Air: when breathing is a threat

Editorial by Adeline Marcos
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The European continent is the smallest after Oceania. Despite its size, it comprises some of the biggest world cities. Besides culture and history, these cities also represent a vast concentration of people and cars. The result: deadly air pollution. According to the World Health Organization (WHO), this causes almost 300,000 premature deaths in the European Union (EU) each year.

Man-made pollution is the main contributor: the burning of fossil fuels and vehicle emissions; industrial processes and use of chemicals; agriculture and waste treatment management. Meteorological variability and transboundary air pollution also explain Europe’s poor air quality.

Particulate matter (PM10) and ground-level ozone (O3) are the most significant pollutants in terms of health impacts, ranging from respiratory diseases to premature mortality. Although since 1990 many pollutants have been reduced substantially, concentrations of PM10 and O3 have shown no significant improvement in the last decade.

By 2020, the European Commission expects to reduce by 47% the loss of life expectancy as a result of exposure to particulate matter; and by 10% acute mortality from exposure to ozone. But is this realistic?

If we take into account the latest European Environment Agency (EEA) report *Air pollution by ozone across Europe during summer 2010* the scenario seems critical. The long-term objective to protect human health (maximum eight-hour mean concentration of 120 μg/m3 daily) was exceeded in all European countries at least once during the 2010 summer and especially in the Mediterranean area.

As journalists our duty is clear: if we want our children to breathe safer air, we should demonstrate that changing our “stubborn” lifestyle is not impossible. Green cars, public transport use, walking and cycling are easy ways to reduce “bad air”. We should be able to make it. And our governments should be able to help our efforts.
Car emissions: a problem in Spain

Urban traffic is the main cause of air pollution in Spanish cities. All through the year, citizens breathe contaminants like nitrogen dioxide (NO2) and PM10.

“Low wind speed and a high solar radiation, associated with high concentration of pollutants are representative of the Iberian Peninsula,” and are among the determinants of air pollution, explains José María Baldasano, director of the department of Earth Sciences and Quality of Air at the Barcelona Supercomputing Center (BSC).

A 2010 report from the Spanish Ecologist in Action, shows that four out of five people breathe polluted air exceeding health protection limits. “Based on WHO recommendations, the times we go over the pollution limits are more and more frequent,” Paco Segura, Transport coordinator of Ecologist in Action, declares.

Based on the limits set by the EU Directive in 2008, over 6 million people, or 14% of the Spanish population, are exposed to polluted air. However, based on WHO stricter recommendations, these figures rise to six times as high. The annual limit approved in Spain for PM10 is twice as high as WHO’s guideline, and the target for ozone (O3) is 20% higher.

IT IS TIME TO ACT!

According to the Spanish Ministry of the Environment, Rural and Marine Resources, each year around 16,000 people die prematurely from air pollution in Spain. This is eight times more than the death toll caused by traffic accidents.

Paradoxically, 2009 Spanish data show that air contamination levels have decreased. Sales of fuel-efficient cars have increased by 42%, home fuel consumption has decreased by about 5%, and thermal power stations have decreased operations by 13%. This is one of the consequences of the economic crisis.

But the solution cannot be temporary. In July 2011, the Ministry approved the Air Quality National Plan with the objective of thwarting air pollution effects. While this is a “positive” development, “the plan needs to be reasonable, efficient and real”, Segura points out.

Regional governments and Ministries have recently taken measures like forbidding car circulation on certain days and areas or limiting speed on highways; however, at the same time “they also encourage the use of cars”, Segura mentions, “by building urban highways that promote city development”.

Box 1. The most dangerous pollutants

A number of scientific studies point to serious health consequences from air pollutants. PM10 increases mortality from respiratory and heart diseases and from lung cancer, as well as hospitalizations from respiratory and heart infections.

Urban NO2 affects the deepest parts of the lungs, and inhibits some of their functions like the immunological resistance to infections.

O3 is associated with about 21 000 premature deaths per year in the European Region, particularly in urban areas.
Box 2. Madrid, one of the most contaminated capitals

When Real Madrid Football Team plays against its adversary at Santiago Bernabeu Stadium, there is more than just sport involved. Air contamination levels rise because of the concentration of vehicles. Last year, the Madrid region exceeded the pollution limits allowed. A new project called In the Air, led by the architect Nerea Calvillo, creates new informative maps about air quality and sends out warnings when pollution limits are exceeded. In Madrid, between January and October 2008 high pollution levels were over the limits for more than 134 hours, and at warning levels for over 635 hours.

“Pollution in some zones increase with traffic jams, in rush hour or when people are returning from holidays, but it never lasts more than one day. If it did, it would be dangerous,” explains Calvillo.

PEOPLE CAN HAVE A SAY

“Any measure that dissuades the use of cars is positive,” Segura says. There are plenty of possibilities: restricting traffic areas, inserting tolls to enter downtown areas, limiting parking, reducing road lanes, calming traffic and reducing speed.

Citizens hold the key to reducing pollution too. Respecting lower speed limits in highways, using public transport more, and buying less diesel cars are some of the solutions to avoid ill health outcomes.

People should avoid going back to the Spanish rhythm of life and increased production, if this means back to more pollution. If lives are to be saved from disease and death, vehicle circulation has to be responsibly controlled. It is also up to us.

A breath of fresh air
by WHO/Europe

“I’ll go out for a breath of fresh air” is an often-heard phrase but inaccurate in many of today’s European cities, where more than 100 million people are exposed to concentrations exceeding the WHO air quality guidelines.

Only a decade ago, in the absence of clear evidence, air pollution standards did not sufficiently target health. Research has now established clearer causal links between this risk factor and the related health outcomes, and WHO-led work provided the first estimates of the burden of disease (a measure combining health effects in terms of both deaths and disease) from particulate matter (PM10).

This mixture of tiny particles of dust, soot and metal, largely related to traffic and other combustion processes, is the most lethal air pollutant. Evidence has shown that even in low concentrations it can cause various forms of health damage, from infant mortality to heart attacks and lung disease, including cancer. The average European citizen dies almost a year earlier than his or her expected life span because of it.

Understanding air pollution hazards, their sources and effects is crucial to identifying actions to promptly reduce adverse health impacts. The WHO Air Quality Guidelines are a key achievement in this direction. If these standards are put in place and respected around Europe and the world, they can save hundreds of thousands of lives. The reduction in PM10 alone could yield a 15% health gain in most polluted cities. Across the European Region, WHO continues to support efforts to intensify air quality monitoring and to establish policies that control and reduce air pollution levels, ultimately aiming to reduce exposure to hazardous concentrations. In the eastern part of the Region, risks from air pollution need to be addressed more effectively by upgrading air quality management, monitoring and assessment.
The voice of the Media Award Winners

Nature can’t clean the air
by Arpi Harutyunyan, Armenia
Now online (Armenia)

Environmental and health specialists conclude that an increase in respiratory diseases in Armenia can be attributed to a reduction in nature’s ability to purify the air, as a result of a man-made, lethal combination of industrialization and the destruction of green areas. Cases of respiratory illness are increasing each year: between 2001 and 2005 they grew by 35%.

Ecological damage accelerated in the 1990s: in response to an energy crisis during cold winters there was an increase in the indiscriminate cutting of trees for firewood. The result was almost desertification, complicated by an increase in vehicle emissions and, in Yerevan, by the dramatic construction boom.

From 2000 to 2005, the number of automobiles in Yerevan grew by 32% and green spaces decreased from 32% to less than 8%. This results in 29 times less green space per person than the recommended level. A combination of increased exhaust emissions and less green areas is responsible for 97% of the capital’s air pollution.

Air pollution – is agriculture the greatest sinner?
by Mette Sikjaer, Tandplejerens (Denmark)

In Denmark, a recent report claimed that farming is the greatest contributor to health problems caused by air pollution. In a country where agriculture takes up 60% of the total area, this claim naturally causes much debate, especially as air pollution causes 3,400 early deaths in the country each year.

How can farmers reduce emissions of ammonia and other pollutants into the air? One effective method used is to clean the ventilated air from animals’ stalls. Another method is to add sulfuric acid to slurry, so its pH is reduced to a level where the ammonium cannot evaporate into the air.

Through initiatives like these, Danish farmers have lowered their emissions by 17% over the last decade and now claim to cause lower emissions of ammonium per kilo of meat and litre of milk than almost any other country in the world. Farmers everywhere need to continue to think of ways to reduce emissions further, but the results of efforts so far are encouraging.

State of pollution
by Roman Lebed, British Broadcasting Corporation (BBC) (Ukraine)

Ukraine does not rate high in the international environmental ratings. This year the British company The Economist Intelligence Unit found Kyiv among the most polluted 30 European capitals, although once it was called “the greenest city in Europe.” This is most likely due to chaotic construction and a large number of cars. There are over 7 million cars in Ukraine, many of which do not meet European environmental standards.

But industry probably pollutes even more. In the eastern region of Donbass, where the greatest amount of industrial facilities are concentrated, billions of tons of hazardous waste are accumulated. A study by the Donetsk National Medical University shows that in Schastia town, near one of the largest thermal power plants, the risk of bronchopulmonary disease in children is doubled.

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