

Briefing Paper on an Upstream Carbon Tax¹

By

Thomas B. Singh
Director
GREEN Institute
University of Guyana
thomas.singh@uog.edu.cy

September 21, 2021

Introduction

The extreme efforts taken across the world and by all the major institutions to address the Covid-19 Pandemic has demonstrated that nations can work together to address the world's greatest challenges, even when collective action is required. One such challenge is to keep average global temperatures well below 2°C above pre-industrial levels, a goal that has become a priority that is at the same time more urgent and more possible than ever before.

This priority is to use markets to help promote a low-carbon or decarbonised future economy (Remarks by IMF Managing Director on Global Policies and Climate Change, 2021), as provided for in the Paris Agreement, as far back as COP21. Among the instruments that are being advocated is the establishment of a global carbon price. In fact, there is an emerging global consensus that the time has now come to end the “pledge and review” frameworks that have hitherto been used to encourage increasing ambition in countries’ commitments to emissions reductions, and to embrace market mechanisms – either emissions trading systems or taxes - to resolve “the world’s greatest market failure,” as global warming has been called by Sir Nicholas Stern. For Guyana and Suriname, and other oil producing countries in the LAC, this can be understood to be an upstream carbon tax *at the wellhead of fossil fuel production* (Singh & Liang, 2020).

Having had limited success so far with existing pledge and review type instruments, additional mechanisms must be urgently developed in our quest to arrive at net-zero emissions by 2050. Such a mechanism is in fact based on the idea of putting a price on carbon. There is actually an emerging consensus that this is essential for “net-zero” climate stabilisation.² While “putting a price on carbon” might be achieved by the establishment of a cap-and-trade system for buying and selling carbon credits, there is growing interest however in the use of a carbon tax to achieve the stated objective of the Paris Agreement on Climate Change, to hold “the increase in the global average temperature to well below 2°C above pre-industrial levels and [pursue] efforts to limit the temperature increase to 1.5°C above pre-industrial levels.”

¹The document has benefitted significantly from the guidance, comments and suggestions of Glenn Gersie, Ministry of the Environment and Spatial Planning; David J. Singh, WWF Guianas; Francisco Monaldi, Baker Institute of Public Policy; Jay Mandle, Emeritus of Colgate University; Carlos Mendoza Pottellá, Central Bank of Venezuela; Blas Regnault, Erasmus Institute of Social Sciences; among others. The initial proposal was presented by Thomas Singh to the University of Guyana GREEN Institute’s February 2020 Symposium on “Social and Political Cooperation: What Will it Take to Accelerate Guyana’s Green Economy?” subsequent to which a Policy Brief co-authored with Tim Laing, University of Brighton.

² Even the World Bank and more recently the Managing Director of the IMF, along with many other coalitions, have been advocating putting a price on carbon.

Until now, the discussions about putting a price on carbon, and on carbon taxes in particular, are seen as initiatives to be taken in developed countries. The structure of the current proposals will therefore be of larger benefit to industrialised countries as they are all written from their perspective, with an associated institutional architecture that reflects this. Thus, when the matter of fossil fuels is considered, the discussion takes the form of a “downstream” carbon tax, levied perhaps at the petrol pump or at refineries in developed countries. What is being proposed here, however, is an upstream carbon tax, or a carbon tax “at the well-head” in oil producing countries such as Suriname, Guyana, Ecuador, Argentina, Brazil, Venezuela, and even Mexico, that will achieve the same climate mitigation effect of a downstream carbon tax, but will do so in a more cost effective manner and will also be in the best interest of LAC oil-producing and exporting countries that adopt the proposal.

The revenues that will be raised from the upstream carbon tax, outlined below, ought to be considered “climate revenues” that can be used to help Suriname, Guyana and other oil producers in the LAC to adapt to climate change and fund disaster preparedness activities, which will become more necessary given increasing frequency of catastrophic events associated with global warming. Hence, these countries can continue with their oil and gas development knowing that the upstream carbon tax will contribute to the mitigation effort and it will also yield climate revenues. Indeed, if the upstream carbon tax is adopted by other developing countries engaged in oil production and exports, some of the ensuing climate revenues can be used to start a Regional Climate Adaptation Fund, making countries in the region less reliant on external climate funds that are anyway quite inadequate and difficult to access, while also contributing to efforts to address the adverse effects of climate change in the region.

The Science, Economics and Strategic Importance of the Proposal

There are two principles, one physical and one economic, behind the upstream carbon tax proposal. The physical principle holds that a unit of fossil fuel will emit the *same* amount of carbon wherever and whenever it is combusted. The economic principle that justifies the use of upstream carbon taxes is known as the “irrelevance of who pays” a tax on economic decisions, and it says that the incidence of a tax (i.e. who ‘really’ pays the tax) is unrelated to the point of collection of the tax. As such, an upstream carbon tax in the Guyana-Suriname Basin will achieve the same emissions reduction results as at tax imposed at (say) the pump in any other country.

While the upstream carbon tax proposal is essentially about developing countries adopting carbon pricing as a “climate mitigation” contribution, there will be an important spill-over benefit to developing oil producing and exporting countries that adopt the proposal: They will earn revenues that otherwise would be earned by developed countries when they adopt the downstream version of the carbon tax. In other words, by adopting this upstream carbon tax proposal, countries like Suriname and Guyana would be able to make a contribution to climate stabilisation, while at the same time generating their own “climate finance” revenues, instead of awaiting (slow and tedious) disbursements from the various climate funds that are now in operation.

It is strategically important however for LAC countries to adopt the upstream carbon tax proposal for at least three reasons. First, to the extent that a downstream carbon price is adopted by countries that import oil from LAC countries, these latter countries will lose the opportunity to earn their own climate funds. Thus, if developed countries were to adopt a carbon price of say US\$40/ton of CO² equivalent, LAC countries will only be able to earn their own climate funds if they adopted a carbon tax that is higher than US\$40/ton of CO² equivalent. If instead they were to adopt the upstream carbon tax proposal first, then developed countries that import oil from LAC countries will only be

able to earn revenues by setting a higher carbon price, allowing them to impose a tariff or a border adjustment to capture the ensuing carbon price differential.

The second strategic issue is that the recent giant oil and gas discoveries in the LAC region³ come at a time when the concerns about fossil fuel use have been heightened to the point that even the International Energy Agency has called for an end to investment in new fossil fuel projects, such as those being undertaken in the Guyana-Suriname Basin. But as countries that have been known for particularly for the carbon sequestration services that their biodiversity-rich rainforests have been providing to the world, the proposed upstream carbon tax will help LAC countries resolve what has hitherto been seen as a deep paradox as they work with oil supermajors to extract fossil fuels in their countries that together boast the planet's greatest biological diversity.⁴

The third strategic reason is that adoption of the upstream carbon tax would allow LAC countries can even take the lead in mobilising other similarly situated countries to adopt an upstream carbon tax as a nudge⁵ to other stalled efforts to putting a price on carbon, thereby providing global leadership in the quest for net-zero emission by 2050.

Critical Issues

The critical issues related to the upstream carbon tax proposal have to do with how LAC countries' best interest will be served by its adoption. These will be addressed in a "Q & A" manner:

Q1. Will LAC countries' oil and gas exports enjoy a competitive advantage if the upstream carbon tax were not adopted?

A1. Definitely not, if countries that import LAC oil and gas were to adopt a downstream version of the tax, as is very likely going to be the case. If, and probably when, a downstream version of the carbon tax is adopted, imports of oil and gas from any country that doesn't already have a carbon tax will face a "border adjustment" or a tariff that will level the playing field for their domestic oil and gas producers by effectively raising the cost of imported oil by the amount of the downstream carbon tax.⁶

Q2. Will a country like Suriname earn positive net (climate) revenues from an upstream carbon tax, given that it has a National Oil Company (NOC)?

A2. The general answer to this question is that NOCs will also have to pay the upstream carbon tax, but when they do so, they are paying taxes to their 100% shareholder, the State. More specifically, even though Staatsolie (the Surinamese NOC) will also have to pay the upstream carbon tax, its

³See <https://www.imf.org/-/media/Files/Publications/WP/wp1727.ashx>.

⁴ According to a 2010 UNEP Report *State of Biodiversity in Latin America and the Caribbean*, "Latin America and the Caribbean is the region with the greatest biological diversity on the planet and it hosts several of the world's megadiverse countries. The region holds almost one half of the world's tropical forests, 33 per cent of its total mammals, 35 per cent of its reptilian species, 41 per cent of its birds and 50 per cent of its amphibians.1 Levels of endemism are very high in the region: thus, 50 per cent of the plant life of the Caribbean is unique. This biodiversity also represents a source of abundant genetic resources for Latin America and the Caribbean." <https://www.cbd.int/gbo/gbo3/doc/StateOfBiodiversity-LatinAmerica.pdf>.

⁵ "Nudging' in public policy involves using behavioral, economic, and psychological insights to influence the behavior of policy targets in order to help achieve policy goals. This approach to public policy was advocated by Thaler [the 2017 Economics Nobel Laureate] and Sunstein in their book *Nudge* in 2008. Nudging does not involve seeking to *persuade* individuals about the merits of pursuing particular courses of action that will better serve their long-term welfare. Rather, it involves altering the choice environment so that when people follow their instincts, using familiar mental shortcuts, the most prominent option available to the policy target will be one that is likely to promote their own welfare, and that of society more widely." Taken from the Oxford Research Encyclopaedias.

⁶ See <https://www.transportenvironment.org/discover/macron-pushes-carbon-tax-europes-borders/> and <https://www.nytimes.com/2021/07/16/opinion/carbon-tariffs-climate-change.html>.

current spending on its impressive Social Responsibility programme can be adjusted by the amount it pays as a carbon tax, provided that its social responsibility projects do not involve additional (or better, reduce) carbon emissions. But even if this is not done, Staatsolie will be able to add the carbon tax revenues it pays to earn credits for its Sustainability programme.

Beyond this, the prospective production from new offshore investments will far outweigh the current (16,500 barrels per day) production by Staatsolie. Though Article 12 of the model PSA used by Staatsolie provides for its participation in the offshore development and operations, as owner of the petroleum rights it apparently has forgone exercising this right to participate, opting instead to assess a royalty at the Delivery Point, at which stage the petroleum rights are transferred to the operator. A carbon tax that is assessed at the Delivery Point will therefore be a liability for the joint venture operator, and not for Staatsolie.

It is clear therefore that once offshore oil production begins in 2025, Suriname will earn significant (climate) revenues from a carbon tax:

Scientific calculations⁷ are that each barrel of crude oil contains on average⁸ **0.43 metric tons CO₂/barrel**, hence at a price of **US\$30/metric ton of CO₂**, Suriname will earn **US\$12.90 per barrel** of crude oil not produced by Staatsolie. If then, offshore production is significantly more than Staatsolie's production, Suriname will earn significant positive net climate revenues from a carbon tax.

Q3. Will investors be deterred from LAC by the upstream carbon tax?

A3. The simple answer is no, or at least that it is highly improbable that investors will be deterred by an upstream carbon tax. The first reason why this is unlikely is that all oil majors have already been using an "internal" carbon price, one that they assume they will have to pay, before making a final investment decision on new projects. ExxonMobil for example is reported to use an internal price of US\$80/ton of CO₂, so if the upstream carbon tax is lower, the projects will still be feasible.

What is more, the investments in LAC will continue to be attractive, and not just feasible, because it is unlikely that the upstream carbon tax would be even close to the internal price of carbon currently being used by oil majors. At any rate, major and costly specific investments and commitments have already been made in LAC, with some oil majors giving up booked reserves in other parts of the world to focus attention on the higher quality/lower cost Guyana-Suriname crude. This might no doubt apply to other countries in the LAC. Moreover, the momentum for putting a price on carbon is so great that the LAC's relative attractiveness would be unaffected by the upstream carbon tax, because all other countries would (in all likelihood) be soon forced to adopt carbon pricing or else their imports will face a 'border adjustment' that will make them costlier and will level the playing field. *In fact, it will be precisely to avoid any locational arbitrage opportunities that LAC countries such as Suriname and Guyana in particular ought to consider adopting the upstream carbon tax at a uniform rate.*

⁷ <https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references>.

⁸ An important point to note is that heavier oils contain more carbon than lighter ones. Ultimately, there will have to be proper scientific calculations of the carbon content of oils from different basins with the strong likelihood of a differentiated upstream carbon tax regime. But this also means that an upstream carbon tax regime will be a superior one compared to the relatively blunt downstream carbon tax that does not make this differentiation. See "The Carbon Contained in Global Oils," by Deborah Gordon, Carnegie Endowment for International Peace, <https://carnegieendowment.org/2012/12/18/carbon-contained-in-global-oils-pub-50398>.

Finally, an upstream carbon tax may even crowd in investment by oil majors, with potential knock-on effects in other sectors, because the degree of uncertainty about the exact rate, base and structure of carbon tax proposals is causing investors to have to adopt inefficient mechanisms to address the prospect of carbon pricing becoming a reality.

Q4. Will oil companies try to block the upstream carbon tax proposal?

A4. There three reasons why oil companies will **not** block the upstream carbon tax. The first is that the carbon tax will have the same revenue implications for oil companies regardless of where on the production or consumption chain it is levied. This is known as “the irrelevance of who pays the tax,” and is based on the notion that both producers and consumers will share the tax burden; and that that sharing will be the same regardless of who is legally liable for the tax.

Furthermore, oil companies would know that a price on carbon is inevitable. The final reason why oil majors will not attempt to block the upstream carbon tax is because of the deep and widespread concern about global climate change, and the growing consensus that a price must be put on carbon.

Q5. Will other countries importing LAC oil and gas retaliate against the upstream carbon tax?

A5. Under the WTO rules, such retaliation will more than likely be rejected under WTO dispute settlement processes (if it gets that far even) as long as the upstream carbon tax does not favour domestic producers, or does not favour imports from some countries over others. Furthermore, it is unlikely that the WTO will go against the objectives of other UN agencies such as the UNFCCC, particularly when it concerns the SDGs.⁹ Avoiding retaliation will entail levying the upstream carbon tax domestic oil and gas producers and not only foreign investors, but as mentioned above, this will ensure that revenues generated will remain in LAC countries instead of being lost on account of border adjustments.

Q6. What must be done to ensure that LAC countries are in the best position to benefit from an upstream carbon tax (PSAs, COP26)?

A6. LAC countries will have to ensure that their legislative frameworks, including the PSAs that will be signed with oil companies, allow for the adoption of an upstream carbon tax. In Guyana’s case, a loophole in the PSA along with a particular provision in the country’s Environmental Protection Act allowed the Environmental Protection Agency (EPA) to impose a tax on flaring emissions above an allowable threshold, and it will be this same loophole that will allow the EPA to impose an upstream carbon tax on carbon sequestered in each barrel of oil (if Guyana wants to adopt the proposal). Suriname and other countries that are now structuring their PSA, have an opportunity now, ahead of the start production in 2025, to ensure that these issues are addressed.

LAC countries will also have to be prepared at the upcoming COP26 meeting in Glasgow to do whatever is required to ensure that the negotiations do not conclude with decisions that would preclude the adoption of an upstream carbon tax. The particular issue will be the “Rulebook” for the implementation of Article 6 of the Paris Agreement. LAC countries will have to be in a position to ensure that the architecture of the rules implementing Article six do not preclude the adoption of an upstream carbon tax.

⁹ “WTO case law has confirmed that WTO rules do not trump environmental requirements. If, for instance, a border measure related to climate change was found to be inconsistent with one of the core provisions of the GATT, its justification might nonetheless be sought under the general exceptions to the GATT (i.e. Article XX), provided that several conditions are met,” p. 4, *Trade and Climate Change A Report by the World Trade Organization and the United Nations Environment Programme*.
https://www.wto.org/english/res_e/booksp_e/abstract_trade_climate_change_e.pdf.

Q7. How will the revenues earned from the upstream carbon tax be managed and used if the proposal is adopted by LAC countries?

A7. The countries can agree to adopt the proposal, but they will be doing so as sovereign and separate countries so they can determine the management and use of the funds independently. Another, and perhaps more interesting possibility, is for part of the revenues be used as subscriptions to a Regional Climate Adaptation Fund that will have its own management structure.

Q8. Will the environmental lobby groups oppose the upstream carbon tax, making it difficult to gain acceptance under Article 6 of the Paris Agreement?

A8. If the tax is “too low” then these groups will certainly regard the measure as a licence to emit more GHGs, so the first element of a communications strategy will have to point out that the upstream carbon tax will reflect the best measures of the Social Cost of Carbon.

Another concern is that there could be carbon leakage that would negate the mitigation benefits of the upstream carbon tax if production is increased elsewhere, where there is no upstream carbon tax and where the crude oil might even be heavier and contain more carbon per barrel. The answer to this concern is that first, the LAC upstream carbon tax will undoubtedly prove to be a nudge to other developing oil producing countries that will lead to a uniform adoption of the upstream carbon tax; and will also be a nudge for the adoption of carbon pricing of fossil fuels globally.

Urgency Considerations

The movement to put a price on carbon in developing countries is now rapidly gathering momentum. In fact, the EU has already indicated to the Goods Council of the WTO that they intend to impose a border adjustment (i.e., a tariff) on goods imported from countries that do not have a domestic carbon pricing mechanism. There are several coalitions that are calling for the US to put a price on carbon either by a cap-and-trade mechanism or a carbon tax. Indeed, many carbon tax bills have been introduced in recent congressional sessions in the US. And most recently, the IMF Board is currently considering and IMF Note that calls for the adoption of a minimum price floor in G8 countries.

In the case of the EU, the European Emissions Trading System (ETS) has for several years now been in existence, putting a price on carbon. It is because of this that it has notified the Goods Council of the WTO of its intention to impose a border adjustment in order to achieve carbon neutrality by 2050.¹⁰

It is clear that any oil produced in the LAC will soon have to face border adjustments in order to be exported to the EU and the US. In all likelihood, COP26 will make carbon pricing and ensuing border adjustments priorities for developed oil importing countries. If LAC countries do not adopt the upstream carbon tax proposal therefore, any exports to these latter countries will end up facing a tariff that levels the playing field with domestic oil producers; and this tariff will be no less than the tariff that oil exports from other countries will face upon entry to developed oil importing countries. The net result is that LAC oil exports would have effectively been assessed a carbon tax at the carbon

¹⁰ https://www.wto.org/english/news_e/news20_e/good_11jun20_e.htm.

price determined in developed oil importing countries, and it would have lost the opportunity to earn any climate revenues for itself unless it assesses an upstream carbon tax that is higher than the border adjustment. But they did attempt to earn its own climate revenues by this latter approach, its oil exports will lose competitiveness to other oil exporting countries that do not have an upstream carbon tax.

Finally, it should be noted that even if LAC's crude oil will not be exported to countries that have a domestic carbon price, there will be a crowding-in effect that will ultimately cause those countries to impose implicit border adjustments on oil imports from LAC. As a case in point, Guyana now exports crude oil to India, which does not have a domestic carbon price. But if India uses Guyana's oil to produce goods that will be exported to the EU, a border adjustment imposed by the EU will ultimately be reflected in lower prices for Guyana's oil exports to India.

The Policy Dominance of the Upstream Carbon Tax over Other Options

As indicated earlier, putting a price on carbon can be achieved by either an emissions trading system or by a carbon tax. While the earlier sections indicated the apparent inevitability of carbon pricing and outlined the benefits and urgency of an upstream carbon tax, a word must be said on the policy superiority of the latter proposal.

In the first instance, it would make little sense for individual LAC countries to attempt to develop a domestic emissions trading system as this will not target oil companies but will apply to all producers, it will not earn any (climate) revenues for LAC, and it is a costly and complicated system to develop and operate.

But what about participating in emerging global carbon markets by selling carbon offsets from say forest-related activities? Quite apart from the fact that this approach and the upstream tax on carbon sequestered in each barrel of oil are **not** mutually exclusive, emphasis on the former approach will only yield a small fraction of the climate revenues that would be earned under the latter (upstream carbon tax) proposal. Indeed, it may be possible for the upstream carbon tax to be used to establish a baseline price for the sale of offsets, given that the current offset prices are usually very low.

Further Issues

A more complete proposal will have to do the following:

1. Indicate the context of the upstream carbon tax proposal as one that may or may not fall naturally into Article 6 of the Paris Agreement. Indicate also the structure of other recent carbon pricing proposals such as the recent IMF Staff proposal for an international carbon price floor and those included in the Center for Climate and Energy Solutions' [Carbon Pricing Proposals in the 116th Congress](#) and the Resources for the Future's [Carbon Pricing Bill Tracker](#). In particular, the distinction between the revenue-neutral downstream carbon tax proposals and the upstream carbon tax must be made clear.

2. Review Article 6 and the documents related to the rulebook for Article 6 such as the "DRAFT TEXT on Matters relating to Article 6 of the Paris Agreement: Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement" proposed by the President of the Parties to the Paris Agreement (CMA) and "Decoding Article 6 of the Paris Agreement" produced by the Asian Development Bank.

3. Examine the interaction between emissions' trading or cap-and-trade initiatives that aim to sell internationally transferred mitigation outcomes (ITMOs) or carbon credits on behalf of developing countries and the upstream carbon tax, with a view to determining if both options cannot be exercised, with the latter providing a base price of carbon.
4. Review the literature on carbon pricing and the Social Cost of Carbon and establish a range for baseline prices to be used to determine the upstream carbon tax.
5. Outline the potential impacts, including the climate mitigation and potential ITMO impact and the revenue impact and the impact on (global) GDP, of the tax by considering methodologies and forecasts such as the General Equilibrium Model for Economy - Energy - Environment (GEM-E3).
6. Develop a negotiating position for LAC countries to adopt at the upcoming COP 26 Climate Conference.
7. Develop a communications strategy and a lobbying strategy around the idea that the upstream carbon tax gives "balance" between competing between developed and developing countries in the quest for net zero.
8. Discuss trade implications of the proposal and border adjustments that would be assessed on Suriname's oil exports; and flesh out the argument that the upstream carbon tax could provide a nudge for the rest of the world to adopt carbon pricing.
9. Give options for the use of the climate revenues raised by the upstream carbon tax and address other design elements of the upstream carbon tax. (This is a longer term issue).
10. Examine the potential difference in the interests of developed and developing countries, with a view to reconciling them.

Bibliography

International Energy Agency. (2021). *Net Zero by 2050: Roadmap for the Global Energy Sector*. International Energy Agency.

Leaders Pledge for Nature. (2021). Retrieved from <https://www.leaderspledgefornature.org/>

Remarks by IMF Managing Director on Global Policies and Climate Change. (2021, July 11). Retrieved from https://www.imf.org/en/News/Articles/2021/07/11/sp071121-md-on-global-policies-and-climate-change?utm_medium=email&utm_source=govdelivery