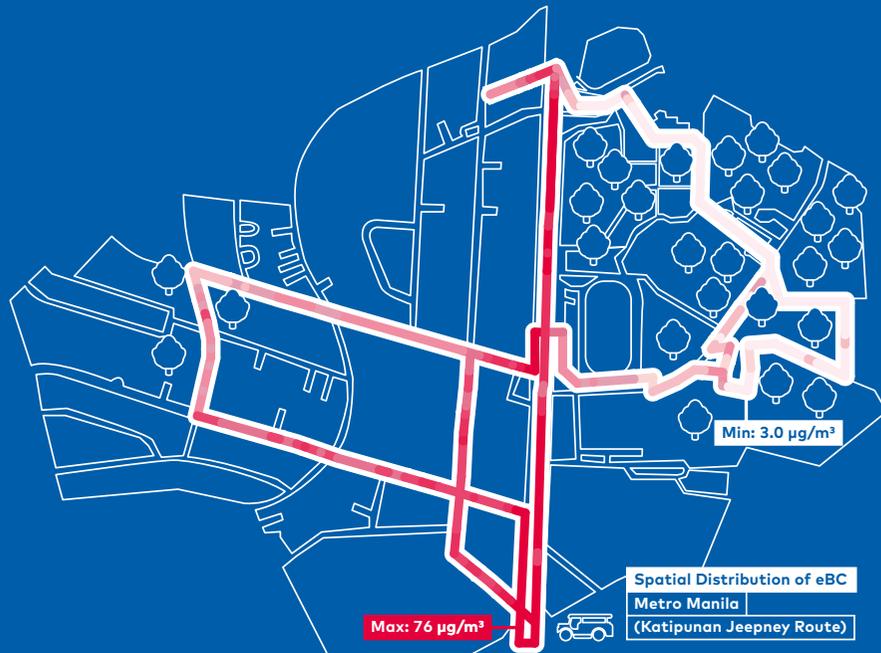


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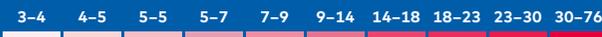
The Air That We Breathe

Planet in crisis

Air pollution



BC (black carbon) in  $\mu\text{g}/\text{m}^3$



We live in a time characterized by economic interests and deadlocked habits, when chemical production processes using petroleum and natural gas determine our everyday life and consumption. Fossil fuels, which were created by the transformation of decomposed dead plants and animals over millions of years, are everywhere. From soap to car paint, from detergents to yogurt pots, products of many kinds are manufactured using mineral oil. Thus, counteracting global warming means questioning one's own lifestyle down to the last detail—not everyone who does not have a car automatically lives »climate neutral.«

Nevertheless, the emissions of our comfortably motorized, gasoline-powered vehicles make a decisive contribution to greenhouse gas emissions and directly affect our health. In less affluent economies, few emission regulations exist; in some cases, even discarded diesel engines still meeting a pre-Euro 4 standard are used in public transport. One of the most important causes of air pollution in the developing megacities of Southeast Asia is diesel-powered cars and trucks. More than a quarter of the vehicles registered in the Philippines, for example, are in Metro Manila, where black carbon pollution has a particularly negative impact on human health.

The aim of the scientific research at the Leibniz Institute for Tropospheric Research is to assess the amount of soot particles deposited in the respiratory tract of individuals in the metropolitan area of the megacity Metro Manila. Compared to previous studies, the calculated deposition amount of the total refractory particle number in Metro Manila was up to 17 times higher than the values reported from Europe and the USA. It is therefore probable that if black carbon (BC) emissions remain uncontrolled, the population of this megacity will face increased mortality from respiratory and cardiovascular diseases. It should be an objective to reduce transport-related BC emissions through a reassessment of the guideline values, particularly in developing countries.

The study also indicated that residents of wealthy neighborhoods are exposed to much lower concentrations of pollutants than the rest of the population, suggesting that air pollution levels also depend on social differences across residential areas and working environments. In addition to the introduction of low-emission vehicles, therefore, the aim should be to upgrade individual micro-environments, for example on busy roads, with green spaces to improve air quality.

Research into and optimization of technologies, such as in the field of mobility, are therefore just as indispensable as self-critical questioning: What do comfort, freedom, and self-realization mean to us? How do these ideas relate to consumption, of both space and energy? How important is renouncing consumption—and the search for alternatives for a more conscious use of resources that are not our own, but always belong to others as well? Social and ecological systems always exist in an interdependent relationship. For this reason, increasing the quality of life of a group of people, a region, or a neighborhood, always also means seeing it in interaction with the lifestyles and living spaces of others.