



# Environmental Impacts and Policy Responses to Covid-19: A View from Latin America

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## Abstract

COVID-19 is currently having major short run effects with possible serious long run implications for the environment and the management of natural resources in Latin America. We discuss the possible effects of the pandemic on air pollution, deforestation and other relevant environmental dimensions across the region. With contributions from environmental economists from eight countries, we give an overview of the initial and expected environmental effects of this health crisis. We discuss potential effects on environmental regulations, possible policy interventions, and an agenda for future research for those interested in the design and evaluation of environmental policies relevant for the Latin American context.

**Keywords** Air pollution · COVID-19 · Coronavirus · Deforestation · Environmental impacts · Environmental policy · Latin America · Pandemic · SARS-Cov2-19

**JEL Classification** H12 · Q22 · Q23 · Q53 · Q56

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## 1 Introduction

On February 25, 2020, the Brazilian Ministry of Health confirmed that a 61 year-old man was positive for SARS-CoV-2: COVID-19 had arrived to Latin America. As of July 3rd, 2020, there have been 2.7 million confirmed cases in Latin America, compared to 1.3 million in the European Union and 2.8 million in the USA (JH-CSSE 2020). Furthermore, so far there have been more than 120,000 deaths in the region and the trends show that the first wave of the pandemic is far from over (ibid.).

There is of course no suitable time for a pandemic to arrive, but these are especially complicated times for Latin America. The region is in the midst of a difficult economic situation accompanied by rising social discontent (ECLAC 2020; OECD 2020). Moreover, it is characterized by high rates of informality, health systems with limited and unequal capacity, and most of the countries have high levels of debt (OECD 2020). Under these circumstances COVID-19 is having major short run socio-economic effects with possible serious long run consequences, including several potential implications for the environment and the management of natural resources.

## 2 Short Run Impacts on the Environment and Natural Resources

### 2.1 Air Pollution

Restrictions of free movement and circulation within and across urban areas of Latin America have reduced economic activity as well as the use of motorized vehicles. As a result, many Latin American megacities have experienced a short run decrease in air pollution. Concentrations of  $\text{NO}_2$  have decreased considerably in cities all over the region compared to the levels observed prior to the lockdown measures (IADB 2020). Levels of  $\text{PM}_{10}$ ,  $\text{PM}_{2.5}$  and CO have decreased in Bogota, Buenos Aires and Quito (Bogota's District Secretary of Environment, personal communication, June 3rd, 2020; Roa 2020; Rocha 2020).

Nevertheless, the pandemia has not had the same effect on air quality in all the major cities in the region. In Mexico City, the reductions in  $\text{SO}_2$ ,  $\text{PM}_{2.5}$  and  $\text{PM}_{10}$  concentrations have been modest, and there has been no reduction in ozone.<sup>1</sup> In Rio de Janeiro, ozone concentrations have increased (Dantas et al. 2020). Furthermore, as the virus and its negative consequences spread across rural areas and make its way through the southernmost part of the region, outdoor and indoor pollution might actually increase. In Mexico, as well as in other countries in the region, the use of firewood is likely to rise as rural households try to deal with income reductions (Masera et al. 2020). Meanwhile, as winter hits central and southern Chile, urban households might increase their use of firewood for heating given that, due to the lockdowns, they have to spend more time inside dwellings (Encinas et al. 2020). This rise in air pollution could arguably increase the risks associated with COVID-19.

<sup>1</sup> Own estimations using data from Mexico's City Ministry of the Environment, available at [www.aire.cdmx.gob.mx](http://www.aire.cdmx.gob.mx).

## 2.2 Deforestation

It is too soon to do a formal evaluation of the effects of the pandemic on deforestation and land use change in the region. Nevertheless, the available information suggests that COVID-19 is likely to have negative effects on forest cover across the region. Early deforestation warnings from Peru show that, although deforestation decreased between March 15 and April 15, since then it has increased surpassing the levels observed during the same period in 2018.<sup>2</sup> According to data from the Brazilian National Institute for Space Research (INPE), the first quarter of 2020 already evidenced a rise of 50% in deforested hectares compared to last year's figures. The figures for April 2020 reinforce this pattern, with a 64% increase with respect to April 2019 (Manzano 2020). From January to April 2020, deforestation alerts in indigenous territory increased 59% when compared to the same period of the previous year (Greenpeace Brasil 2020). Although at this point it cannot be claimed that the pandemic caused the observed increase in deforestation, it certainly does not seem to have provided incentives to halt it.

In Colombia, contrary to other countries in the Amazon region, the trend in 2019 showed a reduction in deforestation compared to 2018. However, 2020 started with an increasing tendency and the quarantine seems to have worsened the situation (FCDS 2020). The absence of environmental monitoring during the pandemic seems to have encouraged illegal armed groups and regional mafias to take advantage of the situation, exacerbating deforestation with the possible intensification of illegal activities from which these actors derive income, such as illegal mining, land grabbing, and illicit crops (BBC 2020).

According to the Pan American Health Organization, in May 18th, 2020 there were already 20,000 COVID-19 confirmed cases in the Amazon basin (Martín 2020). The impact of the pandemic in forest-based indigenous communities is an important source of concern. The spread of the virus in these communities could imply a tragedy that, in addition to the human losses, could affect the traditional knowledge, having negative impacts on the governance of natural resources in the region. This could lead to even more deforestation processes in the future.

## 2.3 Other Impacts on the Environment and Natural Resources

COVID-19 has caused a disruption in the national and international trade of nature-based goods and services. Tourism has come to a halt, affecting the economy of almost all of the countries in the region (Mooney and Zegarra 2020). In countries like Costa Rica, where the touristic industry is intertwined with nature, the shock to the sector could have negative effects for biodiversity and forests. Without income from tourism, and given that as a slow recovery process is anticipated, the incentives to protect forests are expected to decrease in the short and medium run. Fishing and aquaculture are other industries that have been negatively affected. Information for the case of the Chilean salmon aquaculture industry suggests that there has been a reduction in demand from international markets (Chávez et al. 2020). The effect of the shock is being transmitted through the value chain, affecting processing plants and farming facilities.

<sup>2</sup> Own estimations using data from geobosques, available at <http://geobosques.minam.gob.pe/>.

### 3 Potential Effects on Environmental Policies and Regulations

The economic crisis can end up having long-run negative consequences for the environment if, as a result, regulations and environmental policies are relaxed or if institutions are weakened. Although at this point there is no evidence of any country in the region purposefully relaxing environmental regulations to promote growth, it is certainly a possibility. What has been observed is that, in order to fund measures to reduce the economic and social impacts of the pandemic, some countries have decided to reallocate funds across the public administration. Ecuador, for example, announced cuts affecting the ministry responsible for enforcing environmental regulations (BBC News 2020). Something similar is happening in Mexico, where the plan announced by the President is to reduce the operational budget of almost all government entities by 75% (D.O.F. 2020). Even if countries have a relatively strong environmental legal framework, without a budget to monitor and enforce the regulations this framework is worthless.

Countries in the region will very likely incur fiscal deficits and increase their debts in order to fight the crisis. It remains to be seen how the service of the increased debt will impact economic growth and the environment. In the meantime, it seems that the short-run legitimate demands to recover employment levels and improve the health systems might very well push aside the necessary investments to successfully tackle climate change and biodiversity loss. If this indeed happens, it could be the most serious effect of the COVID-19 pandemic in both environmental and social terms.

### 4 Discussion and Research Agenda

The economic projections suggest that the region will experience a crisis whose magnitude has no precedent in modern history (ECLAC 2020). In order to overcome this apparently insurmountable challenge, Latin American countries will need well-designed policies that should reconcile economic objectives with social and environmental goals. The social unrest manifested recently in the social mobilizations in the region, should make clear that the apparent tradeoff between economic, social and environmental objectives, is the result of a false dichotomy between short and long run objectives. If environmental objectives are put aside, as has so often happened with social objectives, the economy might recover in the short run but at a very high price.

The lockdown measures seem to be having a temporal positive effect on reducing urban pollution in some Latin American cities. The challenge now is how to intervene to prevent a return to the same or even higher pre-quarantine emission levels. This is an opportunity to rethink the urban environmental policies while trying to recover from an unprecedented social crisis. At the same time, the observed increase in deforestation reopens political and academic debates about the role of national parks, indigenous reserves, and other protection categories in a context of deteriorated livelihoods, illegal economies and a lack of state presence.

Latin American countries could see this moment as an opportunity to improve regional cooperation in order to design and implement coordinated policy responses not only to the economic crisis but also to the challenges of mitigation and adaptation to climate change. Furthermore, countries should coordinate efforts to increase monitoring and presence in the region to effectively reduce deforestation.

We have presented an account of some of the most evident environmental effects that the COVID-19 pandemic is having in Latin America at this point. Considering that we are in the midst of the health crisis and in the beginning of an economic one, it is natural to expect that the trends that we see now will change in the near future and that other environmental impacts will become evident. Research that contributes to a better understanding of the environmental impacts and the effectiveness of different policy responses to the pandemic in Latin America will be invaluable. There are many potential paths for future research, here we mention just a few.

The consequences of the interactions between poor air quality and COVID-19 on human health are clearly worth studying. This is particularly relevant for the Latin American context, characterized by health systems with very limited capacity and high numbers of population without formal employment. Results from studies in this area could help us provide better guides to set environmental quality goals, as well as to implement policy interventions that can reduce pollution in the region's context of income inequality and spatial segregation.

The short run environmental effects of COVID-19 show early warnings of an increase in the pressure on forest and other ecosystems across Latin America. Understanding the impacts of the pandemic on terrestrial and marine ecosystems, as well as on livelihood opportunities for local communities, has the potential to contribute to the design of policies which can improve management and conservation.

The pandemic is opening new research questions regarding the impacts of global shocks on natural resource-based industries that participate in international markets. Furthermore, the paths that different countries take to get out of the economic crisis might have profound impacts on international trade. If, for example, the world transitions to more reliance upon local production, or if emissions-related tariffs are imposed, large exporters of commodities in the region will be highly affected. The impacts that these potential trade changes could have on the environment are unknown. Furthermore, if developed countries implement recovery plans that include provisions to reduce emissions in significant ways, as has been discussed in the European Union, will Latin American countries be able to respond in the same way? In any case, Latin American countries are highly vulnerable to the effects of climate change and some of these effects (e.g. migration) could result in future health crises. A better understanding of the ways in which individuals might adapt to a changing climate, as well as of the barriers that they face to adopt adaptation measures, will be a valuable tool for the design of adaptation policies that prevent future health crises in the region and elsewhere.

The distributional and gender-differentiated impacts of the pandemic, and the related environmental policy responses, is another area that deserves attention, especially because early evidence shows that the more vulnerable segments of the population in the region are the ones that are being hit hardest. Finally, as has been recently pointed out by Helm (2020), the experience of the pandemic might lead to changes in behavior and personal choices. It remains to be seen if this is in fact the case, and if so, how are these changes in behavior modulated by the local context. An even more important issue to consider is what would these changes imply for the design of behavioral-based policy instruments aiming to change consumption and production patterns, as well as transport and land use decisions in Latin America.

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