	**Latin American and the Caribbean**
NCEF	**National Clean Energy Fund**
OECD	**Organization for Economic Cooperation and Development**
PNRCC	**Plan Nacional de Respuesta al Cambio Climático**
UNDP	**United Nations Development Program**
VAT	**Value Added Tax**

THE ROLE OF GREEN FISCAL MECHANISMS IN DEVELOPING COUNTRIES: LESSONS LEARNED

PART 1: INTRODUCTION

Ministries of Finance across the developing world have made clear that climate change mitigation and adaptation projects will require new sources of government funding.[1] While there are a growing number of international climate finance mechanisms that can provide aid for these projects, countries like Brazil, Colombia, South Korea and Australia, have begun to explore how to raise this revenue and correct these market failures domestically. With an eye toward the Latin American and Caribbean (LAC) Region, this case study provides a practical guide to fiscal instruments that can promote climate change agendas, focusing on lessons learned from country experiences implementing these mechanisms. As most countries have historically relied on regulatory instruments to meet environmental goals, there are few documented studies of green fiscal policies in developing countries. This case study aims to add to that literature.

The choice of fiscal instrument will vary according to the size and nature of the environmental market failure, the political, economic, and cultural context in which that mechanism is implemented, and the goal of the mechanism. As such, green fiscal policies should consider: 1) cost-effectiveness, 2) environmental goals, 3) adoptability and compliance incentives, 4) ability to cope with uncertainty and provide a clear and credible price signal to investors, 5) equity implications, and 6) political and institutional capacity.[2] Each fiscal instrument that this case study surveys serves a different purpose and involves a different mix of social, economic, and political trade-offs.

Furthermore, the national or local context in which the instrument is being implemented is crucially linked to which instrument is the most appropriate for that country government. In order to understand the impact the fiscal instrument will have on the country, it is imperative to understand the details of the context (i.e. the country's political economy, its history with green fiscal policies, potential distributive implications, its economic structures, and the empirical analysis around the green fiscal instrument's impact). The success of these mechanisms hinges on the details, and therefore it merits the effort to thoroughly understand these details before designing the mechanism.

Latin America has distinct regional characteristics that make it different from other regions of the world and that require a specific set fiscal policy instruments. First, Latin America accounts for a small amount of the world's total greenhouse gas (GHG) emissions (around 12%).[3] Brazil and Mexico account for around 60% of the total emissions for the region with Argentina, Peru, Bolivia, and Venezuela making up another 25%.[4] As a result, any regional mitigation will have to include these countries. Second, the region's GHG emissions are dominated by emissions from land use change, representing almost 50% of the region's total GHG emissions, with energy use representing another 26%.[5] Therefore, policies aimed at mitigating the region's GHG emissions must address land use change and deforestation objectives. Third, the region has a remarkably high renewable energy potential because of its unique endowment of

[1] Within the international negotiations, this is frequently the argument used by the developing country blocks to campaign for increased international funding around the Green Climate Fund. Developing country needs are written into the final Cancun Agreements. UNFCCC, "Report of the Conference of the Parties on its sixteenth session, held in Cancun from 29 November to 10 December 2010." 15 March 2011 FCCC/CP/2010/7/Add.1

[2] Different international aid organizations have different metrics for evaluating policy mechanisms and their effectiveness. Exactly which metrics are used depends on the country context and the specifics of the policy itself. These metrics are taken from the OECD's report on "Tools for Delivering Green Growth" published in 2011. Pg. 8

[3] de la Torre, Augusto, Pablo Fajnzylber, & John Nash. "Low Carbon, High Growth: Latin American Response to Climate Change An Overview." Washington D.C.: The World Bank, 2009, 23.

[4] de la Torre, Fajnzybler, Nash, 2009, 25

[5] de la Torre, Fajnzybler, Nash, 2009, 25

natural resources that easily lend themselves toward a scale-up of wind, solar, geothermal, and biomass technologies. If countries and companies in the region make early investments in these low-carbon technologies, Latin America could develop comparative advantages and benefit economically from new technologies for which there is global market growth potential.[6]

Finally, and most importantly, the LAC region is extremely vulnerable to the impacts of climate change given its dependence on its natural resources and its high number of vulnerable populations. The region is already suffering some climate effects: temperatures in Latin America increased by about one degree Celsius during the 20th century, the sea level has risen two to three millimeters a year since the 1980s, unpredictable precipitation patterns have been observed recently throughout the region, and extreme weather events have become more common and more severe.[7] Whether from international sources or domestically financed, it is inevitable that countries in the region will need funding to assess adaptation priority areas, create national adaptation plans, and execute those projects.

The paper is divided into the following sections. It first discusses the role of fiscal policy in national climate change programming. It then analyzes the fiscal mechanisms used to promote climate change agendas, drawing on developing country cases. It continues to discuss the challenges that the Latin American context poses for green fiscal policy. Finally, it concludes with lessons learned and recommendations from country experiences implementing these mechanisms.

PART 2: WHY GREEN FISCAL POLICY?

Given the recent increase in the number and size of international climate funds, international institutions will clearly be a central part of climate change funding in developing countries moving forward. However, domestic fiscal mechanisms are still essential to prevent dependence on international climate aid, implement long-term domestically sustainable solutions, and ensure that countries have enough funds to cover adaptation needs. Reasons to explore climate-friendly fiscal policies follow.

First, green fiscal mechanisms have **revenue raising potential** for the government. While revenue impacts are hard to measure and dependent on the specific policy and country context, there is evidence that green taxes can be revenue-enhancing. This is frequently referred to as the double dividend—the hypothesis that green tax reform can stimulate economic activity by using its revenue to reduce other distortionary taxes, such as labor and consumption taxes, thereby generating both environmental and economic benefits. Several studies conducted by the Organization for Economic Cooperation and Development (OECD) show that increasing broad-based commodity taxation and reducing personal income and corporate taxes are efficiency-enhancing for the economy.[8] Studies conducted in Asia have shown similar effects for developing Asian economies. This empirical analysis has not yet been conducted in the Latin American region, and the issue deserves further investigation.[9] Experts caution, however, that these types of policies can be regressive and may have negative distributional implications.[10]

[6] de la Torre, Fajnzybler, Nash, 2009, 21
[7] de la Torre, Fajnzybler, Nash, 2009, 1
[8] "Climate Change and Fiscal Policy: A Report for APEC," Pg. 25
[9] Miller, Pg. 17
[10] OECD, "Taxation, Innovation, and the Environment," Pg. 143

Tools for Financing Climate Change and Environmental Projects:

Ministers of Finance have a variety of tools at their disposal to fund climate change-related programs in their countries.

Green Fiscal Policy: These market-based instruments aim to address climate change and environmental market failures through price signals. Since they are domestic mechanisms, they are either financed in the budget process with government revenue or add a new source of revenue to the budget process by taxing citizens or private industry. This category includes environmental taxes, tax exemptions and deductions, tradable emissions permits, and subsidies for clean energy investments. To date, green fiscal mechanisms have been used mainly for mitigation activities.

International Financing Mechanisms: These multilateral funds are normally financed by capital from developed economies and provide low-interest loans and grants for climate change-related projects in developing countries. Currently, there are around twenty five such funds, with focuses ranging from forestry to renewable energy to climate resiliency (www.climatefundsupdate.org). These financing mechanisms have traditionally provided funds for mitigation activities, but increasing beginning to finance adaptation-related projects.

Second, domestic fiscal mechanisms that help regulate GHG emissions normally **have significant co-benefits**[11] that will accrue to the economy in the form of health benefits from decreased local pollution, stimulation of the local job market, network effects of new technologies, increased foreign direct investment, and increased energy security. In terms of health co-benefits, the Fourth Assessment Report (FAR) of the Intergovernmental Panel on Climate Change (IPCC) summarizes the wide array of literature on the co-benefits of GHG reduction. The report empirically illustrates that even moderate GHG mitigation strategies would have substantial positive health impacts due to the side effect of reduced local pollutants (SO_2, NO_x, and PM).[12] Studies calculate that for Asian and Latin American countries several tens of thousands of premature deaths could be avoided annually as a side-effect of moderate CO_2 mitigation strategies.[13] Recently, several Asian governments have successfully leveraged side co-benefits to gain public support for new green fiscal policies. In India, the Minister of the Environment continually underscored the benefit of decreased local pollution when speaking to the public about the government's new levy on coal. In China, the government has often pointed to decreased local pollution and increased air quality in its major cities as just cause for its environmental regulation.

Third, **accessing international climate funds could be a difficult and lengthy process**. Applying for and implementing internationally financed climate projects comes with high transaction costs. Complicated application procedures, long confirmation periods, and burdensome administrative and reporting requirements all represent significant additional costs for recipient countries. The United Nations Development Program (UNDP) notes that developing countries have consistently cited problems accessing these funds and shaping projects to fit their national agendas.[14] UNDP leadership noted in their recent publication, "Catalyzing Climate Finance," that most developing country governments lack the capacity to enter the complex and highly technical climate finance landscape.[15] While green fiscal reforms will surely be difficult to pass, most countries already

[11] **Cobenefit** is a term commonly used in the climate change and environmental literature to describe a secondary benefit that results from a project whose primary goal was to reduce greenhouse gas (GHG) emissions. The term originates from the idea that most policies designed to address GHG mitigation also have other, often at least equally important, rationales, such as poverty alleviation and job growth.

[12] IPCC, 2007, 670
[13] IPCC, 2007, 670
[14] Glemarec, 2011, 20
[15] http://www.un.org/apps/news/story.asp?NewsID=38595&Cr=climate+change&Cr1

have experience administering fiscal programs in general; while on the other hand, the recent growth of international climate funds makes them a newer and more nuanced issue for government officials.

Once these international funds have been accessed and a program is in place, the projects components necessarily depend on donor priorities. For the sake of sustainability, it may not make sense for a country's entire climate change agenda to depend entirely on external assistance. Furthermore, some international climate funds are not available to all developing countries, especially the least developed countries.

As a result of these issues, it is important for countries in the Region to explore fiscal mechanisms as part of their broader climate change strategy.

PART 3: THE MECHANISMS

The following fiscal mechanisms have been used by governments to correct environmental externalities, support national climate change goals, and promote clean energy investments. The mechanisms are organized into the following three different categories according to their revenue implications: 1.) tax policies, 2.) subsidies and expenditure programs, and 3.) regulatory instruments with fiscal components. Each mechanism is defined briefly, its pros and cons are enumerated, and its applicability to the regional context is discussed. In specific cases, a country's experience implementing a mechanism is highlighted to illustrate how the mechanism functions in context.

3.1 TAX POLICIES

To correct an environmental externality, these types of fiscal mechanisms use the tax system to put a price on the commodity that is causing the environmental market failure, whether carbon or fossil fuels. Tax mechanisms are generally revenue enhancing for the state, although they have regressive distributional implications if they are not well-designed. The most economically efficient option is to tax the carbon dioxide emissions directly. Many governments, however, have found it easier to tax the fossil fuels that cause the carbon dioxide emissions, such as petroleum or coal. Other governments have used tax incentives, such as a VAT, income, and duty tax exemptions, to incentivize the creation of clean energy sources and attract environmentally friendly businesses. Tax incentives serve a different purpose than a carbon or fuel tax. They generally cost the state revenue rather than creating a new revenue source. They are not, however, as regressive as carbon and fuel taxes because they are targeted at private sector businesses.

3.1.1. Carbon Tax

A carbon tax is a price-based instrument that places a per unit emissions tax on all carbon emitting sources—coal, petroleum, and natural gas—in order to control the country's carbon emissions. By properly pricing the carbon emission externality, a carbon tax has the potential to result in decreased carbon emissions, increased investment in renewable energy systems, and a new revenue stream for the federal government.

In reality, countries that have executed a carbon tax have not been able to accomplish these goals completely, mainly due to political considerations and international competiveness concerns. Governments tend to make exemptions for specific industries that are highly dependent on fossil fuels (i.e. energy-intensive manufacturing sectors, air and ocean transport sectors, etc.) so that they can still be competitive in international markets.

PROs:

- A carbon tax is the most economically efficient option as it directly taxes the source of the externality.
- A carbon tax guarantees price certainty, thus reducing price risk for investors because they know the exact extra additional cost the carbon emissions will add to their projects.
- Since most countries have experience administering taxes in some form, this

mechanism is easier for governments to manage, monitor, and enforce.
- Creates a new revenue stream for the government that is easy to manage and collect.

CONs:

- The political economy of increasing taxes normally makes it difficult for governments to pass a carbon tax. This political difficulty is especially salient during an economic recession, and in developing countries with limited resources and smaller tax bases.
- The amount of environmental benefit (in the form of decreased carbon emissions) that a tax will solicit is uncertain. If the tax is set too low, then there will likely be smaller emissions reductions.
- Carbon taxes, in their pure form, are regressive and adversely affect low-income households. This can be corrected, but it involves complicating the tax system.
- Carbon taxes are really only feasible and useful in countries with high levels of GHG emissions, which is not the case for many countries in the region.

3.1.2 Fuel Taxes

A popular derivative of a carbon tax is a tax levied by the government on a particular fossil fuel source—petroleum, coal, gasoline, and diesel—to either raise revenue for the government or to reduce usage of that fuel. Given the nature of the elasticity demand for fossil fuels over time, fuel taxes will more likely create a new revenue stream in the short-term (when it is more inelastic), while it might change vehicle models and transportation preferences over the long-term (when it is more elastic).

The revenue from these taxes can either be earmarked—or a portion can be earmarked—into a special project fund or the revenues can go directly into the government's budget for the next fiscal year. In most countries, the fuel taxes act as an important source of revenue for the government and, in developing countries, an important source of revenue for transportation and road maintenance. However, in rare cases such as Costa Rica and Thailand in the early 90s, the state has been able to earmark some of their fuel tax revenue into national funds for conservation or climate change priorities.

Fuel prices vary dramatically throughout the region. In Latin America, petroleum product prices have historically been set well below world prices, ignoring marginal cost or opportunity cost pricing in order to meet political considerations, income distribution goals, and/or to promote industrialization.[16] In the Caribbean region, where the vast majority of petroleum is imported, petroleum product prices have historically been much higher.[17] Similar to prices, the level of taxation on oil products depends on whether the country is an oil exporting or importing country, with the exporters normally having much lower taxes on petroleum products.[18] Chile, Peru, and most of the Central American countries have historically had higher fuel taxes within the region.[19] On the other hand, Bolivia, Venezuela and Ecuador have traditionally had low fuel prices and low levels of taxation because they have other stable sources of government revenue.[20]

As fuel taxes have historically been used to finance transportation projects, it is only recently that these taxes have been viewed as environmental taxes. It will be difficult politically to redirect the use of this revenue from transportation priorities toward new climate change and/or environmental priorities. Therefore, it may be more politically feasible to increase the size of the tax, rather than redirect the tax revenue stream, to source revenue for climate change projects. Raising taxes could have serious equity implications, and policymakers should carefully analyze the price elasticity of demand for fuel and the distributional impact of the tax increase before moving forward.

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[16] Altomonte y Rogat, 2004, 14
[17] Altomonte y Rogat, 2004, 14.
[18] Altomonte y Rogat 2004, 14
[19] GTZ, 2009, 20
[20] Altomonte y Rogat, 2004, 14 and CEPAL, "Precio de los Combustibles en American del Sur mas México," 2010 < http://www.eclac.org/cgi-bin/getProd.asp?xml=/drni/noticias/paginas/5/21065/P21065.xml&xsl=/drni/tpl/p18f.xsl&base=/drni/tpl/top-bottom.xslt>

A key ingredient for countries that have been able to add a new or increase the national fuel tax has been a well-designed, technical approach to the new tax system. In Costa Rica and Chile, the government carefully calibrated the fuel tax for different fuel types (gasoline and diesel) as well as vehicle models, to mitigate equity concerns and to avoid a politically difficult backlash. In Costa Rica, the 2001 Law of Tax Simplification and Efficiency set taxes on gasoline 70 % higher than taxes on diesel (which is more commonly used in buses and trucks). This helped bring the bus drivers' union and other important political groups on board.[21] On the other hand, Bolivia's attempt to increase fuel prices in December 2010 was executed with inadequate planning and poor public communication, resulting in widespread strikes and disturbances. Public pushback was so severe that the price increase was eventually revoked.[22] A politically astute technical design, in many cases, is the key component as it determines the political economy reactions from affected groups.

PROS:

- Given the inelastic nature of demand for fossil fuels and the large size of the market in the region, even a very small fuel tax is likely to raise a significant amount of revenue for the state.
- Recent evidence shows that gasoline taxes are progressive in Latin America because wealthy households tend to own cars and spend a larger portion of their budget on fuel while low-income households rely on public transit for transportation needs.[23]

CONS:

- International competiveness could be affected by a fuel tax because increased transportation costs could raise the price of inputs and outputs.
- Fuel prices are politically contentious and might be difficult to change or increase.
- High oil prices limits the ability of the government to further increase commodity prices through a fuel tax because fuel prices are already comparatively high for consumers.

[21] Blackman, Osakwe, and Alpizar, 2009, 19
[22] GIZ, 2011, 2
[23] Blackman, Osakwe, & Alpizar, 2009, 18

Costa Rica: Channeling Fuel Taxes to Create a National Climate Fund

Both Costa Rica has levied a tax on fossil fuels and successfully channeled the revenue from that tax into a fund for domestic climate change projects. The Costa Rican government siphons off 3.5% of the revenue from its national fuel tax into its National Forestry Financing Fund (FONAFIFO). FONAFIFO then funds and organizes Costa Rica's payment for environmental services program, which pays to private landowners to conserve the forest rather than destroy it. This program has been internationally acclaimed for its successes in reversing deforestation and creating a culture of conservation in the country. The Ministry of Finance was able to earmark this revenue stream in 2001 when Costa Rica both simplified its complicated fuel tax system into one single, flat tax and passed its first National Forestry Law establishing FONAFIO. As the program has grown, the Ministry of Finance has begun to reach out for other sources of revenue to support FONAFIFO's expanding scope. Now, it draws resources from water usage fee levied on private companies, multilateral development banks, and international climate finance mechanisms. The bulk of the fund's financing, however, still comes from the fuel tax earmark: revenues from the gasoline tax contributed 68% of the total in FONAFIFO's 2010 budget.

There are several factors that have contributed to FONAFIFO's long-term financial success. First, a dedicated source of revenue from the earmarked fuel tax protects the fund from political motivations. Second, Costa Rican citizens are generally in favor of the fund, because they see both direct benefits for themselves in terms of personal participation and also for the country's economy in terms of increased tourism. Third, good initial stewardship and fiduciary management of the fund allowed its successes to build on itself. Fourth, the mechanism is easier to manage because it is funded mainly by domestic sources, which creates institutional capacity for environmental financial management within the country and allows the government to shape the goals of the fund according to its own priorities.

Both of these funds receive resources from dedicated channels originating in a fuel tax. In the case of Costa Rica, the fund began from a strictly earmarked tax stream. In the case of India, the fund began with the establishment of a corpus funded by a specific tax.

Earmarking revenues streams remains controversial because doing so can negatively impact the effectiveness of public expenditures, decrease expenditure flexibility and control, and is not always economically efficient due to political motivations. In the past several years, development economists and public finance experts have urged Latin American countries to reduce their existing earmarks (Alier & Clements, 2007, Pg. 7 & Santiso, OECD, 2004, Pg. 61).

Therefore, policymakers should think carefully about the size of the earmark, its economic efficiency, and the possibility of funneling revenue through a more flexible avenue before instituting an earmarked fund. However, if an earmark is necessary to improve the collection of revenue, there is institutional capacity to implement the earmark, proper oversight exists, and the legal framework is in place, earmarking could make sense for governments so that policymakers can ensure funding will exist into the future. This longevity is important for climate change activities, as it is a long-term problem that will not diminish in importance over the long-term.

Sources:

Santiso, Carlos. "Legislatures and Budget Oversight in Latin America: Strengthening Public Finance Accountability in Emerging Economies." *OECD Journal on Budgeting.* Vol. 4. No. 2. Paris, France: OECD, 2004.

Alier, Max & Benedict Clements. "Comments on Fiscal Policy Reform in Latin America."Prepared for Copenhagen Consensus for Latin America and the Caribbean Conference in San José, Costa Rica. October 20-25, 2007.

Oscar Chavez, FONAFIFO, Entrevista Personal. September 30, 2011

3.1.3 Income tax and value added tax (VAT) incentives

VAT tax exemptions, income tax deductions, and accelerated depreciation are fiscal mechanisms through which governments can incentivize investment in climate-friendly projects, support renewable energy systems, and/or promote projects with environmental benefits. Previous models include both exemptions from the federal or state value-added tax and income tax deductions up to a certain percentage over a specified period of time.

These mechanisms create attractive market conditions for private sector firms to execute projects with environmental or clean energy benefits. These tax benefits tend to attract large, international firms that have the capacity to navigate the tax system. These tax incentives, however, do not create a new government revenue stream and, depending on how many companies take advantage of them, could represent a significant cost to the government in terms of lost revenue.

PROS:

- Tax breaks mitigate high capital costs and reduce the long payback periods associated with climate-friendly investments to stabilize the investment environment for the private sector.
- Favorable tax policies provide an incentive for domestic innovation and development of new technologies, which could be a comparative advantage for trade in the region and around the world.

CONS:

- These types of incentives may not be sustainable in the long-term if they become large programs due to the cost of maintaining the instruments.
- Often hidden in the bureaucracy of the tax system, these incentives can be difficult for companies to understand and implement because they involve long application processes, administrative reporting requirements, and have complicated program requirements that strain human and financial resources.
- If tax breaks only attract larger, international firms that have the capacity to navigate the tax system, they will not necessarily help grow a domestic industry.

Mexico: Tax Incentives in a Conducive Regulatory Environment

Mexico has taken a regulatory approach to promoting renewable energy deployment in the country. Since the Mexican Constitution expressly establishes that only the government can generate, transport, transform, distribute, or supply electricity for public use, policymakers created a law allowing the self-supply of renewable energy. As such, they were able to bypass the state-run utility and engage the private sector. After a series of reforms that made sourcing power from renewable sources price competitive and transmitting it along the grid accessible, the number of renewable energy projects within the country has grown steadily. The vast majority of these projects self-supply energy for private companies, municipalities, and government-run industries. Mexico now hosts the largest wind farms in Latin America, which source power to Walmart and the state run cement company's plants in the state of Oaxaca.

Once a conducive regulatory framework had been established, the government of Mexico created several fiscal policy instruments intended foster the clean energy projects and provide an attractive investment climate for the private sector. The most successful of these mechanisms was the accelerated depreciation of 100% in one year on a company's income tax for investments in renewable energy. This facilitates investment as it lowers costs in the initial stages of the project. Due to the high capital costs associated with new renewable energy projects, the accelerated depreciation allows wind energy companies in Mexico to report no taxable profit for about seven years.

Ensuring that these fiscal mechanisms were effective and sustainable required several considerations on the part of the Government of Mexico. First, the streamlined legal framework allowed companies to execute clean energy projects and benefit from the accelerated depreciation with limited regulatory uncertainty. Mexico ranks relatively high (#35 in 2011 and #41 in 2010) on the IFC's Doing Business index, indicating that the business regulatory environment is favorable for private sector investment. This allows the fiscal mechanisms to be effective and implementable. Second, the government ensured that the tax code was simplified for businesses when it came to the accelerated depreciation for renewable energy investments. More specifically, when the government instituted a new alternative minimum tax (Impuesto Empresarial a Tasa Unica, IETU) in 2007, the Ministry of Finance ensured that the accelerated depreciation tax incentives reflected in the income tax were also reflected in the IETU so that companies would have the same advantages independent of which tax they were subject to. This requires a high level of institutional capacity and communication within the Ministry. Third, Mexico has a highly developed and active private sector interested in scaling up renewable energy, which was able to campaign for changes in the tax code and legal framework.

The Mexican experience emphasizes the need to carefully design tax mechanisms so transaction costs associated with using the mechanisms are small. The government achieved this by setting its fiscal instruments in a functioning regulatory framework. The Mexican case also underscores the importance of thoughtful, strategic planning when reforming tax systems to ensure incentives continue to be effective in a changing policy environment.

Sources: Barrett, Fred J, John A. Salerno, and Oscar Teunissen. "Summary of Mexico's New 'Flat Tax' Regime." PriceWaterhouseCoopers. 2008

Ernesto Centeno, Director General, Eoliatec, Entrevista Personal. September 28, 2011

Colombia: Mixed Results with the VAT and Income Tax

In the 90s, the Colombian government instituted a series of tax breaks to incentivize private industry to buy more climate-friendly equipment, invest in clean energy technologies, and implement environmental stewardship activities. There were two main types of tax breaks passed: value added (VAT) tax deductions and income tax deductions. Related to the VAT tax, a deduction of 26% was created for investments in equipment that will help ameliorate the firm's environmental impact, mitigate its greenhouse gas emissions, and/or promote recycling processes (Ley 223 in 1995). Related to income tax, two types of income tax deductions were passed. The first income tax deduction law allowed an income tax deduction of 20% on a company's annual income tax for investments in environmental-friendly equipment (Ley 223 in 1995). The second allowed an income tax deduction of 34% for 15 years for renewable energy projects if these projects: 1.) generate greenhouse gas reduction credits for the international carbon market via the Clean Development Mechanism or 2.) invest 50% of the profits in "social benefit" projects (Resolution 788 in 2002) . Social benefit projects are defined as projects concentrated in the following areas: health, education, basic sanitation, potable water, natural resources preservation, and sustainable housing (Decree 2755 of 2003).

In general, firms have taken advantage of the VAT tax exemptions much more frequently than the income tax breaks. From 2005 to 2010, the amount of these VAT tax exemptions granted annually has increased 10-fold, while the amount of the income tax exemptions has decreased by more than half over that same time period (data provided by el Ministerio de Ambiente, Vivienda, y Desarrollo Territorial).

Why have the VAT incentives been more popular? First, it is much easier to register the type of projects associated with the VAT incentive with the Ministry of the Environment, Housing, and Urban Development. Second, firms are able to deduct the entire amount of the VAT incentive upfront, while the income tax deductions must be spread over time. This gave firms a substantial benefit at the time of their investment. Third, the income tax exemptions have a lot of other requirements in order to be awarded the actual tax deduction. If the company could not register the reduction credits or find social benefit projects, they would not be awarded the tax deduction. This creates uncertainty around the tax incentive, making it less popular to private industry. Finally, there are actually two different ministries that run these two separate, but similar income tax deductions. This creates confusion for companies as to which ministry they should apply to for the income tax deductions certification. On the other hand, the Ministry of the Environment, Housing, and Urban Development is the only ministry that manages the VAT deductions, making the certification process simple and manageable.

The difference between the success of VAT exemptions and the less popular income tax exemptions illustrates the need for simplification of the tax code. Policymakers need to ensure when designing the law that the tax deductions actually provide an incentive for companies to take advantage of them. There should be no overlaps of tax incentives or complicated certification procedures as that causes confusion in the private sector. The VAT tax exemptions were able to do this because they were simple, avoided creating uncertainty, and fit the private sector's needs for this type of investment

In general, tax incentives in Colombia have been successful in moving companies away from outdated, inefficient and dirty systems to new machines that use cleaner sources of energy and have smaller environmental impacts in the past ten years. This is because the fiscal policy was able to show clear economic benefits for private industry and its own profit growth. This underscores the importance of tying green fiscal policy to other tangible co-benefits aside from a favorable environmental impact.

Source: Benavides et al. "Evaluación de la aplicación de los beneficios tributarias para la gestión e inversión ambientales en Colombia." En *Política Fiscal y Medio Ambiente*. Acquatella, Jean and Alicia Barcena, Eds. Santiago, Chile: CEPAL, December 2005.

Valencia, Adriana. "Effects of electricity market regulations on the promotion of non-conventional energy sources in Colombia." *International Journal of Public Policy*. Vol. 4 No. 1/2. pp. 76-99

Luis Fernando Ospina, Ministerio de Ambiente, Vivienda, y Desarrollo Territorial, Colombia. Personal Interview. October 13, 2011

3.1.4 Tariff Exemptions & Protections

Governments can introduce two different kinds of tariff incentives to support national climate change goals. On one end, governments can reduce or eliminate tariffs on imported capital and machinery for clean energy and/or environmentally friendly projects. This reduces the cost of investment for domestic businesses interested in these sectors. Many developing countries have recently implemented tariff reductions or exemptions for energy-efficient equipment and renewable energy system components. On the other end, a government could increase import tariffs on the final product of national companies in order to protect the domestic clean energy or energy efficient product market from import competition. Tariff protection, however, is on the decline in developing countries as it has historically led to inefficient, high cost, and distorted manufacturing sectors.[24]

Whichever type of tariff policy is chosen depends on the size and shape of the clean energy and environmentally-friendly technology base in the country. The goal of a tariff incentive should be to increase investment in a certain industry. The final design of the tariff policy will depend on where that industry is along the technological development spectrum and what obstacles the natural base within the country is facing (i.e. missing component industries or price competition for final products from international competitors).

PROS:

- Tariff reductions solicit increased foreign direct investment in domestic programs, which helps facilitate economic growth by expanding specific industries within the country.
- Tariff reductions make initial capital investments less costly, which is important for clean energy projects that are normally associated with high capital costs.
- Tariff protectionism could help grow nascent clean technology and environmentally-friendly products, especially against countries with artificially cheap input costs.
- Tariff reductions make international goods more competitive domestically and could drive down prices for the domestically manufactured goods making the domestic market more efficient.

CONS:

- Distortionary import tariff policies are economically inefficient and normally frowned upon by the World Trade Organization and regional trade blocs.
- Tariff protection has historically led to inefficient, overpriced domestic manufacturing sectors in the region.

3.2 SUBSIDIES & EXPENDITURE PROGRAMS

Subsidies and expenditures on green projects is another fiscal avenue through which governments can use price mechanisms to reach national climate goals. In using subsidies, the government can correct market failures associated with climate change and clean energy projects, such as high capital costs, imperfect information, and principal-agent dissonance. These mechanisms often also help provide a stable and financially attractive market for private sector investment in climate change projects. As a drawback, these mechanisms require government spending, which can be problematic in revenue-strained economies.

3.2.1 Trade- in Programs & Product Subsidies

Many countries, both developed and developing, have organized product trade-in programs in which the government accepts old, outdated, inefficient products and subsidizes the purchase of the efficient versions. These programs have been organized for wide variety of products, from freight trucks in the case of Chile to compact fluorescent lamps (CFLs) in the case of the Bahamas, to solar water heaters in the case of Trinidad and Tobago. The goal of this type of mechanism is to provide financial compensation for the high capital cost normally associated with energy-efficient or renewable products when compared to the standard version. The amount of the subsidy has to be carefully designed in order to meet the ideal

[24] UNCTAD, 2000, 22

price point for the product. Ideally, the widespread use of these products will reduce energy consumption, demand on the electricity grid, and eventually GHG emissions from the electricity sector. Successful versions of these programs are normally coupled with an information campaign so that consumers are aware how to use the products properly. These programs normally are run by the energy and/or environment ministry and funded through that ministry's annual budget allocation.

PROS:

- Can foster demand for a new industry and grow domestic production in a manufacturing sector, fostering economic growth and comparative advantages in international trade.
- A win-win for poverty alleviation and climate change goals as these energy and fuel-efficient products normally have lower operating costs than the traditional, inefficient versions, consequently create savings for the consumer.

CONS:

- Have to be conducted on a large scale in order to have an impact on energy consumption for the country.
- Potentially costly for the government depending on the size of the program and the cost of the subsidized product.
- Has to be coupled with a behavior change from the consumer in order to be effective, which can be hard for the government to control.

3.2.2 Green Banking Mechanisms & Loan Guarantees

There are a variety of bank mechanisms that governments can use to create a conducive environment for private sector investment in renewable energy and other low-carbon technologies. First, the government can help overcome institutional uncertainties and mitigate the financial risk by offering loan guarantees. Second, it can help ensure projects get off the ground by creating green credit lines and soft credit mechanisms to facilitate access to credit for firms interested in funding these types of projects. The government normally steps in to offer these types of loans and provide guarantees because clean energy projects tend to have high capital costs, longer payback periods, and higher risk margins, all of which makes them unappealing for financial firms to invest in.

These financial mechanisms, therefore, attempt to make the investment climate less uncertain and more accessible for profit-driven, private sector companies so that countries can grow their clean and renewable energy industry. As the goal of these instruments is to spur economic growth, they tend to be created and managed by the country's national development bank.

PROS:

- Attract foreign direct investment and stimulate the country's manufacturing sector.
- Mitigate financial uncertainty and lowers higher risk margins associated with clean energy projects.
- Have the potential to increase economic growth by stimulating investment in new industries, creating new jobs, and stimulating the network effects of new technology diffusion.

CONS:

- Often have complicated and onerous application criteria, making them inaccessible to most domestic enterprises, especially smaller national businesses.
- Require a large amount of government funding from the domestic development banks, which are likely to have other pressing social sector priorities.

3.2.3 Inter-government Fiscal Transfers

Developing countries often make use of intergovernmental fiscal transfers to help sub-national governments cover their expenditures in providing public goods and services. In developing economies, about 60% of sub-national expenditure is financed by these transfers. In non-Nordic Europe

and Nordic OECD countries, it accounts for 46 % and 29 %, respectively. [25]

Most fiscal transfers are allocated as lump-sum or general purpose transfers, allowing recipient local governments to decide how to use the funds and preserving local autonomy. In many countries, the fiscal capacity and need of a sub-national government determines the amount of transfers received. This transfer can occur between the federal government and the local municipal governments or, in federal systems, from the state level to the local municipal level.

Recently, countries like Brazil and Portugal have begun to allocate funds on the basis of ecological or conservation-based indicators, such as the number and size protected areas. To this end, certain indicators are established by federal and/or state governments for municipal governments to measure progress on conservation, deforestation, and other environmental initiatives. These indicators range from the size of the protected areas, to the number of protected areas with land management plans, to the number of biological, ecological, and natural resources reserves, among many others. Depending on how many of those targets are met, the federal and/or state government transfers funds to the local governments to encourage continued efforts. This instrument helps incentivize local governments to support conservation, since most conservation decisions are made at the federal level while opportunity and management costs are borne locally.

PROS:

- Low transaction costs because it is built upon existing legal mechanisms.
- Fosters important dialogue between the Ministry of the Environment and the Ministry of Finance both at the state and the municipal level.
- Strengthens local institutions and introduces an environmental agenda to previously un-engaged local governments.

CONS:

- The mechanism requires a certain level of institutional capacity at the municipal level to use the funds properly and execute conservation plans.
- More advanced applications of the mechanism require monitoring and verification, which will increase the implementation costs.
- This mechanism is only applicable if the legal structure underpinning these types of inter-government transfers are already written into the Constitution. However, if these types of transfers do not legally exist, an alternative method may be to build public infrastructure, financed by the state government, in municipalities with better indicator results.
- The mechanism necessarily creates winners and losers because there is a finite total amount of revenue that can be transferred to municipal governments.

[25] Ring et al, 2011, 1

Brazil and the ICMS-E

A number of Brazil states redistribute a portion of the revenue raised through the state value-added tax (ICMS) to their municipalities based on those municipalities' performance on a number of environmental indicators. The ICMS constitutes approximately 90% of state revenue. The Constitution mandates that 25% of the ICMS revenue must be re-allocated back to municipal governments; of that quarter, 75% has to be allocated according to how much ICMS revenue the state collected from that municipality and the other 25% can be allocated back as the state sees fit. Some states have passed legislation creating an Ecological ICMS (ICMS-E), which redistributes some of the remaining revenue according to municipalities' performance on pre-set conservation and environmental indicators. The revenue allocation criteria vary by state, but normally contain both a quantity variable (the number and size of protected areas) and quality variable (the relative degree of conservation integrity of the land inside the protected areas). The subsequent revenue transfer is a lump-sum without restrictions, as it is illegal in Brazil for states to mandate how municipalities spend their revenue.

This fiscal transfer originated as a mechanism for maintaining protected areas and compensating municipalities for the opportunity cost of protecting national forests, but has evolved into an incentive for expanding protected areas throughout the country. It was first introduced in the state of Paraná in 1991 and has since spread throughout the country. To date, 16 of 26 states have introduced the ICMS-E into their state constitutions. Of those states, 13 have passed the appropriate legislation and are actively implementing the ecological fiscal transfers.

The mechanism has successfully helped increase the number and size of protected areas in Brazil. Preliminary empirical work shows that there has been an increase in protected area coverage since the introduction of the ICMS-E in a number of states. Recent numbers for Paraná indicate that, in total, protected areas have increased by 164.5% since the introduction of the fiscal transfer mechanism. These results should be interpreted with caution, as they do not control for outside factors (such as increased monitoring and enforcement at the federal level or parallel private sector deforestation programs) or speak to the quality of the new protected areas (such as actual decreased levels of deforestation).

There are several reasons why this fiscal mechanism has been successful in certain states and has not taken hold in others. First, the municipalities with large ICMS-E revenues and large increases in the number of protected areas also tend to have higher levels of technical institutional capacity, allowing them to run conservation programs, train implementers, monitor progress, etc. Second, these states tend to have strong ties and open communication channels between the Ministry of the Environment, which assesses progress on indicators in the municipalities, and the Ministry of Finance, which translate those gains into revenue transfers. Third, states that have more municipalities actually using the ICMS-E revenues for conservation activities also tend to have state budgets that divided the unrestricted 25% of revenue into fewer, larger blocks (i.e. 5% for the ICMS-E, 5% for infrastructure needs, 6% for poverty priorities, etc.) as opposed to states that divided that portion of the revenue into smaller, specific pieces(i.e. 1% for school nutrition programs, 2% for vaccine initiatives, 1.5% for the ICMS-E, 3% for sewage initiatives, 2% for parks etc).

Finally, it is important to note that the ICMS-E has created some political pushback from poorer municipalities with limited natural resources that have been unable to access these benefits. In this sense, it should be noted that the ICMS-E has not been be a win-win for both poverty reduction and conservation efforts in all cases. Some states, however, are continuing to experiment with how to create this double dividend type of transfer.

Sources:
Ring et al. "Assessing Fiscal Transfers for Conservation Policies and Their Role in a Policy Mix." Presented at the 9th International Conference of the European Society for Ecological Economics. Istanbul, Turkey. June 14-17, 2011.

Personal Interview Jorge Jacoba. 19 September 2011.
Personal Interview Peter May. 11 August 2011.

3.3 REGULATORY INSTRUMENTS WITH FISCAL COMPONENTS

There are a suite of regulatory instruments that have been modified to include fiscal components, both on the revenue and expenditure side. These instruments are hybrids, normally involving a federal mandate that has fiscal implications in the form of taxes or subsidies built into the law. While there is a wide range of regulatory instruments that countries can employ to mandate compliance with national climate and clean energy goals, those mechanisms will not be analyzed in this paper as they normally do not have direct fiscal implications for the government.

3.3.1 Emissions Trading Scheme (ETS)

Often juxtaposed against at carbon tax, an emissions trading scheme sets a cap of allowable emissions for different sectors of the economy and allocates emissions authorizations among the country's carbon emitting sources. These allocations can either be auctioned or given as free allowances from the government. Only if the permits are auctioned will an emissions trading scheme have fiscal implications, in terms of increased government revenue. These allocations are allocated to firms in the form of permits for the designated level of carbon emissions for that specific type of firm. Once allocated, firms can trade permits according to the level of emissions they believe they will need in the future, allowing for cost-effective innovation. In general, emissions trading schemes are complicated fiscal mechanisms that require substantial government involvement and oversight. While there is some historical precedent for this model in developed economies (the U.S. uses a cap and trade mechanism to regulate SO_2 and NO_x emissions), many developing countries do not have as much experience with this type of instrument for GHG emissions.

PROS:

- It has been historically easier to pass emissions trading programs through political processes, as it is not a direct tax and lends itself more easily to industry flexibility.
- Emissions trading schemes can come closer than other mechanisms to guaranteeing a certain level of environmental benefit because the maximum level of environmental harm is set by the government agency.

CONS:

- Implementing this mechanism will require a larger portion of public resources and a higher level of institutional capacity with the government, when compared to a carbon tax, due to emissions trading schemes' complexity and sector specificity.
- This mechanism cannot provide price certainty. Since the amount of emissions is set by the government, the price of those emissions is determined by the market. These schemes have resulted in historically low carbon prices, which have failed to stimulate investment in alternative technologies.

3.3.2 Feed-in Tariffs

A feed-in tariff is a fiscal mechanism aimed at accelerating renewable energy deployment. A feed-in tariff drives market growth by providing developers long-term purchase agreements for the sale of electricity generated from renewable energy sources. This mechanism operates by guaranteeing a price for renewable energy. These purchase agreements typically offer a specified price for every kilowatt-hour (kWh) of electricity produced and are structured to range from 10-25 years. The payment level can be differentiated by technology type, project size, resource quality, and project location. The payment levels can also be designed to decline for installations in subsequent years both to encourage technological change.

PROS:

- Has proven successful of deploying solar PV technology in both developed country (i.e. Germany) and developing country (i.e. China) settings.
- Provides price certainty to renewable energy investors over a suitable time horizon for private industry.

CONS:

- Results in higher residential electricity prices because the increased cost to the utility of buying renewable power is normally passed through to the consumer.
- Forces the government to pick winners among available renewable technologies, instead of letting the market decide which technology is the most cost-effective and deployable on a larger-scale.

3.3.3 Renewable Portfolio Standard/Tradable Energy Certificates

This mechanism is a government regulation that requires electricity suppliers to source a certain portion of their electricity from renewable sources by a certain date with the goal of increasing renewable energy production throughout the country. This mechanism operates by guaranteeing a quantity of electricity that must come from renewable sources. Under this system, the certified production of qualified renewable power is recorded by certificates allocated to producers in proportion to the amount of qualified renewable power produced and sold to suppliers. The certificates and electricity can be sold separately. Ideally, producers recover the additional cost of producing renewable power (over conventional sources) through the additional sale of the certificate.

Utilities can show compliance with the renewable energy standard quota by surrendering the appropriate number of certificates at the end of the compliance period. They can acquire the certificates either directly, by souring from renewable power, or indirectly, by purchasing certificates from producers who produce more renewable energy than is mandated by the quota. The price of the certificates will be derived from the demand for the certificates, which will largely be due to the government quota levels, and supply of the certificates, which will largely be determined by the availability and cost of renewable energy sources. The transferability of the certificates reduces the cost of the regulation by increasing the flexibility of how the regulation can be met. The market created by these certificates will result in competition and innovation that will create downward pressure on prices.

A renewable portfolio standard is normally accompanied with a renewable energy production tax credit. This tax credit allows the renewable energy producer an income tax credit of a specified amount per kWh of renewable energy produced.

PROs:

- Has proven successful of deploying on-shore wind energy in both developed country (i.e. many U.S. states) and developing country (i.e. Chile) settings.
- Allows price competition and technological innovation because of the competitive market structure facing renewable energy producers.
- Guarantees a certain amount of growth in the renewable energy market, providing the industry with a certain level of certainty.

CONs:

- Fails to provide price certainty for the private sector as the price of the tradable green certificates largely depends on the demand for those certificates.
- Unfairly disadvantages electricity suppliers that cannot access renewable energy options due to geographic location.
- Renewable portfolio standards and their corresponding certificate trading schemes can be complicated to implement, manage, and monitor.

PART 4: THE CHALLENGES

It is impossible to separate fiscal policies from the political, historical, economic context in which they operate. Therefore, the following section outlines the unique challenges that the Latin American and the Caribbean region presents for green fiscal policies.

First, for many of the countries in the region, the **Ministries of Finance have limited resources and restricted mechanisms to raise them** due to high transaction costs, the informal nature of some

economic activity, and smaller tax bases due to elevated poverty levels. Hence, many countries in the region are revenue-constrained. The Latin American and Caribbean region historically has had an especially distorted tax system with widespread tax evasion.[26] A study by the Inter-American Development Bank conducted in 2010 on the fiscal environment of the region noted the significant economic burden of levying taxes in the region, their negative impact on investment in the private sector, and a reduction of market efficiency when new taxes are levied.[27] This raises two issues. One, climate-oriented fiscal policies levied by developing countries may not have the same level of effectiveness and feasibility as they have had in a developed country context. Two, with scare resources there is a higher opportunity cost of implementing taxes and creating subsides for climate change goals. That is, there is still significant need for funding in the education, health, and social services sectors in many countries in the region. Climate-oriented fiscal policies do not serve, at least directly, these important public sector priorities.

Second, many countries in the region have **state-owned, vertically integrated public utility companies that provide distortionary subsidies.** These companies are normally heavily subsidized by the government and tend to pass the subsidies through to their residential, industrial, and commercial customers, thereby distorting the energy market. Some state-owned utilities are even governed by laws that prevent them from purchasing more expensive, renewable energy. As a result, fiscal incentives and economic mechanisms might not solicit the same behavior change they would in a non-distorted market.

Third, **Latin American economies are heavily dependent on natural resources and commodities**. It is important to assess the impact of taxing those commodities, in the case of oil and natural gas, and/or restricting the sale of the natural resources, in the case of timber and agriculture. Given the large role these sectors play in the region's economic growth, it may be politically difficult to levy taxes or remove subsidies that could have a negative impact on these industries.

Fourth, implementing green fiscal reforms **requires a high level of institutional capacity**. Fostering technical knowledge of green fiscal policy and creating the institutional capacity within the government to carry out these fiscal policies requires not only technical training programs but also dedicating time and resources at the federal, state, and local levels. Creating this type of capacity can often take a longer period of time for governments burdened with other priorities.

Fifth, implementing green fiscal policy **requires a certain level of inter-agency partnership and cross-government collaboration**. This type of collaboration is needed both when it comes to designing the fiscal policy and when it comes to ensuring it is implemented. Traditionally, Ministries of Finance manage national tax and budget policies, and the Ministries of Environment and Energy house the technical specialists on climate change, clean energy, and environmental policy. Since green fiscal policy is a new area for many developing countries, the Ministries of Finance and the Ministries of Environment and Energy may not have a long history of working together to design these types of mechanisms. Furthermore, these agencies may approach the policy with different goals—the Ministry of Energy/Environment aiming to maximize environmental benefit and the Ministry of Finance aiming to maximize revenue. Bringing these two groups of policymakers together, therefore, is a crucial first step in green fiscal reform.

This dissonance also exists across the branches of the government. That is, while tax and other fiscal incentives are enunciated in the tax code, they need to be approved by the congressional and executive branches, and are eventually carried out by different government agencies. Such diversity of agencies dealing with the country's tax incentives creates many opportunities for inefficiencies and

[26] Chong & Pages, 2010, 153
[27] Chong & Pages, 2010, 157

failure in implementation.[28] Creating incentives for these different stakeholders to honor the original intent of the fiscal policy reform will be integral for its success.

South Korea: Mainstreaming Green Fiscal Priorities into the National Budget Process

Collaboration across government agencies is essential for the successful creation and implementation of green fiscal policy. Creating sound green fiscal mechanisms that meet both climate change goals and budget/fiscal priorities requires cooperation between policymakers from the Ministry of Finance and Ministries of Environment and Energy so that the mechanism can properly and efficiently correct environmental externalities. This can be problematic, however, because Ministries of Finance tend to have less expertise on climate change issues while the Ministries of Environment and Energy tend to run programs from a regulatory perspective, leaving them less familiar with fiscal policies.

South Korea has shown itself to be successful in bringing policymakers together to prioritize green growth and mainstream green fiscal measures into the national budget process. In early 2009, President Lee and his administration announced the National Green Strategy for Green Growth and the corresponding Five Year Plan (2009-2013), which provides a blueprint for government actions and implementation of the Strategy. The plan specifically details the program goals, the way forward for implementation, and financing mechanisms down to the budget earmarks and detailed tasks for the ministries and local governing entities. Under the plan, the government is spending around 2% of its annual GDP on green growth projects and fiscal measures (OECD, *Towards Green Growth*, Pg. 73).

To ensure the strategy was implemented and the proper groups were working together, the President created a Presidential Committee on Green Growth which has been able to streamline the plan priorities, involve the necessary policymakers and civil society groups, and lobby the government to ensure the different components of the Plan were passed. Indeed, South Korea has been more successful than other countries in actualizing its green stimulus plan, with almost 20% of the funds dispersed into financial, fiscal, and taxation policies by the end of the first half of 2009 (World Bank, "INFRA Update," June 2010). The government has also recently put in place the legal and regulatory structure for an emissions trading scheme similar to the one in place in Europe.

This type of strategy draws on the country's government planning practice that helped the economy recover from the Korean War and requires a high level of institutional capacity and government leadership. The comprehensive, top-down nature of this program may be difficult to replicate in the Latin American and Caribbean region. The creation of an independent green growth committees, however, that can take the lead in bringing together legislators to create the necessary fiscal instruments and mainstream the climate legislation like South Korea's Green Growth Committee and the U.K.'s Climate Committee is certainly a useful model for the region. These types of committees are a useful way to bring together the necessary parties from the finance side and technical side. Importantly, these committees are often created and given weight by a strong executive branch that prioritizes climate change.

Sources: Organization for Economic Co-Operation and Development (OECD). *Towards Green Growth.* Paris, France: OCED Publishing, 2011

World Bank. "INFRA Update: Lessons from the Implementation of Republic of Korea's Green Stimulus." Washington, D.C.: World Bank, June 2010.

[28] UNCTAD, 2000, 23

Sixth, creating green fiscal mechanisms **requires a conducive legal foundation,** which is lacking in countries in the region. The impetus for many fiscal mechanisms originates either in the Constitution or in the country's legal code, which are both difficult to change. Furthermore, strong interest groups, such as the auto and timber lobby and the state utility company, tend to oppose changes in these laws. Attempting to change the legal and regulatory framework, therefore, requires significant political capital and a strong dedication from the administration. Nevertheless, fiscal instruments tend to be more successful when they are set in a legal environment that facilitates success through transparency, historical precedent, and regulatory certainty.

Seventh, there is **very little specific information about the costs, politics, and valid policy options associated with climate change priorities**. While general climate change priorities are understood for the region, there is less country-level and local-level information on costs and policy priorities. In terms of cost, few empirical studies have been conducted by countries in the region to estimate the costs associated with mitigation programs, the GHG externalities in the fuel and power sectors, and local adaptation priorities. Similarly, little is known about the political economy of climate change programming in countries in the region. In order to create green fiscal mechanisms that correct these externalities, it is important to understand the details of the externalities themselves and the context in which they operate.

PART 5: LESSONS LEARNED & RECOMMENDATIONS

More information is needed regarding the costs, political economy, funding streams, and challenges associated with the climate change needs for countries in the region. In order to properly prioritize fiscal policies, the Ministers of Finance need to know exactly what their country's climate change priorities are and how much it will cost their government to meet those goals. Empirical studies should be undertaken to understand the cost and political economy of both mitigation and adaptation priorities. Integral to these studies will be a careful examination the contingent liabilities associated with the impact of climate change in the country. That is, the increased frequency and severity of natural disasters due to climate change could have a significant impact on the country's fiscal sustainability and revenue generation. Closing this knowledge gap will help ensure revenue is spent efficiently and effectively. Once the costs and politics are better understood, Ministers of Finance can design the appropriate fiscal instruments to meet the country's climate change needs and can ensure that demand for climate change projects matches the allocated supply of funds.

Clearly indentify the goal of the fiscal policy before implementation. The design and implications of the fiscal instrument will differ depending on whether it is intended to be a revenue raising mechanism or whether it is created to meet an environmental goal. Due to political complications, these two motivations are often inappropriately combined. When creating climate-oriented fiscal instruments, it is important that policymakers first think carefully through what they hope the policy will achieve, how much it will cost, and how to incentivize that end goal before implementing the policy.

Revenue should be integrated into the budget process in a cost-effective way to optimize development and climate change priorities. The new revenue streams from green fiscal mechanisms should be integrated into the budget process in way that allows Minister of Finance to fund more climate change activities while ensuring general revenue is sufficient to cover other country priorities. The destination of new revenue streams will take different forms depending on how revenue-constrained the economy may be, how high a priority mitigation and adaption programs are within the government, and the amount of revenue raised by the instrument. In some cases, when revenue is low and there are already significant earmarks, green taxes can increase general revenue and help diminish the burden on the general income in the government's annual

budget process. In other cases, when climate change is a priority and the need is long-term, it may make sense to earmark revenues or create specific funds in order to ensure specific programs are sustainable and protected from annual budget politics. In both cases, it is important to know the size of the demand for funds as well as how much earmarked revenue the fiscal instrument will capture. This will help Ministers of Finance ensure there is not unused revenue locked in the budget on one hand or that the demand on the earmarked funding does not exceed the actual level of funding on the other hand.

Green fiscal policy reform should be done in parallel with regulatory reforms. The fiscal policies that have had the most success are accompanied with corresponding regulatory and legal reforms that create an environment in which the fiscal policies can be effective. These regulatory reforms should stabilize prices, increase transparency, and mitigate legal uncertainty to provide a conducive investment climate for the private sector.

Successful mechanisms streamlined processes and help build local capacity. There are many green fiscal mechanisms that exist in theory but remain underutilized because they are overly complicated, involve too many processes, and are beyond the capacity of smaller, local enterprises. Instituting green fiscal mechanisms that are well-explained and have a historical precedent in the country tend to have wider uptake. Planning information sessions, publicity campaigns, and local training sessions around new fiscal instruments will help mitigate these obstacles.

Given climate change priorities in the region, it is important to **leverage co-benefits**. GHG emission abatement is normally not the main goal of environmental fiscal reforms in the region, given countries' small contribution to global GHG emissions and other pressing national priorities. Most policies that aim to reduce GHG emissions, however, tend to have significant co-benefits for the economy, either in the form of local pollution reduction, new local job creation, increased foreign direct investment, etc. Therefore, in the short-term, it may make sense to design green fiscal policies so that also leverage these co-benefits along with GHG emissions abatement or adaptation priorities. China, India, and Thailand have successfully leveraged these real co-benefits to garner political support for climate-oriented fiscal mechanisms.

Draw on international financial mechanisms in the long term to enhance revenue in the long term. There are a wide variety of international climate funds that provide financing for projects in developing countries. After domestic green fiscal mechanisms have been well-established, it could be helpful to tap into these international funds to ensure a continued increase in resources as programs grow. Most of the successful fiscal environmental mechanisms in Latin America eventually drew on international funding sources, such as REDD+ or multilateral climate funds, to expand programs in the medium and long term. It is easier to obtain this funding, however, after the program has proven itself to be initially successful.

Facilitate coordination between Ministries of Finance and Ministries of Energy/Environment. There is a historic lack of communication between these agencies in developing countries. Environment/Energy ministries tend to know little about national budgetary processes and finance ministries tend to see little fiscal repercussions from environmental and energy regulation. While this has begun to change, it is important to foster dialogue between these agencies to ensure they understand shared national climate priorities and how to leverage one another's expertise for efficient green economic growth. Assigning a technical specialist from within the Ministry of Energy/Environment to liaise with Ministries of Finance on climate and environment issues may be a way to ensure these agencies have necessary technical knowledge on how to design green fiscal instruments that have both climate and budget goals.

Strong executive branch leadership helps green agendas succeed. Countries that have passed comprehensive national climate legislation normally

have an executive branch champion or an executive committee able to guide the new fiscal policies and climate change laws through political inertia. This has been the case in developed countries (i.e. the U.K. during the Blair Administration) and developing countries (i.e. South Korea under the leadership of President Lee Myung-bak and India under the leadership of Minister of the Environment Jairam Ramesh). Identifying a group of government officials that can advocate for green fiscal reforms to all branches of government and bridge the gap between the Ministries of Finance and Ministries of Environment/Energy is an important political component for any economic policy package.

Fiscal policies that use price mechanisms tend to be easier to operate than policies that focus on quantity goals. Price mechanisms (i.e. carbon taxes) tend to be politically less palatable, but technically easier to implement when compared to quantity based mechanisms (i.e. emissions trading schemes). Price mechanisms are easier to implement, operate, and monitor because they normally involve setting one simple price on a fossil fuel, rather than attempting to continually measure emissions quantities for sectors across the economy. Furthermore, implementing price mechanisms mitigates the uncertainty associated with climate change projects because it provides a clear price signal for private and public sector actors.

PART 6: CONCLUSIONS

The appropriate fiscal mechanism that a country employs will vary according to the goal of the climate change policy. Those goals can range from raising domestic revenue for future adaptation needs, to mitigating greenhouse gas emissions, to stimulating the growth of new clean energy industries. These different ends will necessitate different means. The final choice of fiscal instrument will also involve different social, economic, and political trade-offs.

The fiscal mechanism that a country chooses will have to be tailored to its specific national context. There cannot be a one size fits all approach to green fiscal reform. This case study shows that, in order to be successful, the right fiscal instrument has to reflect that country's particular circumstances. The details of the mechanism will have to be designed differently given the specific challenges, history, political context, environmental failures, and fiscal environment that the country faces. The success of any fiscal instruments depends on respecting certain basic technical details and on adapting the specific details to the country's particular institutional and political context.

There still exists a significant knowledge gap in the region about the cost associated with climate change mitigation and adaptation actions and environmental policies in general. Before implementing costly fiscal mechanisms, countries in the region need to clearly understand their country's climate change priorities, how much those programs will cost, and how much the corresponding fiscal mechanism will cost or could raise for government. Understanding these costs and priorities will not only allow Ministers of Finance to better prioritize climate change spending in the annual budget process, but it will also help them apply for international climate financing.

This is particularly important for adaptation needs throughout the region, as the exact definition of climate change adaptation remains amorphous and needs to be understood at the local level. While climate science experts predict that the Latin American and the Caribbean region will suffer adverse impacts from an increase in the average global temperature, the exact nature of these repercussions will be different for each country and each municipality within each country. It is important that the Ministers of Finance know the exact parameters of these costs and strategies before implementing a corresponding fiscal policy.

Most Latin American and Caribbean countries are both small emitters of GHG emissions and have revenue-constrained economies. While this continues to be true, most comprehensive green fiscal mechanisms like carbon taxes or emissions trading schemes will remain a luxury. Smaller, more specific mechanisms that target both climate

change goals and a corresponding co-benefit (such as revenue expansion, economic growth, health concerns) may be a more reasonable short-term goal for countries in the region. In order to prepare for the medium and long-term—during which climate change mitigation and adaptation will certainly become a more central policy priority—countries should begin to assess climate goals, their associated cost, and which fiscal mechanism would match those needs given the country's specific cultural, economic, and political context.

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