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Environmental Impact of Megacities - Results from CityZen

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Megacities have increasingly important impacts on air quality and climate change on different spatial scales, owing to their high population densities and concentrated emission sources. The EU FP7 project CityZen (Megacity – Zoom for the Environment) ended in 2011 and was, together with its sister project MEGAPOLI, part of a major research effort within FP7 on megacities in Europe and worldwide. The project mainly focused on air pollution trends in large cities and emission hotspots, climate-chemistry couplings, future projections, and emission mitigation options. Both observational and modeling tools have been extensively used.

This paper reviews some of the main results from CityZen regarding present air pollution in and around megacities, future scenarios and mitigation options to reduce air pollution and/or climate change, and the main policy messages from the project.

The different observed trends over European and Asian hotspots during the last 10 to 15 years are shown. Results of source attribution of pollutants, which have been measured and calculated in and around the different selected hot spots in CityZen will be discussed.

Another important question to be addressed is the extent to which climate change will affect air quality and the effectiveness of air quality legislation. Although projected emission reductions are a major determinate influencing the predictions of future air pollution, model results suggest that climate change has to be taken into account when devising future air quality legislation.

This paper will also summarize some important policy messages in terms of ozone, particles and the observational needs that have been put forward as conclusions from the project.