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What Climate Change Means for Latin America

Paul Isbell

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Cover Image:

Ribeirao das Lajes dike with its forest bordering the reservoir, an example of Light S.A.'s reforestation program. Light, a subsidiary in Brazil of the French company EDF (Électricité de France), distributes electricity to 80% of the State of Rio de Janeiro and implements environmental protection programs. ANTONIO SCORZA/AFP/Getty Images.

What Climate Change Means for Latin America

By Paul Isbell



Compared to the US or China, each of which contributes 20% of the world's annual greenhouse gas emissions, Latin America accounts for a mere 10%. Agriculture (a major source of methane) and deforestation account for nearly two-thirds of the region's greenhouse gases.

Latin America's position in the energy and climate change landscape generates unique strategic policy choices. Like Africa, Latin America has contributed relatively little to climate change, but the region is set to absorb more than its fair share of the environmental and geopolitical consequences of the problem, leading to a range of strategic incentives and disincentives that require more than mere replication of the policy responses elsewhere.

Latin America is particularly vulnerable to climate change due

to its geography. Much of Mexico and Central America lies within the hurricane belt, which now operates with greater force and volatility as a result of global warming. Latin America's low-lying coastal zones, which include many of the region's largest urban areas, will come under threat from warming-induced rising sea levels. In addition, much of South America's agriculture and urban activity depends on water flowing from the Andean glaciers, which are now in retreat. This threatens the sustainability of the region's populations and economies and, in particular, its

main low-carbon energy source – hydroelectric power.

How such environmental instability will interact with ongoing geopolitical frictions and heightened instability in different parts of the region is far from clear. Climate change is poised to impact Latin America just as many of the region's economies are breaking away from a traditional cyclical dependency on the world's core developed economies. The region's economies are slowly but surely diversifying their domestic production, internal demand, and external trade and financial linkages. Brazil in

particular is emerging as a pioneer in energy and climate policy. At the same time, however, the region remains vulnerable to traditional maladies – from the oil curse to the debt trap – that typically interact destructively with the sources and impacts of human-induced climate change.

Compared to the United States or China, each of which contributes more than 20% of the world's annual greenhouse gas emissions, Latin America's impact is a mere 10%. In per capita terms, these figures correspond to more than 23 metric tons per person in the US, compared to just over 10 metric tons in Latin America. This is down from more than 13 metric tons 20 years ago.

Furthermore, Latin America's carbon footprint has a distinctive structure and obeys a different dynamic than in other parts of the world. While CO₂ emissions from energy use make up nearly two-thirds of global greenhouse gas released from all sources, in Latin America they account for less than a third. Instead, agriculture (a major source of methane) and changes in land use patterns, including livestock-driven deforestation, account for nearly two-thirds of the greenhouse gases the region produces.

If we removed all greenhouse gas contributions stemming from changes in land use patterns, the region's share would drop to around 6% (around 5 metric tons per capita). The US contribution in relative terms would remain at more than 20% (22 metric tons per capita). But if we discounted all non-energy related greenhouse gas emissions, Latin America's contribution would fall even further, to between 3 and 4% of the global total (compared to 19% from the US), around four to five metric

tons per capita. This is in line with Chinese per capita energy-induced CO₂ emissions.

What this emissions profile should tell policymakers about Latin America is that energy consumption there is less dirty (in climate terms) than in most other parts of the world. Although Latin America is still more dependent on petroleum, which comprises 44% of its energy mix compared to 35% in the world as a whole, it is less dependent on coal (4% compared to a global average of 24%). Coal is by far the energy source that emits the most CO₂. In its place, Latin America relies on large-scale hydroelectric power for approximately 25% of the region's primary energy mix. In Brazil, the figure is 75%, an even greater electricity share than France's fabled nuclear power, while in Paraguay hydropower approaches 100% of the electricity mix.

For policymakers, the battle against deforestation is even more important than decarbonization of the energy economy in Latin America. This is particularly true in Brazil, where biofuels add even more low-carbon energy – 25% of all transportation fuels – on top of hydroelectricity. But while Brazil's energy economy is relatively clean in terms of carbon emissions, its economy accounts for much of the significantly higher level of greenhouse gas emissions in the region in total.

To some observers, all of this suggests that the push toward a post-fossil fuel energy future is less urgent in Latin America than in other parts of the world. On the one hand, given the low level of CO₂ emissions stemming from energy across the region, even if Latin America completely decarbonizes its energy economy it will make little difference to

the rate of global greenhouse gas accumulation in the atmosphere (the key in this regard resides in the US and in China). The expansion of livestock agriculture, on the other hand, which leads to both increased methane emissions and forest clearing-induced CO₂ accumulation, significantly contributes to global warming. Efforts to halt deforestation in developing countries, such as the REDD+ program, have been recognized by the international climate change community as critical elements in the fight against global warming. Unfortunately, while Latin America has improved on the land-use front, its traditionally low energy-induced carbon dioxide emissions have increased significantly in recent years, even if from a low base.

Some Latin American countries may see little strategic gain in undertaking the arduous and costly effort of deploying low-carbon energies to reduce global emissions in time to avoid the worst manifestations of climate change. Yet many of the same countries have much to gain from significant efforts to pursue low-carbon energy deployment, simply because such a commitment is often the best way to garner financing for the costly mitigation efforts and even more expensive climate adaptation they will soon need. Even without the threat of climate change, many Latin American countries would see strategic benefits from displacing imported, high-priced fossil fuels with domestic renewable and other low-carbon energy sources, reducing direct energy costs and freeing themselves from potentially destabilizing dependence on unstable and unreliable sources. ■

Paul Isbell is a visiting senior fellow at the Inter-American Dialogue.