

# Cuba's environmental problems

[Environment](#), [Ecology](#)



When socialism was introduced to Cuba, the idea was that it would be more eco-friendly than capitalism. Instead, the Revolution to quickly controlled two major factors that eventually led to environmental problems in developing countries: population growth and poverty. Contributing to the issue of poverty in Cuba are the financial, economic and commercial blockades imposed by the United States. In order to preserve the environment in Cuba and combat these issues, serious action was necessary.

The amount of environmental damage falls into two categories: a) small-scale environmental destruction committed by individuals through illegal hunting, deforestation, dumping of waste into aquatic ecosystems, etc. ; or b) large-scale environmental destruction resulting from major projects and industries approved by governmental agencies and owned by international companies, like hotel chains and mining companies after the Special Period, and agriculture before the Special Period". [1] The opportunity for Cuba to protect its environment came after the fall of the Soviet Union and the strengthening of the US blockade in 1990.

This period, referred to as the Special Period (1990-2000), witnessed a decrease in many environmentally damaging activities both by choice and by necessity, but also resulted in many decisions to resuscitate the Cuban economy. After the Earth Summit in 1992, following Fidel Castro's speech regarding the condition of the environment on a global scale, Cuba designed and implemented a variety of programs, administrative structures, and public awareness activities to promote sound environmental management and sustainable development.

What is most important is the damage that has already been done and the efforts to reverse these conditions. Currently, there are many efforts to bring the Cuban environment to a sustainable level. When the former socialist countries of Eastern Europe ended trade and financial relationships with Cuba, the island was forced to make severe adjustments. The emergency measures implemented by the Cuban government aimed at preventing the total economic collapse of the regime, have been referred to by the leadership as the "special period in peacetime." This Special Period brought about "the creation of the Ministry of Science,

Technology and Environment (CITMA) in 1994 [which] provided an important impetus for environmental policy and management on a national scale." [2] In 1995 the National Environmental Strategy (EAN) was designed, but was not approved by the government until 1997. Since then the EAN "is the guiding document of Cuban environmental policy, establishing the principles upon which the national environmental efforts are based." [3] The strategy identifies the main environmental issues in Cuba and proposes ideas and various methods to prevent, solve or minimize these problems.

The strategy goals are to improve environmental protection and the use of natural resources in an attempt to meet sustainable social and economic development objectives. Evaluations of Cuba's environmental record in comparison with Eastern European records shows "that environmental deterioration in Cuba over more than three decades of socialist rule responded to specific conditions not usually found in developing countries... but were present in the former Soviet Union and the former Eastern

European socialist countries. [4] As a result of this, Kirwin Shaffer states that: Consequently, central planning ignored local environmental concerns.

Also, the absence of private ownership and the lack of citizen input in decision making meant that all decisions affecting the local level were made with regard to how they fit with the overall national plan. Results and impacts at the local level were secondary. Which leads to these conclusions: Cuban agricultural and industrial development following the Soviet models have had similar consequences for water, soil and air pollution as found in Europe. 5] The current Cuban stance that attempts to blame the USSR for these effects in Cuba benefits Cuba's political system because it takes the blame away from the state, but it is not served by the historical record. The glorified "greening" of Cuba during the 1990s has beneficial impacts over the short term, but, according to Diaz-Briquets and Perez-Lopez, economic costs and turns toward a development model based on tourism may soon erode those short-term gains.

Cuba's pollution and contamination problems are widespread, and not completely the result of Soviet-style development projects. Yet, there is no doubt that many of the current environmental problems in Cuba result mainly from sovietization of the Cuban economy. Soil erosion and soil degradation are the main problems in agriculture. These problems started primarily due to the intensification of mechanized agriculture and the use of petrochemical herbicides and pesticides. [6] Agriculture is just one of the many environmental issues the island faces.

In terms of the land, “ the harm caused by permanent crops to these lands is primarily due to a lack of crop rotation causing soil depletion, poor agro-technical management and insufficient fertility measures. ”[7] In 1970 La zafra de los diez millones, took place, in which the Cuban government attempted to break all historic sugar production records by producing a ten million ton sugar harvest. [8] The government fell short of their goal by two tons, but by this point the damage was already done.

Because crops take so much nutrients from the land, farmers alternate crops each year to allow the land to recover. During la zafra de los diez millones crops were not alternated which took a heavy toll on the land. In Cuba, poorly designed and implemented agricultural development policies have been a major contributor to the degradation of the country's soils: Soil degradation continued apace with the agricultural practices that came to prevail in Cuba during the first half of the twentieth century as more and more virgin islands were brought under sugarcane and livestock production.

There is mounting evidence that the pace of soil deterioration intensified during the second half of the century, principally because of the widespread adoption of modern agricultural practices, particularly from the 1960s to the late 1980s. As in the Soviet Union and other socialist economies, the collectivization of the rural sector was regarded as necessary for achieving the goals of a centrally planned command economy. Collectivization would make possible economies of scale and bring the advantages of mechanization and modern scientific agriculture. 9]

After the collectivization of land agrarian reforms were implemented to return the land to the state and to its' citizens. But this shift in land ownership could have major environmental implications, especially after the fall of the Soviet Union. After the Soviets left Cuba, Cuban farming suffered a shortage of imported agricultural goods; leaving Cuban farmers to use traditional farming practices and some more modern techniques (such as rip irrigation) that are more environmentally friendly: The post-Soviet agricultural model is less dependent on imported agricultural practices that had been abandoned for their alleged backwardness: the large-scale use of beasts of burden, increased reliance on organic fertilizers and biological pest controls, the abandonment of marginal soils that had been brought under cultivation and made productive only by the intensive use of agricultural inputs, and a shift of urban labor to the countryside. [10]

According to Diaz-Briquets and Perez-Lopez, more important than this change in agricultural practices, is that transferring the control of lands to farmers who are closely tied it, " and whose economic well-being will depend on the stewardship of the natural resource base, there is the expectation that the trend of soil deterioration.... may at least be slowed down.... [but] it is too early tell how successful the new agricultural policies will be. "[11] At this point, many of Cuba's natural resources are in danger of extinction.

Because Cuba has exported sugarcane as its main commodity, sugarcane has replaced natural flora and fauna. There was a time before 1959 when over 30 different kinds of bananas grew on the island, but most of the banana trees have been replaced by sugarcane. Cuba's crops and animals

have been affected by pests and diseases introduced from abroad; coastal pollution and excessive hunting also present severe threats to wildlife populations. [12] Water aquifers have been contaminated by pollutants (and saltwater on the coasts) and their levels are declining due to nearly unrestricted use.

Similarly, waterflows reaching the coasts are also highly contaminated, which constantly hurts coral reefs and breeding grounds. Dam and reservoir construction has hurt coastal lagoons and mangroves: Cuba's fresh water system (rivers/lakes/aquifers) has very serious problems. Under Castro's policy of *voluntad hidraulica*, which called for not a single drop of fresh water to "be lost" to the ocean, the government has built over 1,000 large and small dams throughout the entire island, covering 1.4% of Cuba's territory.

Although the benefits to Cuban agriculture are clear in terms of increased irrigated land (close to 1 million hectares), the ecological effect has been quite negative in terms of lowering the water's oxygen level and increasing salinity. Dams have also blocked the dispersal of sediment and fresh water runoff over mangrove areas, contributing to a 30% average reduction of mangrove coverage and biodiversity loss[13] In fact, "the bays of Cuba are some of the most polluted in the world. Industrial, agricultural and human discharges into the sea, as well as deforestation for strip mining, have contributed to the pollution. [14] Water diversion to reservoirs is linked to the "virtual destruction of the oyster bed and major decline in the fish catch in the Casilda coastal region of southern Santa Clara Province." [15] These factors, along with the excessive use of aquifer waters and wells used for

sugar and citrus irrigation are contributing to the salinization of the water in Cuba.

“ Extensive water logging of coastal aquifers has lead to salinization and soil erosion. It has been estimated in 1991 that 600, 000 ha have light to modest salinization levels, while the remainder show high levels of salinization. [16] The main source of water pollution lies in the industrial facilities, warehouses, and workshops and service entities located around the bay. Fifty-three industrial facilities are located in the immediate proximity of the bay, and another 84 industries produce waste that indirectly discharges into the bay through tributary streams. [17] These industrial areas include the port and the nickel industries that add to the contamination of the water supply. The port activity itself is also one of the major sources of contamination for the bay. It is estimated that the ships served in the port generate 150, 000 tons of refuse per year. 18] Deforestation is also a factor contributing to the poor state of Cuba's environment. Forests have not suffered nearly as much as the land, with conservation efforts bringing Cuba's forests back to their 1945 levels, but conservation of forests has not meant saving all woodlands. One of the main problems environmentalists have with deforestation in Cuba is the fact that many of the available estimates regarding how much of the original forest cover remained before the revolution are based on rough figures made by observers with no credible statistical information.

According to Eudel Eduardo Cepero: The irrational use of forests has become common practice under the Castro regime. As no current data are available on the actual total area of cover forest, the value of Cuba's forest resources



is unknown. Most of the remaining natural forests are in poor condition from being overexploited. An average of 200 forest fires occur each year, affecting some 5, 000 hectares of forest. Reforestation has been precarious, due to poor quality seeds, a low survival rate of plantings, and a narrow range of forest species utilized. 19] The National Environmental Strategy offers statistics to support Cepero's claims by offering statistical information, but not listing sources to verify its facts; it also states that the forests in Cuba have grown over the last few years, but that there is still much work to be done with regards to improving the forest cover in Cuba: Although the forest cover has increased constantly in the recent years - in the last 43 years increasing to a total coverage of 2, 696, 587. 9 hectares, bringing us to a forested index of 24. 54% in 2005 - after-effects still persist from years of irrational exploitation of Cuban forests which practically eradicated our most valuable woodland resources.... Problems persist with the quality of most native forests as a consequence of prior mismanagement and exploitation - particularly in the most important watersheds. Problems also exist in the nation's seedbed sources, which do not meet productivity or quality expectations.

In addition, a lack of updated forest management plans, insufficient silviculture of forested areas, and insufficiencies and deficiencies in management plans continue to present challenges[20] The EAN suggests that more work be done to investigate invasive plant species that are threatening the native plants. It says that the survival rate of tree plantations and the success rate of trees growing to full maturity have improved over

the last few years, but that the numbers are still substantially low when compared to the anticipated numbers.

Also, the range of forest species used in "forestry activities" has been inadequate. Also suffering from the effects of sovietization and the special period is the biological diversity of the island. "A substantial, unquantified loss of biodiversity exists, due, among other reasons, to improper management of certain ecosystems, the application of intensive farming, the marketing of endangered species, as well as conditions making it easy for important genetic resources to leave the country". 21] Coral reefs, mangroves, the original forest (which used to cover most of the island) and rainforests are ecosystems that are suffering in Cuba. According to the EAN, the leading causes of this loss of biodiversity are: [1] Changes, fragmentation, or destruction of habitat/ecosystems/landscapes due primarily to changes in land use and inadequate practices employed in fishing, harvest, and agricultural soil preparation, among others.

Overexploitation of resources, for example fishing and forestry resources. [3] Degradation and contamination of soils, water, and the atmosphere. 4] Introduction of exotic invasive species that displace or affect the functioning of ecosystems and native species. [5] Insufficient regulatory and control mechanisms to prevent and punish illegal activities, including unlawful hunting and fishing, trade in threatened species and other natural resources. [6] Climate change and the resulting intensification of dry periods, the incidence of torrential rains, temperature increase, sea level rise, in addition

to the intensity and frequency of extreme natural disasters such as hurricanes. [7] Forest fires. [22]

The EAN lists the goals it wishes to achieve and the necessary steps that should be taken in order to achieve these goals. Among these goals are increasing the amount of forest coverage to 26.7% of national territory; have one million hectares of forest maintained by the National System of Criterion and Indicators for Sustainable Forest Management; complete National Forestry Planning in 2007; reduce amount of lands affected by forest fires; 69% of forest cover used as a buffer to protect coastal areas, soils, water and conservation forests; management program for invasive plant species. [23] Before the Special Period much of the air pollution in Cuba was the result of its' dependence on Soviet and Eastern European vehicles and factories that were contaminating the air: Urban pollution, could be partly traced to Cuba's extreme reliance on inefficient and highly contaminating Soviet and Eastern European-built vehicles and factories. In the agricultural sector, a practice that resulted in much environmental damage was the promotion of Sovietstyle, large-scale state farm production model based on widespread mechanization, heavy chemical inputs (e. . , fertilizers and herbicides), and extensive irrigation[24] Air pollution in Cuba has increased significantly in the years since the Soviets left the island. “

The absence of mitigation measures for emissions, inadequate control measures on the levels of noise generated by different activities, scarce information about the harmful effects on health and social behavior, the poor technical state of transport, and a lack of standards for emissions are also

present. [25] There are few environmental reports available to the public that are based on analytical information that is collected systematically in the field and processed in laboratories. Cuban scientists state that: The two main sources of sulfuric gases within the city limits are the old thermal power plants of Tallapiedra in the Old Havana neighborhood and the Antonio Maceo plant in Regla, across the Bay of Havana. In both of these neighborhoods they recorded the highest level of environmental pollution, measuring up to 7. milligrams of sulfides per square decimeter per day at the Tallapiedra Power Plant.... Three secondary sources in the metallurgic, chemical and construction industries were also associated with air pollution, all of them located in the environs of Havana Bay. [26] The Ministry of Public Health, better endowed for this purpose than other branches of government, has produced or published few precise documents dealing with health conditions and environmental degradation.

Sulfur oxides, undesirable residues of combustion that are produced mostly in power plants when sulfur-rich fuels are burned, create respiratory problems and cause acid rain. Cuba replaced part of the vanished Soviet fuel imports of the late 1980s with domestic crude containing roughly six percent sulfur. It is used mostly in power plants and to run cement factories. [27] Diaz-Briquets and Perez-Lopez point out that the means of transportation in Cuba are getting old and, due to poor maintenance and inadequate resources to obtain parts, they are polluting and becoming harmful to the environment.

Their conclusion is that “ As long as the economic crisis continues, Cuba will not be able to modernize its fleet of cars, trucks, and buses (other than for those few vehicles serving the tourist industry)”. [28] If the Cuban government would allow media to spread environmental education to the citizens of Cuba and to the rest of the world, not only would it help efforts within Cuba to protect and improve the environment but it would also help efforts to improve the environment on a global level. The strategy points out that Article 27 of the Constitution of the Republic says:

The state protects the nation's environment and natural resources and recognizes their close relationship with sustainable economic and social development to make human life more rational and to ensure the survival, well being and security of present and future generations. It is the responsibility of proper governmental agencies to apply this policy. It is the duty of the citizens to contribute to the protection of the water, atmosphere, and the conservation of soil, wild flora and fauna and all the rich potential of nature. [29]

Since Cuba has declared a national sovereignty over its natural resources and is actively working to restore and protect them, the state must also exercise rights over the country's environment and resources. Similarly, Cuba must develop a national tendency towards “ integrated natural resource management, commercial environmental management, and urban environmental management as fundamental traits of Cuban environmental management. ”[30] The current embargo the United States has placed on Cuba keeps the island from growing economically.

Which means that , since the economy is not changing or being stimulated, the people of Cuba are suffering. Meaning, because man poor, urban people cannot afford daily necessities, they resort to alternate ways to get everyday goods; even if it means depleting the natural resources. With the current government in Cuba and the restrictions caused by the embargo, it is hard to think that the Cuban environment will improve much in the next decade or two; but the National Environmental Strategy offers hope to the idea that Cuba's environment will improve.

The “ National Environment Strategy 2007-2010” is dedicated to improving the environmental conditions of Cuba and finding a way to meet sustainable social and economic development goals. The eradication of extreme poverty is an achievement rooted in the very foundations of the revolutionary process. Achieving this is essential to the pursuit of environmental sustainability, first and foremost because extreme poverty cannot coexist with a healthy environment. The solution to this challenge is one of the principal achievements that Cuba can effectively show to the world. 31] The future of environmental reforms in Cuba will be influenced by a variety of cultural, economic, social, and political factors. Ultimate success or failure, however, will likely depend more on thorough laws, money, human capital, public involvement in environmental decision making, use of incentive-based tools, and international support. Strong environmental laws are a necessary foundation for sustainable development, but success will only occur with the continuing political will to implement and enforce them.