

Air pollution from cars costs Costa Rica  
millions in health care



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STORIES

Environment for Development Initiative

Central America

2018

**The health cost of high air pollution from vehicles in the Costa Rican capital of San José and its immediate surrounds runs to millions of dollars each year, according to new research from the Ministry of Environment and Energy (Minae). If air pollution concentrations are reduced to within the limits recommended by the World Health Organization (WHO), the country could save US\$ 17 million every year in the treatment of bronchitis, as well as the related disabilities and the impact on quality of life. It would save the Central American country a further US\$ 55,000 per year in terms of asthma treatments, while reducing the cost of hospitalisations associated with excessive air pollution by about US\$ 233,000 annually.**

These are the findings of a study produced for Minae's Climate Change Directorate by the EfD Central America Centre, which is part of an international network of environmental economists, the Environment for Development (EfD) initiative, based in Sweden.

The team looked primarily at pollution particles that come mostly from dust, soot, cement, pollen, and the chemicals found in various gas emissions. Vehicle exhaust fumes are the main source of these pollutants in Costa Rica.

When people breathe in these molecules, they can cause allergies, bronchitis, asthma, and other respiratory conditions.

Costa Rica's guidelines for acceptable levels of pollution are based on the European Union standards, and set by the WHO, which place a maximum limit on the number of particles that

'We had the idea of quantify the damage that air pollution causes to health in the wider San José area,' explains environmental economist and EfD senior researcher Dr Francisco Alpízar. 'The effects of pollution are mostly seen in the respiratory tract, in the form of asthma and bronchitis, for example. We wanted to see the damage caused by death and diseases relating to air pollution, and quantify it in economic terms.'

should occur per cubic meter of air. The study found that ambient air pollution in and around San José was three times above the WHO limits.

The researchers sampled the air in and around the large metropolitan area of San José, and used these as the reference point for the study. Within that sample area, the municipal region of La Ribera de Belén had the highest concentration of air pollutants. Meanwhile, San Vicente de Moravia had the lowest concentration of polluting particles of all the areas sampled, and was the only municipality where the researchers found that the concentration of pollutants were within the acceptable levels prescribed by the WHO.

With this information, the team analysed the impact of air pollution on the number of cases of respiratory diseases and deaths.

On this bases, the team then ran a series of computer scenarios to see how different ambient air pollution levels might impact on respiratory health in the targeted area. In one scenario, where they worked with potential concentrations of air pollution that are three times greater than those set by the WHO, researchers estimate that infant mortality due to acute cases of respiratory illness would increase by 4.8%. Long-term infant mortality, where diseases became chronic, would rise by 4.3%.

In addition, cases of bronchitis in children under 15 years of age would increase by 30.6%, and in adults by 9.8%. Adults would also suffer with a 3.9% increase in asthma attacks.

But what would happen if air pollution dropped to within the levels recommended by WHO? The researchers ran this scenario, and calculated that the economic impact of lives saved would reach US\$ 185,000 per year.

### In search of solutions

But how does the city of San José bring its air pollution levels down to within these safer limits? This would mean that some areas, such as La Ribera, will need to cut the concentration of particles by more than half. However, Alpízar says this is not impossible to achieve.

‘A whole matrix of public policies is required. Costa Rica is a country that has made a lot of progress in the regulation of fuels, since pollution has been regulated,’ said Alpízar.

However, there are many areas where things can be improved, according to the EfD team. One of these is related to the taxes on vehicles.

The current vehicle tax in Costa Rica is based on the market value of the car. But as Alpízar points out, the value of the car does not correlate with its impact on the environment. He recommends that a vehicle tax needs to be an environmental policy tool, not a fiscal policy tool, and therefore needs to be one that favours ownership of cars that pollute less. A vehicle tax needs to penalise more polluting vehicles, rather than be structured to reflect the market value of the vehicle. This will encourage car owners to favour smaller engines or more modern, less polluting models.

‘The country also desperately needs to improve public transport,’ he added.

Experts recommend that people wanting to reduce their vehicle related pollution would consider changing to a less polluting vehicle, particularly an electric or hybrid car, and preferably those with smaller engines.

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#### Researchers involved

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*Policy that encourages people to use public transport instead of private cars could help address Costa Rica's vehicle related air pollution, whose health implications cost the country dearly.*



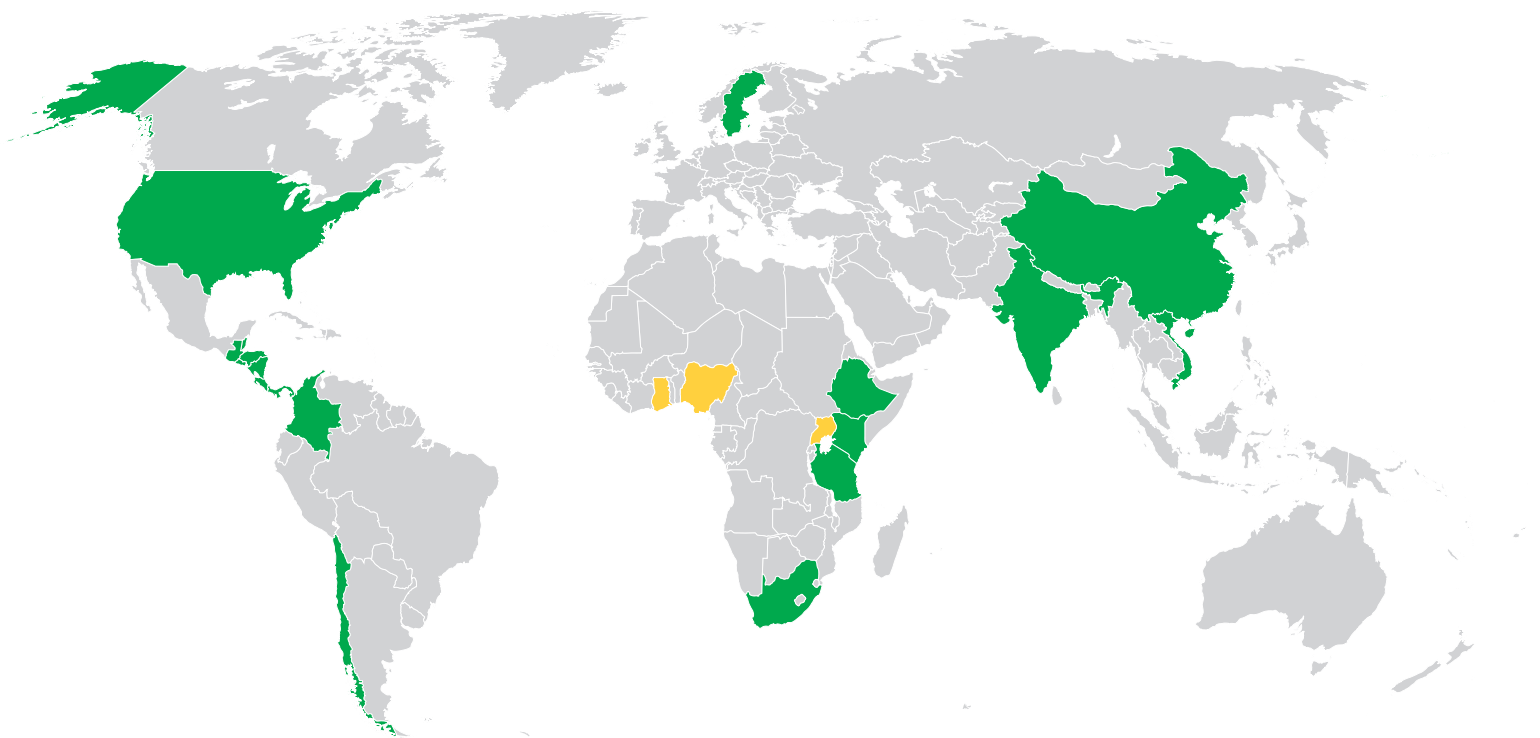
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