

1.044 Emissions, Air pollution, Health and Society in Africa.

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Abstract:

Urbanisation is a strongly emerging issue in West Africa, for a number of factors: explosive population growth in sub-Saharan countries, urban concentrations of activities, lack of regulations... This has resulted in the rapid development of "urban ecosystems". In this context, the main West African emission sources are anthropogenic, such as domestic fires, unregulated traffic, savannah fires ... This results in an inordinate surge in particle and gas emissions within cities with unexpected high pollution levels extremely harmful to health with various clinical manifestations. Such questions have received very little attention in Africa unlike Europe, North America and Asia and were recently investigated in southern west Africa in the EU-funded project DACCWA. The main final objective is to produce spatial and temporal distribution maps of health impact due to particles and gases using numerical modeling, updated and revised combustion emission inventories and scenarios and dose-response functions measured during the project. For that purpose, four urban sites were selected in Abidjan (Cote d'Ivoire) and Cotonou (Benin) focusing on main specific regional combustion sources (domestic fires, traffic and waste burning). Long-term measurements occurred from January 2015 to March 2017 to determine dose response functions in terms of respiratory diseases and mortalities by linking gas and particulate mass measurements and census in hospitals. Intensive measurements took place during the dry and wet seasons 2016 and 2017 to characterize toxicological effects of size-speciated aerosol chemical composition and dose response functions in terms of lung inflammations. Note that in addition to DACCWA program and in the frame of SAREHA project, vulnerability due to air pollution of people working or living close to our sites has been evaluated through risk culture intensity index measurements.

Highlights on the acquired results on emissions, air quality, people health and vulnerability will be presented.