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Sensors.AFRICA: Using citizen science as an advocacy tool for a better environment

Cities in the global south face an array of challenges across the socio-economic ladder including resource depletion, increase in slum dwellers, air, noise and water pollution and rising urban poverty (Arku, G. and Marais, L. 2021). These cities are also growing without adequate urban planning and are susceptible to environmental pollution and climate change impacts.

Environmental monitoring is crucial in identifying the impact of pollution on human health and the surroundings. This can also help identify the sources or causes of pollution and avoid debate that might hamper progress in this campaign (Clean Air Catalyst. (2022)).

The involvement of communities in this process can lead to increased awareness, enhanced data collection, and more informed decision making. Community engagement can take many forms, including educational programs, participatory mapping, citizen science initiatives, and technology-based solutions. Citizen science initiatives have proven to be effective in engaging communities in environmental monitoring, in particular air quality monitoring. These initiatives allow community members to collect and interpret data themselves, which can help attain a greater sense of ownership and responsibility for the environment.

This case-study looks at the work done by Code for Africa's sensors.AFRICA citizen science initiative. The study will discuss the methodology, benefits and challenges of engaging communities in environmental monitoring. It involves understanding pollution within lower middle and low income areas in Nairobi through grassroots community groups, NGOs and journalists.

The methods used include on field participatory mapping techniques, the use of questionnaires to understand the lived experiences and the deployment of locally designed-designed and assembled low-cost sensors. Others are experiences of reporting using local media houses and newsrooms, issuing regular data reports and training on how to interpret data.

The participatory methods showcase the deep understanding of the local situations with independent local correlations emerging from the exercise. Through sensors.AFRICA, the resulting data has been instrumental in bringing proactive change from the community and by the civil authorities. Engaging the communities with active data and sharing this with both authorities and media houses has helped in bringing this change including control of emissions, shutting down of polluting factories and increased awareness of the dangers of air pollution among the general citizenry.

The methods in this case study can be replicated in other African countries where those from marginalized groups, especially women, persons with disability and the poor continue to be the largest victims of environmental pollution in urban areas. The case-study is an indicator that using citizen science can enhance participation in environmental management, more so in what seem to be unplanned and deprived neighbourhoods.

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