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ENVIRONMENT AND HEALTH SITUATION IN LATIN AMERICA

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PRESENTATION

This report aimed to address some key aspects of the Latin American development model and its impact on the environment and on health. As this is a broad topic, with vast possibilities of analysis, it was decided to address issues related to the rural-urban binomial.

We started out with a few selected countries in terms of their importance in Latin America and highlighted some issues to get a clearer dimension of social and environmental impacts of the hegemonic economic development model in the continent.

Although limited in scope, this text seeks to build an analytical axis to bare historical trends in order to shape a more structural analysis of the situation.

INTRODUCTION

The economic development model in Latin America, as Eduardo Galeano highlights in *Open Veins of Latin America*, was historically ruled by a production method which required large population displacements and dismantled the community agricultural units. The gold and silver rush was the conquest's main driving force, along with sugar cane exploitation and timber extraction, the underpinnings of the colonizing matrix. More than five hundred years after this colonial model, subordinated to foreign needs and financed by several countries in the global north, Latin American countries currently have agro-exporting landlordism as an important

factor hindering development with social justice and a primary factor of marginalization and poverty in the region (PAHO, 2011).

Taking Brazil as an example for Latin America, Table 1 shows that this colonial “vocation” has been reinforced over the past 10 years in terms of its exports, which are specializing in *in natura* agricultural goods, diverse food, minerals and metals and fuels. Above all, there has been an increased share of minerals and metals, food and fuels, i.e. basically oil. In turn, the percentage of manufactured goods and high-tech manufacturing products exported decreased continuously, the first of which went from 58.4% in 2000 to 37.1% in 2010, and the second fell in the same period from 18.7% to 11.2% of total manufactured exports (CARNEIRO et al., 2012).

Table 1. Brazil, 2000 to 2010. Goods exports

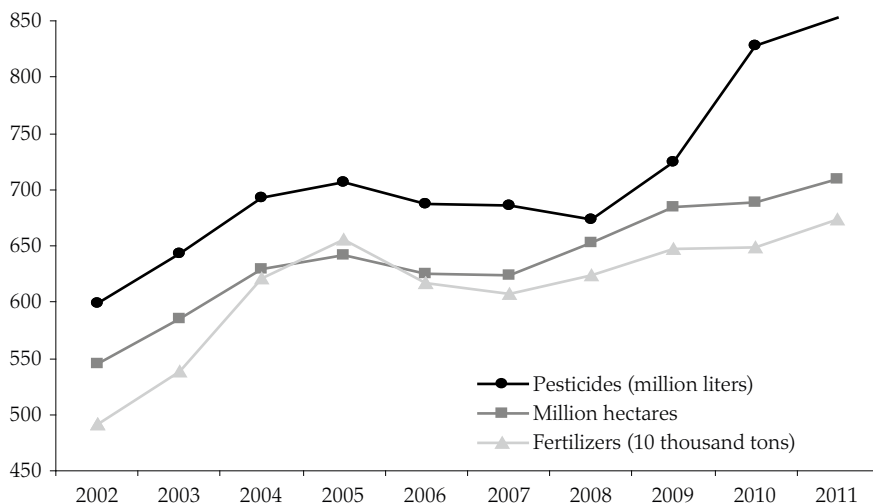
Type	2000	2002	2004	2006	2008	2010
Food*	23.4	27.9	28.0	25.0	27.6	31.1
Fuels*	1.6	4.9	4.6	7.7	9.5	10.1
Minerals and metals*	9.8	8.5	8.6	10.8	12.1	17.8
Manufactured goods*	58.4	52.6	53.4	50.8	44.8	37.1
High-tech manufacturing**	18.7	16.5	11.6	12.1	11.6	11.2

Obs. *As % of total exports. **As % of total manufacturing products.

Source: World Bank Information System.

This initial focus in Brazil is justified by its global and Latin American role in food production, as shown in Table 1, which is a growing trend closely related to the increased use of pesticides. In this context, in the last three years, Brazil has become the largest consumer of pesticides on the planet, as seen in Chart 1. This agricultural model has generated impacts on health and the environment in general and, more specifically, in the most vulnerable population groups.

Chart 1. Consumption of pesticides, fertilizers and planted area in Brazil - 2002-2011

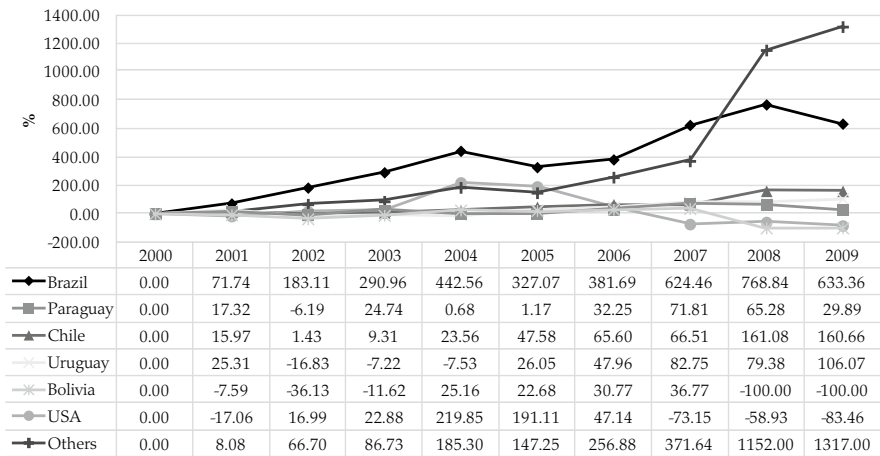


Source: ANVISA, 2012.

With the exception of Brazil, Latin American countries are absolute importers of products formulated of pesticides from China, India or Israel. Brazil imports almost 80% in technical products and the rest is formulated products (FP)¹. Importing FP hampers excessively the inspection of the marketed product, including its composition. Another aspect is that other Latin American countries have no formal and systematic intervention on the part of health and environmental bodies in the assessment for the registration of pesticides as in Brazil. Argentina has played an important role in the export of pesticides formulated in the Southern Cone, mainly to Brazil and Chile, as shown in Chart 2.

1 The technical product is the pure active ingredient. The formulated product is a commercial mixture in which the technical product (active ingredient) is mixed with other substances, such as surfactants, thickeners, etc., according to the strategy of use.

Chart 2. Growth rate of Argentina's FP exports to main countries, from 2000 to 2009, in kgs



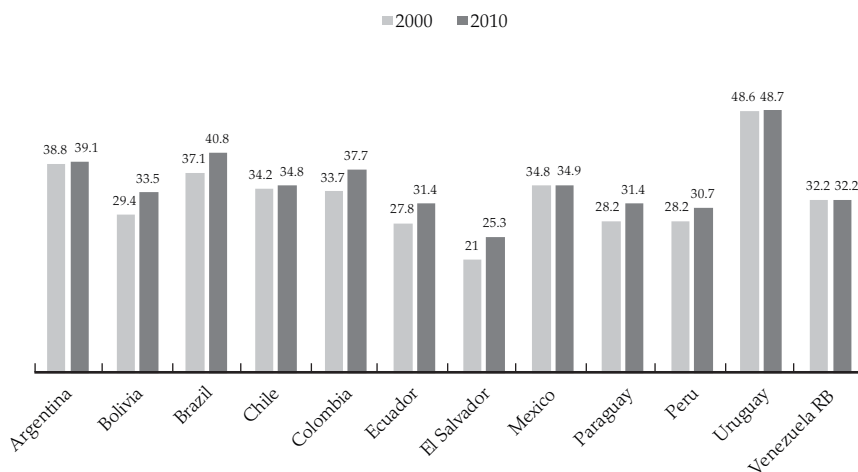
Source: ANVISA, 2012.

URBANIZATION, ENVIRONMENT AND HEALTH

This agroexport economic development model contributes to the expulsion of people from the field, favoring the existence of the highest urbanization rates in the world in Latin America and the Caribbean. Between 1987 and 2007, the percentage of urbanization increased from 69% to 77%, for an estimated population of 560 million inhabitants (PAHO, 2011), and, at present, almost 77% of the population live in cities, and the urbanization rate continues to grow.

By analyzing data from South American countries, it is clear that, in 2000, nearly all of them already had major conurbations, with large cities harboring much of the population of each country, with the exception of El Salvador, which harbored only 25% of its population in large cities in 2010. In the same year, other countries reached extreme levels, such as Uruguay, with 48.7% of its population living in its capital, while about 40% of Brazilians and Argentines are living in large cities, according to Chart 3.

Chart 3. Population in large conurbations with over 1 million people in Latin America (% of total population)



Source: The World Bank. <http://data.worldbank.org/indicator/EN.URB.MCTY.TL.ZS>

Over the past 10 years, the rural population has been falling against the urban one in the 12 Latin American selected countries. This is one of the serious consequences of this economic development model, which expels rural populations because of the large agribusiness landlordism and contributes to swelling cities that are increasingly becoming unhealthy places. This urban growth, in most cases disordered, generates a greater need for transportation, which, due to contexts of economic and social vulnerability, represents high risks of accidents and a high level of air pollution. In the Americas, it is estimated that, annually, 130,000 people die, 1.2 million people are injured and one hundred in every thousand suffer from some form of disability caused by traffic accidents (PAHO, 2011).

In terms of air pollution, it is estimated about 35,000 people die each year as a result of such contamination in the intra-urban environment and 276,000 years of life are lost for the same cause (PAHO, 2011). The United Nations estimates that in 2010 Latin America had a population of almost 600 million inhabitants; of these, approximately 9% are aged 0-4 years and 6.9% over 65 years. This means that about 100 million people are among the populations most susceptible to air pollution, when one considers that

the highest concentration of contaminants is in big cities and, in Latin America, at least 133 cities have more than 500,000 inhabitants. Table 2 provides a good picture of the Latin American problem.

Table 2. Annual deaths caused by external air pollution in selected Latin American countries, general population and percentage in large cities, per average air pollution.

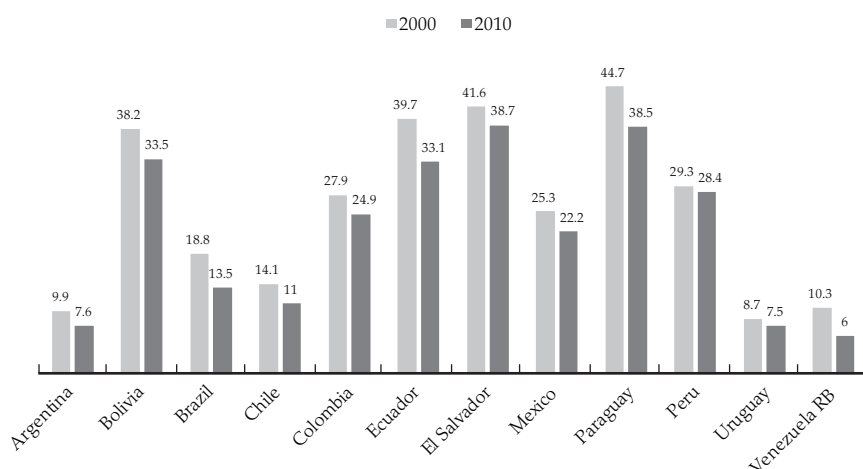
Country	Population (millions)	Percentage of population in cities with more than 100 thousand inhabitants	Annual deaths caused by external air pollution	Average PM ₁₀ μm^3
Argentina	38.7	74	12,200	78
Bolivia	9.2	45	1,000	72
Brazil	186.4	45	12,900	35
Chile	16.3	57	2,300	62
Colombia	45.6	41	2,700	42
Ecuador	13.2	48	500	34
El Salvador	6.9	27	300	48
Mexico	107	56	7,200	49
Paraguay	6.2	25	400	103
Peru	28	53	3,100	62
Uruguay	3.5	44	1,300	154

Source: Environmental health burden. Country profile.

It is noteworthy that the country with the largest concentration of population in large cities, namely, Argentina (74%), is proportionally the country with the highest mortality from air pollution.

Chart 4 shows the continued declining trend of the rural population against the urban population in Latin America over the last decade.

Chart 4. Rural population of selected Latin American countries (% of total population)

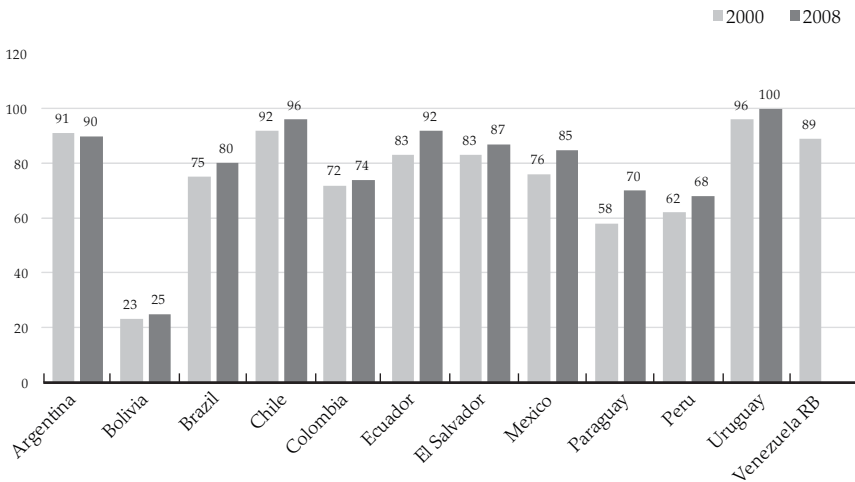


Source: The World Bank.

The poorest population of large cities lives with environmental inequality and deterioration in urban marginal areas where housing conditions, access to potable water and basic sanitation are poor and the population is exposed to levels of chemical and biological contamination through the discharge of domestic and industrial waste inadequately treated or disposed of in aquifers (PAHO, 2011).

According to World Bank data, in 2000, Bolivia had the lowest percentage, i.e., only 23% of the population had access to basic sanitation; on the other hand, Uruguay had the highest percentage, 96%; and 75% of Brazilians had access to sanitation improvements.

Chart 5. Percentage of the population with access to basic sanitation in 2000 and 2008



Source: The World Bank.

Chart 5 shows a slight trend toward improvement in the eight-year period among countries with regard to sanitation, with Uruguay recording full access of its population, whereas Bolivia remained with the lowest percentage of access, i.e., 25%, and Brazil reached 80%. This may be associated with the maintenance of diarrheal diseases as causes of mortality and morbidity among children in these countries, influencing indicators such as infant mortality. According to PAHO Health in the Americas 2012 report, the infant mortality rate for children under five (per thousand live births) in Latin America is 17.3, whereas in North America this same rate is 7.4. These large differences can also be explained by the precarious sanitation in Latin America compared to other regions. Sanitation is one of the most important sustainable health protection actions for the populations. Countries such as Bolivia have large deficits, with corresponding large investment needs for the sector. Other countries have shown a slow growth in health improvements.

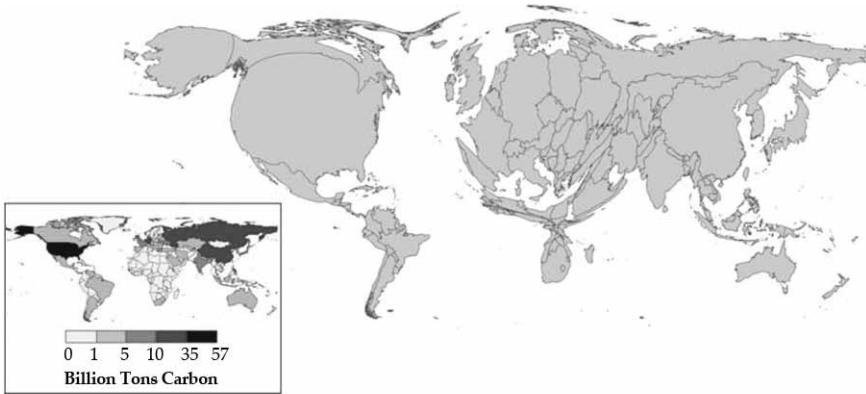
CLIMATE CHANGE, ENVIRONMENT AND HEALTH

According to the United Nations Intergovernmental Panel on Climate Change (IPCC), the predictions for 2100 are that the planet's average temperature will rise between 1.8°C and 4.0°C, sea level will rise and extreme hydrological phenomena (floods and droughts) will be more intense (PAHO, 2011).

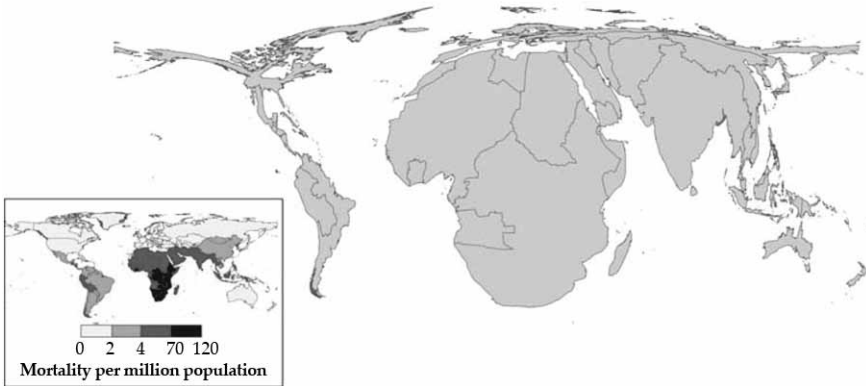
In Latin America, the most vulnerable regions are the small Caribbean islands and coastal regions, which will be subject to sea level rise and flooding. The fast development of urban areas, which end up becoming poor neighborhoods, will increase the vulnerability of the populations to extreme weather events such as floods and landslides.

In the first map, it can be observed that the largest CO₂ emitters on the planet are the U.S., Europe and China, while the African continent and India will be the most impacted areas in terms of climate-sensitive health effects. Latin America will suffer an intermediate impact level when compared to Africa and Asia.

Figure 1. Comparison charts with accumulated carbon dioxide (CO₂) emissions (per country) without reduction in the period 1950-2000 in relation to the regional distribution of four climate-sensitive health effects (malaria, malnutrition, diarrhea and deaths on land due to flooding)



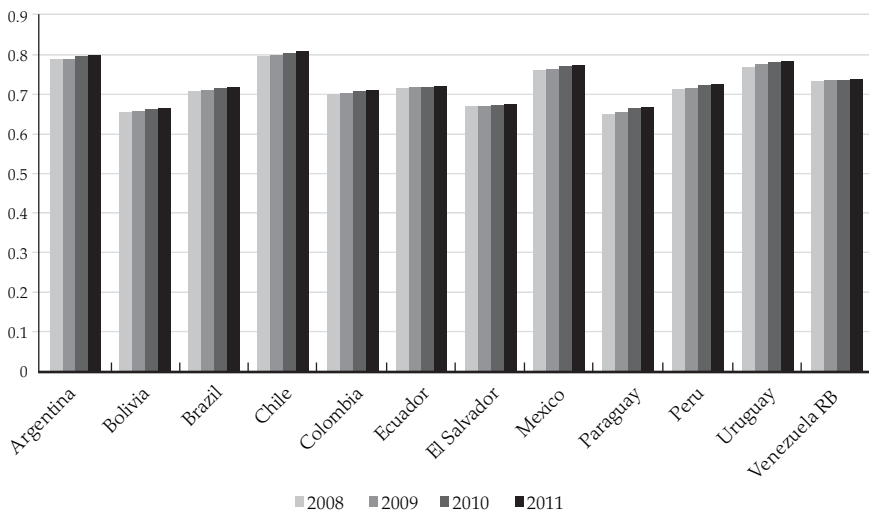
Countries scaled according to cumulative emission in carbon equivalent to 2002.
Patz et al., Ecohealth, December 2007



WHO regions scaled according to WHO estimates of mortality per million people in the year 2000, attributable to the climate change that occurred from 1970s to 2000. Patz et al., Ecohealth, December 2007

Chart 6 indicates that, between the years 2008 and 2011, the impacts of natural disasters, in terms of the affected population in Latin America, increased in all the 12 countries selected for this analysis. This trend confirms IPCC's predictions in terms of increased adverse weather conditions with their respective impact on the lives of the most vulnerable populations.

Chart 6. Impact of natural disasters in terms of the affected population in Latin America, from 2008 to 2011



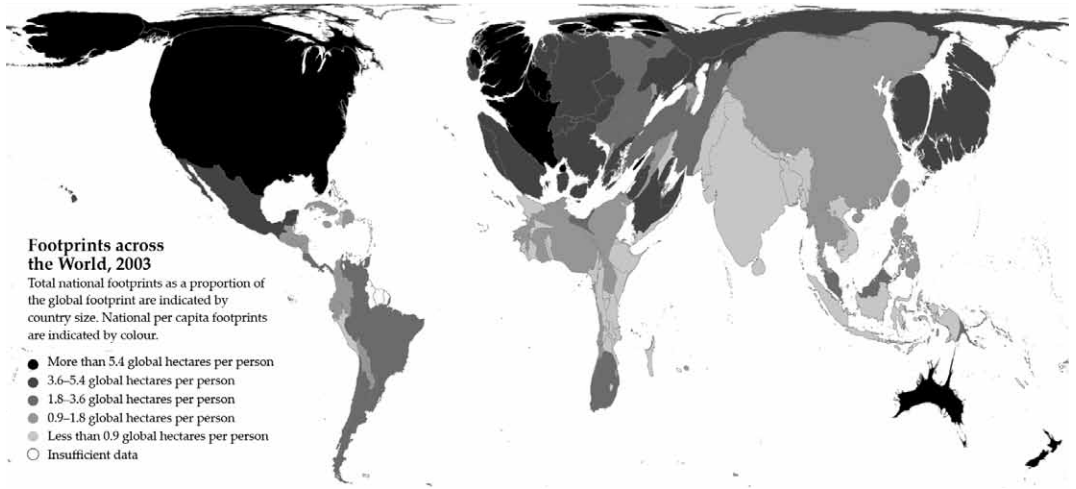
Source: International Human Development Indicators.

DEPLETION OF NATURAL RESOURCES AND HEALTH IMPACTS

Another important indicator to measure the depletion of natural resources is the ecological footprint. This indicator expresses the ecological footprint of a country, corresponding to the size of productive land and sea areas required to generate products, goods and services that sustain their lifestyles. In other words, it is about translating into hectares (ha) the territorial area that a person or an entire society "uses" on average to sustain itself (WWF, 2012).

Again, the U.S., Europe, India and China are the regions responsible for the large imbalance in terms of the planet's natural resources use. What happens in Latin America, in terms of scale, does not compare with the problems generated in these countries, as shown on the following map.

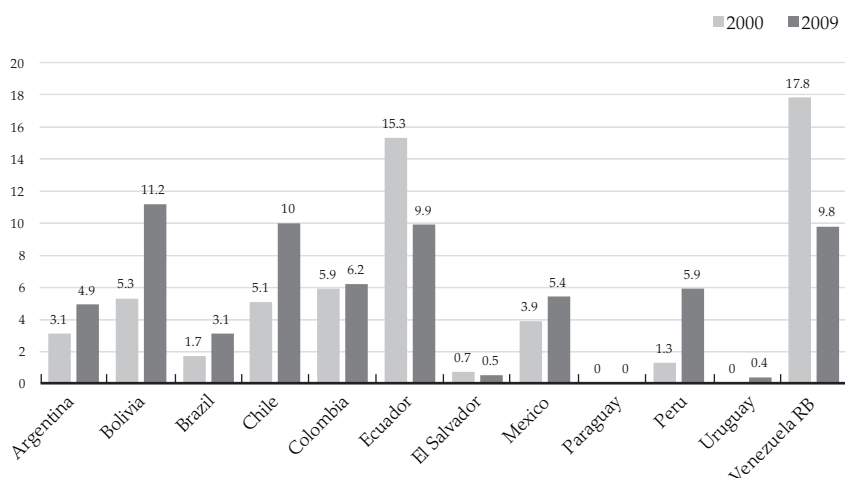
Figure 2. Ecological footprint world map



Source: WWF.

Deforestation, stemming from the over-exploitation of timber and increased grassland and cropland areas, is reducing the land vegetation cover, reducing its genetic diversity and, thus, promoting desertification and erosion.

Chart 7. Depletion of natural resources in Latin American countries (% of GNI)



Source: The World Bank.

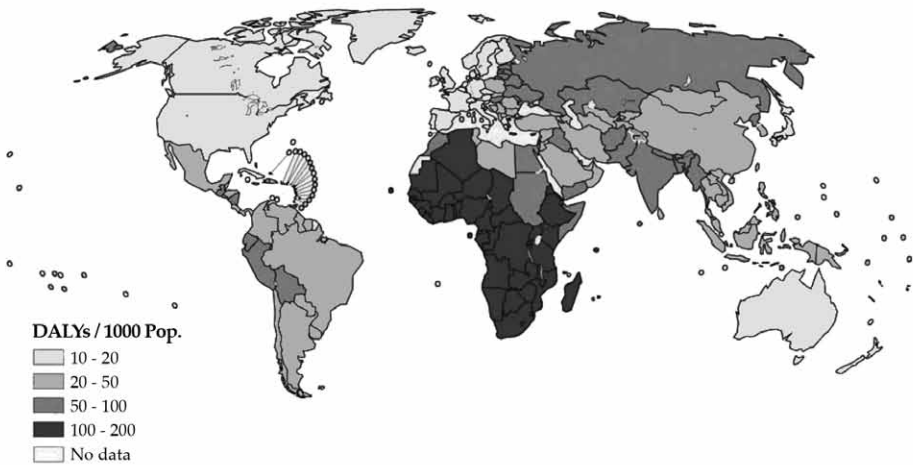
The country data above show that only a few countries have reduced rates of depletion of natural resources, especially Venezuela, from 17.8% in 2000 to 9.8% in 2009, and Ecuador, from 15.3 % in 2000 to 9.9% in 2009. Contrary to this logic, comes Brazil, almost doubling from 1.7% in 2000 to 3.1% in 2009 its rates, as well as Bolivia, more than doubling from 5.3% in 2000 to 11.2% in 2009, a trend observed in other selected countries that, on average, doubled their natural resources exploitation levels, such as Chile, Peru, Mexico and Argentina.

Deforestation is one of the greatest expressions of this natural resource depletion. Latin America and the Caribbean suffer an accelerated process of forest destruction which in 2003 caused the loss of 2.5 million hectares of forests in the Amazon, which harbors half of the planet's biological diversity. Net vegetation loss in Brazil, Paraguay, Bolivia and Argentina accounts for 80% of the total in the region. Brazil alone deforested 45% of all green area lost during the period. On the other hand, Costa Rica, Colombia and Venezuela reported reforestation gains.

The loss of arable land, one of the other consequences of this depletion, contributes to major threats to human life in these regions: sovereignty and food security.

The environmental disease burden, which is the environmental share of what is produced as diseases and deaths, also strengthens the fact that Africa will be the most affected continent, followed by some Latin American countries, such as Bolivia, Peru and Ecuador.

Figure 3. Environmental disease burden in DALYs per 1000 people, by WHO Subregion (2002)



Source: WHO, 2002.

The issue of natural resources depletion has been clearly expressed in Latin America as one more component of the contradictions between capital and labor, based on the development models adopted. It is essential to perform further analyses and studies scaling these impacts on human life and the planet in order to assess the development trends in our countries.

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