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Climate change may lead to increase in health effects associated with exposure to pesticides

Climate change may lead to an increase in health effects associated with exposure to endocrine disrupting pesticides, unless measures are put in place to ban the manufacture, trade and use of these pesticides. This is just one finding from research by Dr Cliff Zinyemba who recently received his PhD in Public Health from the University of Cape Town (UCT).

His research paper entitled: "Characterising the role of climate change in perpetuating Zimbabwean farmers' health risks from exposure to endocrine disrupting pesticides," sought to deepen understanding of the relationship between climate change and human health with a focus on the role of climate change in worsening existing health risks associated with exposure to pesticides belonging to a special class of chemicals, called endocrine disrupting chemicals (EDCs).

"EDCs are of great concern for human health because they interfere with the function of hormones. Exposure to endocrine disrupting pesticides during pregnancy may result in babies with a range of physical abnormalities, including some hormone-dependent cancers. Exposure during childhood may interfere with development and growth and result in effects such as anomalies in the male reproductive system which may result in fertility challenges in future. Exposure during adulthood may also result in fertility challenges, hormone dependent cancers, obesity, diabetes and other hormone related diseases and conditions," he shared.

The concern is not only for farmers, but for everyone, as with climate change, pesticides may increasingly find their way into our homes and onto our tables as residues in fruits, vegetables, wine, fish, water and other mediums.

Zinyemba said: "There is a great need, therefore, for society to understand that everyone may be at risk and that climate change has the potential to worsen these risks. Society needs to gradually make conscious decisions to adopt climate-friendly lifestyles as climate change is a health issue. In agriculture, there is a need for governments to assist farmers in transitioning to cheaper and less toxic pesticide alternatives, including promotion of biopesticides and integrated pest management."

His research also found that the certain long-term health effects associated with exposure to endocrine disrupting pesticides in agriculture including cognitive impairment, diabetes,

obesity and hormone-dependent cancers may compromise farmers' climate change adaptive capacity in many ways. This evidence is important for climate change decision making.

He is currently in the process of converting his PhD research findings into formats that are accessible to policy makers with the assistance of the Faculty of Health Sciences' Postgraduate Publication Incentive funding. Together with his supervisors as co-authors, he has published one article in *Plos One* and on the day of his graduation, Zinyemba woke up to an email from the Editor of the *International Journal of Environmental Research and Public Health* asking for minor corrections.

While the outcomes of Zinyemba's PhD are important for society and policy makers it was not the only outcome of his research. He met his wife Sarlomie, who was also completing her PhD at the University of KwaZulu-Natal, while doing his data collection and in 2016 they both had to manage lobola and wedding preparations.

"Starting a family meant that I needed to be with my wife in Harare where she was working as a university librarian. So, I started working as a part-time lecturer at a local university in Harare while I continued working on my PhD. There were numerous challenges for Sarlomie and I which slowed down our progress. However, the best news came during the COVID lockdown when we both received confirmation that we had passed our PhDs with minor corrections just a week apart," shared an excited Zinyemba.

"With my PhD now safe and secure in the bag, I hope 2021 will offer me an opportunity to develop my career as a postdoctoral researcher."



Dr Cliff Zinyemba

Photo: Dr Cliff Zinyemba

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