

## South America Sub-Region

### Actions taken by governments to improve air quality

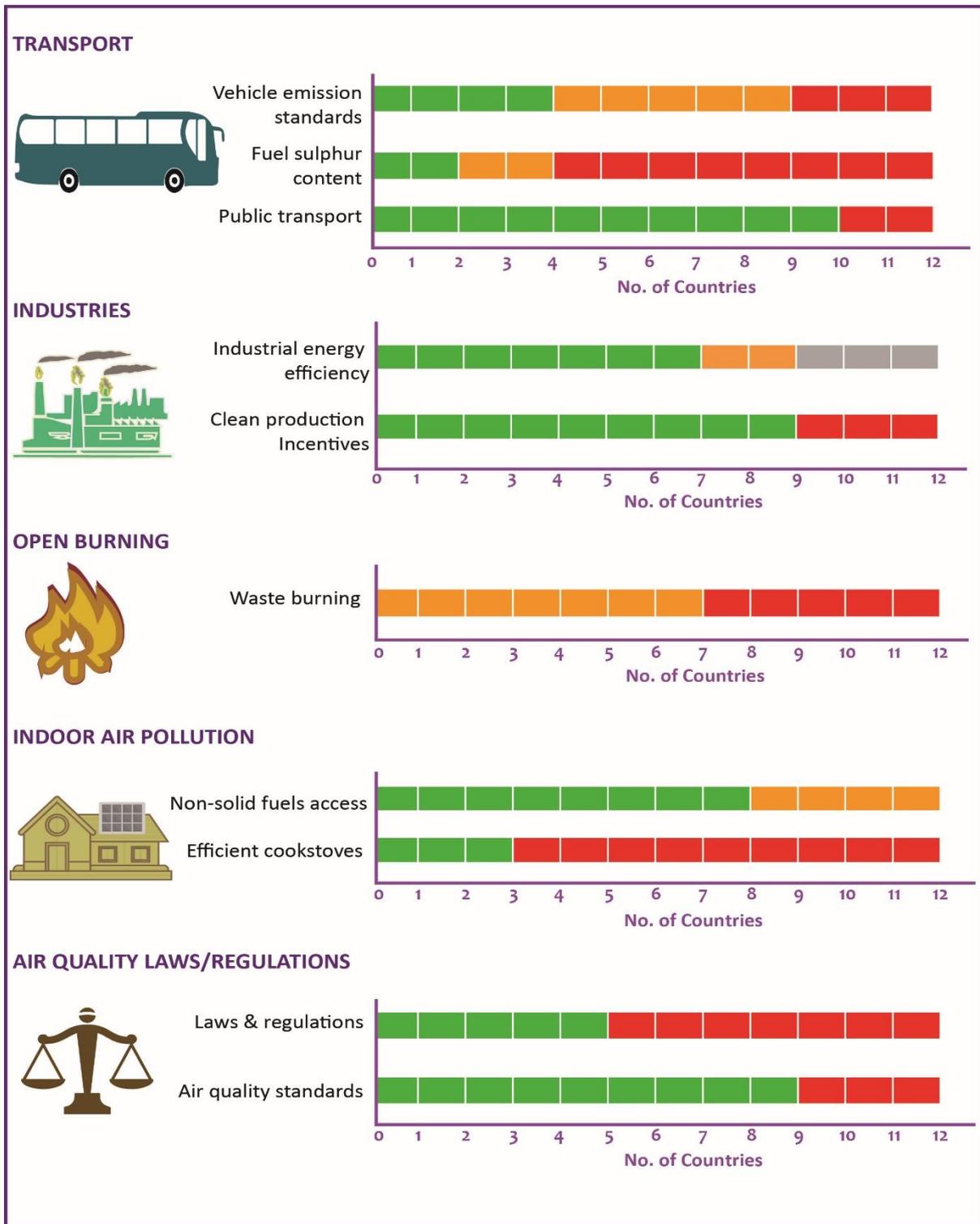
#### 1.0 Introduction

In June 2014 the United Nations Environment Assembly (UNEA) adopted resolution 1/7 *Strengthening the Role of the United Nations Environment Programme in Promoting Air Quality*. As requested in paragraphs 4 and 7 of the resolution, which requested UNEP to develop a report detailing actions taken by governments to promote air quality, this report details some of the major actions being undertaken by governments in South America to improve air quality.

This report summarises ten actions being undertaken in the sub-region to improve air quality. In selecting these ten actions, consideration was given to their replicability, global appropriateness to address particular air pollution challenges and potential impact. For more details, please refer to the methodology document.

These actions are: *For Industrial activities*: 1) establishing incentives that promote investments in renewable energy, pollution control technologies, energy efficiency and clean production mechanism; and 2) increasing industrial energy efficiency. *For road transport*: 3) reducing sulphur content in diesel and petrol; 4) tightening vehicle emission standards to at least Euro 4/IV-equivalent; and 5) increasing investments in public and non-motorized transport infrastructure and systems. *For open waste burning*: 6) reducing open burning of both agricultural and municipal waste through provision of legislation, monitoring, enforcement and municipal waste management systems. *For Indoor air pollution*: 7) improving access to cleaner cooking and heating fuels; and 8) improving access to cleaner, more efficient cook/space heating stoves. *For general legislative efforts*: 9) establishing and continuously tightening ambient air quality standards to meet WHO recommendations; and 10) establishing laws and regulations to support efforts to meet ambient air quality standards, and strengthen monitoring and enforcement. Figure 1 provides a summary of these actions for the sub-region.

## SOUTH AMERICA POLICIES AND ACTIONS TO IMPROVE AIR QUALITY



**Figure 1:** A summary of actions, programmes, policies, laws and regulations undertaken by governments in the sub-region to improve air quality (green = progressing to best practice; red = action still required).

## 2.0 Regional Overview

South America comprises of Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, Uruguay and Venezuela. Air pollution is one of the leading environmental issues of concern in the sub-region, resulting in approximately 45,000 premature deaths annually. Governments in this sub-region have enacted laws and regulations on air pollution; however these laws and regulations are at different stages of implementation and enforcement. Nine out of the twelve countries in the sub-region have comprehensive ambient air quality standards and among these, five have accompanying national air quality policies, laws and regulations.

Indoor air pollution is a major cause of air quality related, premature deaths in South America. Estimates from the World Health Organization (WHO) indicate that approximately 40,000 people in South America die prematurely each year from air pollution. Indoor air pollution is primarily driven by the combustion of low quality fuels for domestic energy provision, mainly for cooking, heating and lighting. In an effort to reduce the overreliance on solid fuels, governments have put into place several policies, regulations and actions aimed at reducing the use of these fuels. Despite these actions and policies, the negative health effects associated with indoor air pollution still remain.

The transport sector is one of the two most dominant sources of ambient air pollution in urban centres. To curb these emissions, governments have established or tightened vehicle emission standards. To some extent, fuel quality has also been improved, although fuel with Sulphur content below 50ppm is only available in two out of twelve countries. In addition, there has been significant investment in public transport, with eight countries investing in Bus Rapid Transit (BRT) systems, and non-motorised transport.

Industrial emissions are the other dominant source of urban air pollution in the sub-region, and also impact some rural areas. Ten out of the twelve countries produce more than 30% of their electricity from renewable sources, and seven countries have an industrial energy efficiency above nine (measured as GDP per unit of energy use).

Open burning of waste also affects air quality. Open burning of agricultural and / or municipal wastes occurs in all twelve countries.

In recognition of the importance of air quality, a Regional Network on Atmospheric Pollution has been operating in Latin American and the Caribbean since 2008, and is formed by the Air Quality focal points of each and every Ministry of Environment. The Network is implementing a Regional Plan of Action for Intergovernmental Cooperation on Air Pollution in LAC, which provides a voluntary guide for the development of national action plans. To further assist in improving regional cooperation, a series of webinars have been held on different topics related to air quality management. While challenges still remain, the report from the “Intersessional Meeting of the Forum of Ministers of Environment of LAC” held in Mexico City in November 2015 highlights examples of the progress that has been made.<sup>1</sup>

Progress has been made in different areas in different countries, and there are several positive case studies to be found across the sub-region. There are however specific areas in each country that can be improved, while standards need to be established and continuously tightened, public transport expanded, the use of best practice increased etc. In addition, for policies and legislation to lower air pollution, countries must also improve implementation and enforcement, without which actions to improve air quality will not achieve their potential impact.

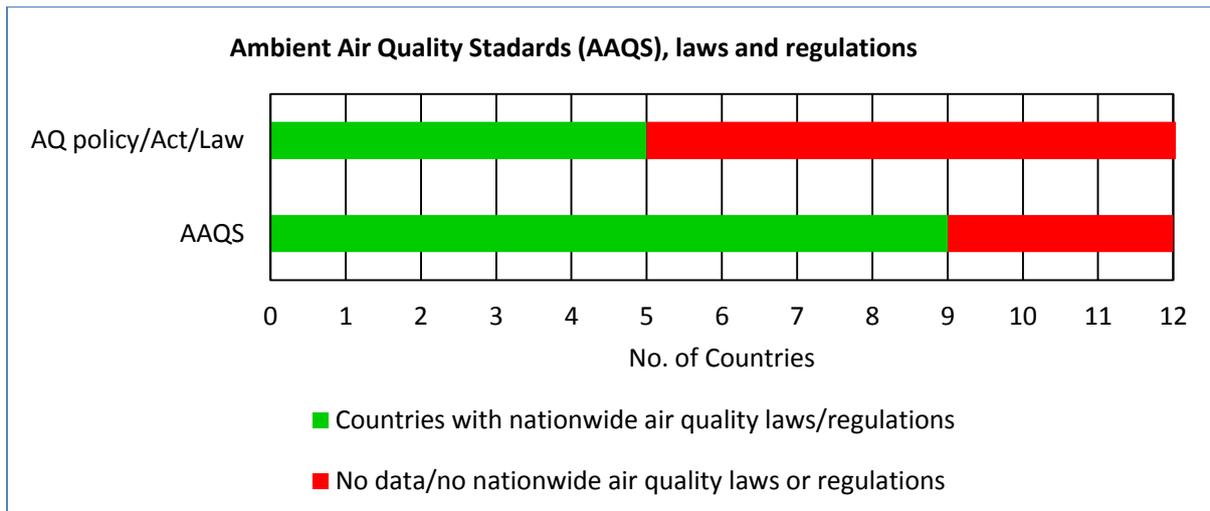
### **3.0 Actions Taken to Improve Air Quality**

#### **3.1 National air quality standards & regulations**

Based on the UNEP Air Quality Policy Catalogue, nine out of twelve countries have some level of ambient air quality standards (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru and Venezuela). Nonetheless not all meet WHO guidelines or have a standard for PM<sub>2.5</sub>. Four countries – Argentina, Brazil, Colombia and Paraguay – have national policies and laws that are specifically meant to improve air quality. However, their implementations and enforcement needs to be strengthened. Figure 2 below shows the number of countries in South America that have enacted and promulgated nationwide laws, regulations and/or standards to protect air quality.

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<sup>1</sup> See [http://www.pnuma.org/forodeministros/20-reunion-intersesional/documentos/ENG\\_Avances\\_Foro\\_Min\\_Med\\_Amb\\_ALyC-14\\_OCT\\_2015\\_Rev2.pdf](http://www.pnuma.org/forodeministros/20-reunion-intersesional/documentos/ENG_Avances_Foro_Min_Med_Amb_ALyC-14_OCT_2015_Rev2.pdf)



**Figure 2:** Number of countries in the sub-region that have enacted some form of nationwide air quality laws and regulations, and also the number of countries that have enacted and promulgated Ambient Air Quality Standards (AAQS).

In some of the countries in the sub-region, several major cities have established their own Ambient Air Quality Standard (AAQS) that are more stringent than national standards. For example the city of Buenos Aires in Argentina has established an AAQS that not only is stricter than the national standards, but also includes specific pollutants that are not captured by the national standards, such as PM<sub>2.5</sub>. La Paz, Bolivia also has much stricter AAQS compared to Bolivia's national standards: PM<sub>2.5</sub>, PM<sub>10</sub> (annual), SO<sub>2</sub> and NO<sub>2</sub> (1-hour) requirements meet WHO guidelines. The Santiago Metropolitan Region in Chile established AAQS earlier than the rest of the country.

Other countries are still working on establishing a legal and / or institutional framework. Colombia has been working on institutional strengthening of its environmental authorities and territorial entities, with a view to implementing the Policy for the Prevention and Control of Air Pollution. Costa Rica has been working on updating its emissions and air quality regulations to meet the limits recommended by WHO.

Within South America, there are some countries that are still in the initial stages of developing and implementing air quality standards and regulations, such as Ecuador which employed a participatory process in developing its National Air Quality Plan. Paraguay also approved the new organizational structure of the General Directorate on Air Quality, strengthening its institutional capacity in mid-2015. Additionally its regulatory framework

was updated through the publication of new air quality standards within the same timeframe. In Uruguay, a working group has been formed in the framework of the Metropolitan Agenda; this working group is also working on the implementation of an Air Quality Management Plan covering metropolitan Montevideo. In 2014 the Venezuelan government began a series of consultations with the public about water and air quality in preparation for new legislation on air quality that is expected to strengthen the legal framework, and provide for administrative sanctions for violations.

### **3.2 Transport**

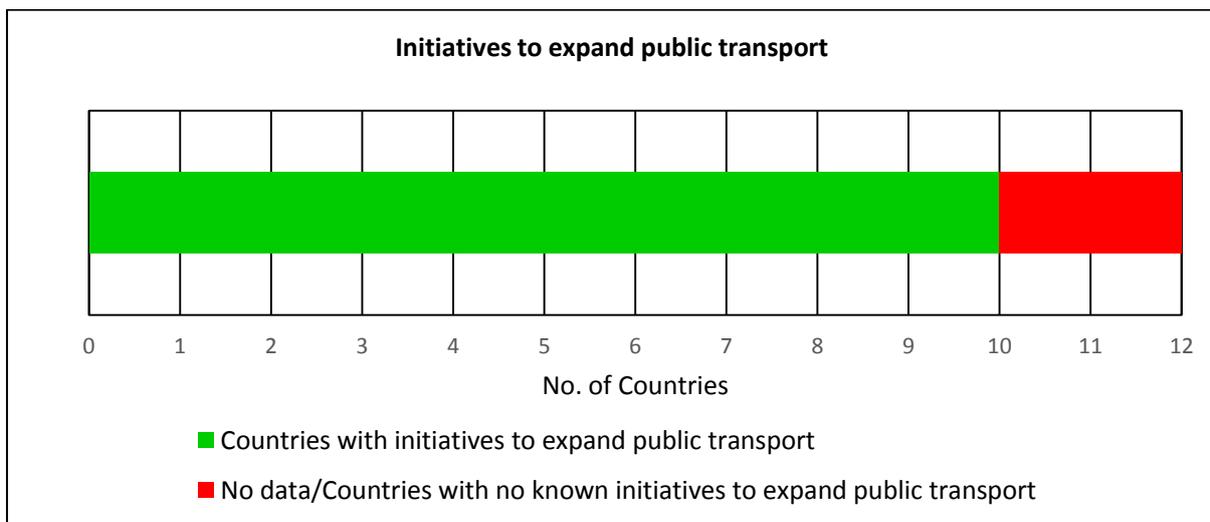
Given the increased congestion experienced in many urban areas, maintaining and increasing the modal share of public transport is essential for increasing mobility while decreasing transport emissions. Significantly expanding public transport and non-motorised transport infrastructure is a key action that can greatly limit emissions from the transport sector (Figure 3).

Buenos Aires in Argentina has increased the number of bus-only lanes for its Bus Rapid Transit (BRT) system, and transformed dozens of blocks in the city centre into an environment that encourages and prioritizes walking and cycling over driving.

In Bolivia, a recently built cable car system connects La Paz and El Alto, and has three lines, with five more being planned. A new municipal bus system in La Paz serves remote hillside neighbourhoods with three routes, with another four to follow. To further reduce emission from the sector, the government of Bolivia is offering loans to taxi and mini-van unions to purchase modern buses that run on natural gas, while diesel-powered buses are being converted to Compressed Natural Gas (CNG) as part of a national project.

Chile has committed to invest \$4.2 billion in 14 projects to upgrade public transport in Santiago, Antofagasta, Valparaiso and Concepcion, including the expansion of the Santiago Metro and the use of integrated public transport corridors to prioritise pedestrians, bicyclists and bus users. Bikesantiago is the first interdistrict public system to facilitate bicycle rentals in the capital.

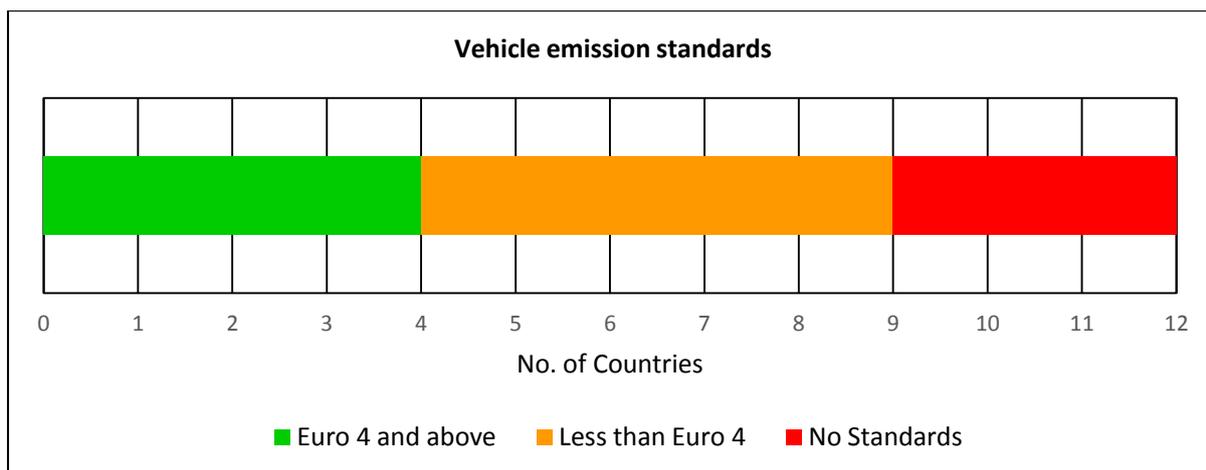
Curitiba, Brazil provides an excellent case study in urban transport and zoning. Over the years, the city has integrated its zoning laws and transportation planning to promote high-density development adjacent to high-capacity transportation systems, particularly its BRT corridors. As a result, Curitiba has one of the most heavily used yet low-cost transit systems in the world.<sup>2</sup> Around 80% of Curitiba’s commuters use the BRT to travel to work. The introduction of the BRT has saved the city about 27 million litres of fuel annually. Compared to eight other Brazilian cities of its size, Curitiba uses about 30% less fuel per capita, and has one of the lowest rates of ambient air pollution in the country.



**Figure 3:** Number of countries in the sub-region that have initiated programmes and initiatives to significantly expand public transport.

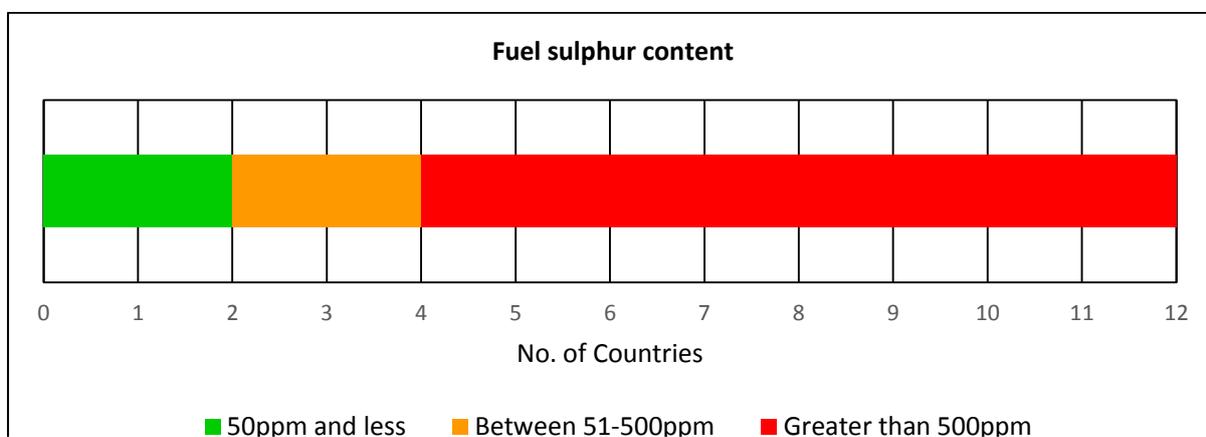
Improved fuel quality and implementation of vehicle emission standards are also required to minimise emissions created from transport. Four countries in the sub-region - Argentina, Brazil, Chile and Colombia - have adopted vehicle emission standards equivalent to Euro 4 and above (Figure 4).

<sup>2</sup> <http://reimaginerpe.org/node/344>



**Figure 4:** Number of countries in the sub-region that regulate vehicle emission at Euro 4 (or equivalent) standards.

Fuels and vehicles work as a system; in order to benefit from improved vehicle standards, low sulphur fuels are needed as these allow the advanced pollution control devices to work optimally. Only Chile and Uruguay have adopted fuel quality standards that limit sulphur content to below 50ppm. Figure 5 shows the quality of fuel used by different countries within the sub-region; fuel sulphur content is used as an indicator of fuel quality.



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