

Latin America in Transition

LESSON 4: The Environment

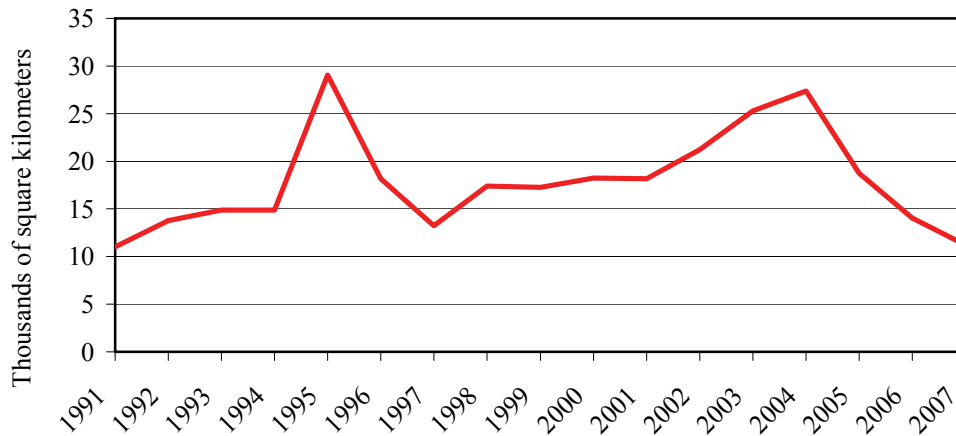
Environmental issues often stand out in Latin America because of the region's large, sparsely inhabited rain forests, tremendous biodiversity, and dramatic contrasts. The Amazon Basin alone approaches the size of the continental United States; the Amazon River is the world's largest river by volume and second longest in length; South America's Pantanal is one of the world's largest wetlands; Brazil, Colombia, Ecuador, Mexico, and Peru are among the most biodiverse countries in the world; the Andes is the world's longest and second highest mountain chain; 40 percent of the plant life in the Caribbean is found nowhere else on earth; and so on.¹ Because of the importance of environmental issues in Latin America, Rio de Janeiro, Brazil, was chosen as the site for the United Nations 1992 "Earth Summit." This update looks at three important areas of environmental concern in the region—rain forests, urban air pollution, and water issues—before concluding with a look at the "Earth Summit" and its longer-term results.

THE RAIN FORESTS

(insert before "Rural and Agricultural Issues" on page 82)

While the destruction of rain forests is a major concern in several corners of Latin America, significant focus has been paid to losses in the Amazon Basin, which includes over half of the world's remaining rain forests and spreads over Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Peru, Suriname, and Venezuela. Because some sixty-five percent of the Amazon rain forest, and 80 percent of its losses, are in Brazil, it receives the lion's share of this attention.² Annual deforestation rates in the Brazilian Amazon approximately doubled between 1997 and 2004, before showing a marked decrease (see Chart 1). Even with this decrease, almost 20 percent of the Brazilian Amazon, an area larger than the size of Texas, has been lost, and on average an area almost the size of New Jersey continues to be lost each year. Most losses are along the eastern and southern edges of the rain forest, following the outlines of the Trans-Amazonian highway system and dubbed the "arc of deforestation." Cattle ranching is by far the leading cause of deforestation in the Brazilian Amazon, but soybean production, subsistence agriculture, illegal logging, mining, dams, and urban settlement also play important roles. Another concern has been the impact of global warming—decreasing rainfall because of climatic changes could turn much of the area into savannah grasslands. Finally, a sharp upswing in Brazilian rain forest losses since late 2007 added new alarm over continuing Amazonian deforestation.

Chart 1: Annual Deforestation Rates in the Brazilian Amazon



Sources: PRODES Project, Brazilian National Institute of Space Research, 2008.

[Click here for larger version of chart.](#)

Deforestation in the Amazon Basin is of significant global concern because it threatens the rich biodiversity of the area. The plant and animal species that inhabit the Amazonian rain forest represent perhaps a quarter of the world totals, and hundreds of each are seen as at risk of extinction.³ The long-term impact of this species loss cannot be measured. Nor can the decimation of indigenous communities and the corresponding loss of their wisdom concerning the rain forest and its riches. Amazonian deforestation is also a major contributor to global warming. The burning or cutting of the rain forest in Brazil sends enormous quantities of heat-trapping carbon dioxide into the atmosphere, making Brazil the world's fourth largest greenhouse gas emitter.⁴ It also undercuts the rain forest's ability to serve as the "lungs of the world;" the massive Amazon Basin absorbs some 15 percent of the world's carbon dioxide through photosynthesis, turning it into oxygen.⁵ The twelve hottest years ever recorded were between 1995 and 2007, adding a sense of urgency to the world response to global warming and Amazonian deforestation.⁶

The Brazilian government has long been pulled by two sides when it comes to the Amazon Basin. One seeks more rapid economic development in the area. Indeed, since the 1960s the government has invested tens of billions of dollars in basic infrastructure in Amazonia, building highways, waterways, hydroelectric plants, and huge power transmission lines. The government has also subsidized the expansion of agriculture and mining. These efforts have been driven by a number of factors, from attempts to alleviate urban poverty and develop the country's interior, to efforts to satisfy the demands of powerful ranchers and other business interests. On the other hand, the government has also taken steps to monitor and control deforestation, and promote economic activities that do not harm the environment. For example, in 1997 the government initiated the Amazonian Vigilance System (SIVAM), the world's largest environmental monitoring system, at a cost of \$1.7 billion.⁷ SIVAM aims to use an integrated telecommunications network based on satellites, supercomputers, airplanes, and radar to watch over the entire Amazon Basin—enforcing environmental regulations, inhibiting drug and arms traffickers, managing land usage and occupation, and controlling borders. However, a shortage of funds, personnel, and political will to maintain and improve the system has undermined its

promise, allowing the vast majority of illegal logging, drug running, and other crimes to go unpunished.

Other Brazilian efforts to protect the Amazon Basin have included the establishment of large national and state reserves, as well as protected lands for indigenous peoples. These areas now constitute roughly 40 percent of the Brazilian Amazon, each equaling roughly 20 percent of the total area.⁸ However, despite official protections, deforestation often continues in protected areas, with the government woefully unable to meet its protective responsibilities, or corrupt officials simply turning a blind eye. Still, these zoning efforts do discourage deforestation, because intruders do not want to occupy land for which they will never be able to gain title. Also, the Amazon Region Protected Areas (ARPA) project, started by the Brazilian government in 2003 with financial support from governments and organizations both inside and outside Brazil, seeks to ensure the comprehensive protection and management of existing but neglected park areas, as well as establish extensive new well-managed areas. When fully implemented in 2013, 12 percent of the Brazilian Amazon—an area 50 percent larger than the U.S. National Park system—will have comprehensive protection and management.⁹

President Luis Inácio Lula da Silva has asserted that the heightened protection and monitoring policies of his government explain the decline in deforestation between 2004 and 2007. Even more, in the face of an upturn in deforestation at the end of 2007 he introduced Operation Arc of Fire, a series of unprecedented measures to crack down on deforestation. Critics respond that while progress has been made, the decline is better explained by the low commodity prices prevailing before 2007, the rise since then is better explained by sharply increasing commodity prices, and that the new governmental measures fall short of the long-term, integrated approach that is needed, even if they could be widely enforced. To be sure, promoting orderly, regulated, and environmentally sustainable development in such a vast area is a tremendously daunting task; some compare the Brazilian Amazon to the United States' lawless, 19th century "Wild West."

There are other biologically rich rain forests in Latin America outside the Brazilian Amazon, and many of the issues surrounding deforestation in the Amazon region exist in these areas as well, albeit within their own given contexts. For example, in Mexico's Montes Azules Biosphere Reserve, located in the Lacandon jungle in the remote southern state of Chiapas, a longstanding and complex clash between Mayan communities, impoverished settlers, the Zapatista rebel movement, environmentalists, and the government has been simmering for many years. As disagreements continue, so does deforestation, despite a number of efforts to find solutions. Indeed, throughout Mesoamerica deforestation rates are among the highest in the world. The deforestation rate in the Caribbean is also very high. Finally, it is important to note that Latin America faces land degradation issues outside the rainforests, ranging from overexploitation of the mineral rich Atacama Desert to the destruction of coastal mangrove swamps (half the region's population lives along its coasts).¹⁰

URBANIZATION AND THE ENVIRONMENT IN LATIN AMERICA

(insert before "Solutions" on page 83)

Latin America is the most urbanized region in the developing world, with over three-quarters of its population living in often-burgeoning cities such as Mexico City, São Paulo, Buenos Aires,

Bogotá, Rio de Janeiro, Lima, and Santiago.¹¹ The region has more than 130 cities with over 500,000 people, and more than 50 with over 1 million.¹² These cities grew immensely in the 20th century and, as with other urban areas around the world, have numerous environmental problems, such as air pollution, poor water quality and availability, waste disposal, erosion, and flooding. Here, we focus on urban air pollution.

Rapidly increasing automobile use, poor fuel quality, industrialization, and poor urban planning have contributed to serious air pollution problems in many Latin American cities. Only one-third of the region's countries have established air-quality standards or emission limits.¹³ Some of the biggest Latin American cities, such as Mexico City and Santiago, lie at the base of mountains that trap emissions and produce a heavy overlay of smog, though the biggest cities are also often the ones which have better monitored and sought solutions to their air pollution problems. The Pan American Health Organization has estimated that more than 100 million Latin Americans, over one-sixth of the region's population, are exposed to unacceptable levels of air pollution, and it is estimated that 35,000 Latin Americans die prematurely each year because of the air they breathe.¹⁴ The most affected are the elderly, children, poor, and sick.

Mexico City represents both the challenges and the progress when it comes to urban air pollution in Latin America. In 1998, the World Resources Institute labeled Mexico City the world's most dangerous city for children in terms of air pollution.¹⁵ At the time, it was estimated that simply breathing in Mexico City was equivalent to smoking two packs of cigarettes a day.¹⁶ Efforts since to improve the situation have included prohibiting drivers from using their cars one day a week, switching to cleaner fuels, requiring tougher vehicle inspections as well as the installation of catalytic converters on new cars, converting city buses to natural gas, and closing or moving some large factories. These initiatives have significantly improved Mexico City's air. Still, up to half the time air pollution levels in the sprawling capital exceed those recommended by the World Health Organization. It is estimated that Mexico City residents lose 2.5 million working days every year due to health problems caused by air pollution.¹⁷

In 1998, the World Bank launched the Clean Air Initiative for Latin America and the Caribbean (CAI-LAC), a partnership among governments, the private sector, nongovernmental organizations, and international development agencies that focuses on urban air quality issues in Latin America. In 2006, this effort spawned an autonomous nonprofit organization, the Clean Air Institute (CAI), which manages CAI-LAC and works to broaden its reach. CAI-LAC seeks to identify priority areas and financing opportunities, disseminate good practices, and foster an integrated approach to addressing urban air pollution problems in the region. Intertwined with concerns about urban air pollution in Latin America are the issues surrounding greenhouse gas emissions and global warming.

WATER ISSUES

Latin America is the most water-rich region on the planet, although water availability varies considerably across the region's diverse landscape. South American states such as Brazil, Colombia, Peru, and Venezuela have tremendous water resources through the Amazon, La Plata, Orinoco, and other river basins, as well as major lakes such as Titicaca and Maracaibo. Mexico, the Central American states, and the Caribbean states, on the other hand, have comparatively less

water. Still, variations can be found within countries as well. With most of the Amazon Basin, much of the La Plata basin, and other resources, Brazil alone has 20 percent of the world's freshwater, more water than any other country.¹⁸ Still, the massive South American state faces significant water challenges in its southern cities and semiarid northeast.

Access to adequate water is also heavily skewed by income group across the region, with the poor receiving vastly inferior water services. Ten percent of the Latin American population still does not have access to safe drinking water, and a quarter lacks adequate sanitation facilities.¹⁹ Even more, rapid urbanization, poor governmental management, inadequate and often deteriorating urban water infrastructure, and wasteful industrial and farming practices contribute to tremendous losses of water resources. Mexico City has overdrawn underground aquifers well beyond their ability to recharge, requiring water to be transferred in from many miles away. Water resources in the region are also regularly fouled by uncontrolled industrial, agricultural, and mining runoff, or simply untreated waste coming out of burgeoning urban slums. In Ecuador, a twenty-year joint operation managed by the Texaco Petroleum Company and the national Ecuadorian company, PetroEcuador, allegedly dumped more than 18 billion gallons of waste into open, unlined pits. Although the program ended in 1992, the 30,000 people living in the area continue to suffer the consequences.

Many differing governmental, intergovernmental, and nongovernmental efforts have been undertaken to address water issues in the region. Importantly, because of limits on funding and critical capital needs, some have advocated the privatization of water resources as an answer to the region's water challenges, pointing to Chile as a key success story. In that country, regulated private companies control most of the water market and have helped expand water availability and sewage treatment to the highest coverage and quality levels in Latin America. But moves toward privatization have caused large protests in many states because of concerns that the poor will not be able to afford sharply higher water prices, services will not be expanded to impoverished areas, and companies in cahoots with corrupt public officials will seek usury profits on an essential **public good**. In Bolivia after the turn of the century, privatization led to big price hikes in consumer rates for water, sparking massive popular outcries and, finally, the canceling of contracts with big multinational firms.

THE RIO EARTH SUMMIT

(insert before "Conclusion" on page 86)

The United Nations 1992 Conference on the Environment and Development, also known as the "Earth Summit," was billed as "the last chance to save the planet." Given the importance of environmental issues in Latin America, Rio de Janeiro was a logical choice for the location. The conference drew official representatives from 178 countries, including over one hundred heads of state. In addition, representatives from many international governmental and nongovernmental organizations attended.

At the conference, the attendees signed two treaties: the UN Framework Convention on Climate Change, which addressed global warming issues, and the Convention on Biological Diversity, which sought to protect biodiversity and endangered species. The third step was to issue the sweeping Declaration on Environment and Development, a collection of twenty-seven nonbinding principles that broadly committed the international community to pursue "sustainable

development.” Fourth, the Earth Summit adopted a vaguely-worded, nonbinding pledge to protect the earth’s forests and woodlands. Fifth, Agenda 21, an “action plan” for sustainable development, was put forth stressing the need to create a global partnership between developed and developing countries. Finally, the industrialized world pledged billions of dollars to help achieve the summit’s goals. Japan pledged seven billion dollars; the European Community pledged four billion dollars; and Germany pledged to increase its overseas development assistance from a 1992 rate of .42 percent of its gross national product to .7 percent.

Was the conference a success? The answer depends on one’s perspective. Never before had so many people from so many parts of the international community, including so many heads of state, assembled to discuss a given issue. In this respect, the Earth Summit was a success in raising global consciousness about environmental issues. A second “Earth Summit” in South Africa in 2002 kept attention on environmental issues. But most of the goals outlined in Rio have not been met. The United States has received particular criticism from environmentalists for its lack of commitment to the Earth Summit’s two major treaties. The U.S. at first opposed the Convention on Biological Diversity because of its provision that research, technology, and profits from genetic engineering be shared with countries where the original genetic material was produced. When the Clinton administration took office in 1993, the U.S. position on the treaty changed, and it was signed. The Clinton administration also signed the 1997 Kyoto Protocol, which is based on the Framework Convention on Climate Change. However, both treaties have fallen far short of the necessary two-thirds support in the U.S. Senate for ratification. President George W. Bush rejected the Kyoto Protocol outright in 2001, arguing that it would do “serious harm to the U.S. economy.”

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³ Roger D. Stone, “Tomorrow’s Amazonia,” *The American Prospect*, August 12, 2007,

http://www.prospect.org/cs/articles?article=tomorrows_amazonia (accessed June 13, 2008); and International Union for Conservation of Nature (IUCN), “IUCN Red List of Threatened Species- Summary Statistics,” Table 6a:

Number of extinct, threatened, and other species of animals in each Red List Category in each country, Table 6b:

Number of extinct, threatened, and other species of plants in each Red List Category in each country,

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⁶ Phil Jones, “Global Temperature Record,” The Climatic Research Unit,

<http://www.cru.uea.ac.uk/cru/info/warming/> (accessed June 18, 2008); and The Climatic Research Unit, Global Temperature” dataset, <http://www.cru.uea.ac.uk/cru/info/warming/gtc2007.csv> (accessed June 18, 2008).

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