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## Development of Networks of Low-Cost Air Quality Monitors in African Cities

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As Africa develops, more Africans are living in populated areas, where atmospheric pollution reaches high levels and put their lives at risk. Exposure to air pollution can lead to a wide range of diseases, which includes headaches, stroke, lung cancers, chronic obstructive pulmonary disease, dementia, asthma, type 2 diabetes, and respiratory infections. More generally, chronic exposure can affect every organ in the body. Particulate matter, in particular PM<sub>2.5</sub>, has been recognized as a leading cause of cancer. The World Health Organization announced in 2018, in one of its reports that more than 90% of children in the world breathe polluted air that put their development and health at risk. It also revealed that pregnant women exposed to polluted air, were more likely to give birth prematurely. More recently, PM were found in foetuses. Atmospheric pollution not only impacts health, neurodevelopment and cognitive ability, but has a high economic cost. Around 1% of GDP is being lost by African countries each year due to poor air quality. Data on atmospheric pollution are scarce in Africa due to lack of monitors in almost all African cities, and that's why Africa does not show up in any air quality map. Governments which have been too slow to react are increasingly aware of the situation but lack information and financial resources to take adequate measures. One of the big obstacles has been the high upfront cost of high-grade monitors. However, low-cost sensors-based monitors are bringing hope owing to their features. They are easy to deploy and maintain, flexible and cheap. In 2022, a consortium made up of four partners: AfriqAir (Rwanda), Alioune Diop University (Senegal), Makerere University (Uganda) and the University of Douala (Cameroun) was awarded a seed grant for a one-year project by the CAMS-Net to install few networks of low-cost sensors in Senegal and Cameroon. The project aims to determine PM concentrations in few African cities, enhance collaboration between partners and organize seminars. Investigation methods will include sites selection and sensors calibration, deployment and monitoring. Here are reported the activities of the first six months of the project. This period was dedicated to surveys on low-cost sensors; design, manufacturing and delivery of monitors and selection of reference monitoring systems.

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