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Population growth and exposure to multiple environmental burdens in Sub-Saharan Africa

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https://meet.google.com/mwd-rcdy-sun

«Population growth and exposure to multiple environmental burdens in Sub-Saharan Africa.»

Valérie Golaz
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Valérie Golaz currently works at INED, the French Institut national d'études démographiques. She is based at LPED UMR 151 Aix-Marseille Université - IRD. Valerie does research in Quantitative and Qualitative Social Research Methods. Her research focuses on Population growth, access to land and environment in Africa, as well as family support and social policies along the lifecourse.

Ankit Sikarwar
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Assistant Professor Centre for Research on Social Inequalities (CRIS). Is research examines environment - population interactions across multiple scales - from individuals and rural communities to urban centres, sub-national, national, and international contexts.
His work addresses critical questions: How can environmental risks and their overlapping effects be effectively measured? Who is most exposed and vulnerable? How can the heterogeneity of impacts below administrative boundaries be captured? He also investigates the structural barriers that hinder equitable solutions, particularly in Low- and Middle-Income Countries (LMICs), where socio-economic inequalities and environmental risks intersect most acutely.

Abstract
Ankit Sikarwar and Valérie Golaz

Substantial increase in population exposure to multiple environmental burdens in sub-Saharan Africa (2000-2019)

"In the face of increasing global environmental uncertainties, sub-Saharan Africa stands as a highly vulnerable region with a massive population marked with poverty and inequalities. Moreover, different environmental risk factors can coexist simultaneously as multiple environmental burdens (MEB); however, population exposure to MEB remains unexamined. Here, using open-access spatial data and critical thresholds, we quantify population exposure to four key environmental risk factors: hazardous fine particulate matter (PM2.5) levels, extreme temperature increase, prolonged severe droughts, and green deficit (scarcity of green trees). Further, we explore the concept of MEB, where these risk factors converge. We derive exposure for 2000 and 2019 at the pixel (1 km grid cell) level. We also check how population change, environmental change, and their interaction contribute to the total change in exposure. We found substantial changes in the population exposed from 2000 to 2019, i.e., an increase of ~460 million people to hazardous PM2.5 levels, ~16 million to extreme temperature increase, ~13 million to prolonged severe droughts, and ~246 million to green deficit. Population exposure to at least three of these four environmental risk factors (3EB) has increased by ~246 million. In this increase in exposure to 3EB, the contribution of environmental change is higher (48%), than that of interaction and population change (36% and 15%, respectively). Notably, there are striking disparities in population exposure, its change, and the contributing effects among countries and regions of sub-Saharan Africa."