



How many Kenyans are drinking unsafe water?

Using microbial water quality data to estimate coverage in Nyanza Province

By: Kevin Kayando Aulla - Kisii County Public Health Office; Emily Kumpel and Rachel Peletz - Aquaya Institute



Kevin Kayando

Monitoring microbial water quality is important for controlling diseases as well as aiding local and national decision makers in understanding where populations lack access to safe drinking water. The Joint Monitoring Project (JMP), administered by UNICEF and the World Health Organization (WHO), monitors global access to safe water to track progress toward the Millennium Development Goals. Their current estimates rely on national census data and defines access to safe water as that coming from an 'improved' water source (such as piped water, protected wells and springs, rainwater collection, and boreholes). However, not all improved water sources comply with microbial water quality standards; current estimates likely overestimate the number of people with access to safe drinking water (Bain 2014).

Methods and Findings

We obtained water quality data from 2013-2014 for Nyanza Province through the Monitoring for Safe Water, a program of the Aquaya Institute (see aquaya.org for more details). The data included results from 1,334 microbial water quality tests conducted by Kisii Central District Public Health Office (KCDPHO), 434 conducted by Gusii Water and Sanitation Company (GUWASCO) and 327 conducted by Kisumu East District Health Office (KEDPHO). Using this water quality data and census information (KNBS 2010), we calculated how many people lack access to safe water within Kisumu and Kisii Counties and then scientifically extrapolated the findings in Kisii and Kisumu counties to other Counties within Nyanza province.

We found that 58% of the 1,152,252 people living in Kisii County and 59% of the 968,909 people living in Kisumu county were estimated to be drinking from sources that are not safe (Fig 1.). Compared to current estimates based on whether a source is categorized as improved or unimproved, these estimates are 9 and 12 percentage points higher for Kisii and Kisumu Counties, respectively (Fig 1.). When extrapolations were done for Siaya, Migori, and Homabay counties, 68%, 71%, and 73% of the populations, respectively, were using drinking water that was not safe (Fig. 2), Siaya County was 4 percentage points higher using the new estimate, while Migori and Homabay were 1 percentage point lower and higher, respectively.

Conclusion

Current metrics of water safety are underestimating the number of people in Kenya without safe drinking water. Measuring access using water quality data provides more accurate information on populations using unsafe water, which can enable local and national governments, such as County Health Ministries in Kenya, to better identify populations at risk and allocate resources accordingly. Additionally, the collection of water quality data through monitoring programs will empower governments to actively manage water quality, by identifying unsafe water sources for follow-up actions. Lastly, data on water quality can be used to measure the effects of other environmental health interventions, including the current ODF campaign in Kenya

(For more details on this write up visit wash.health.go.ke)

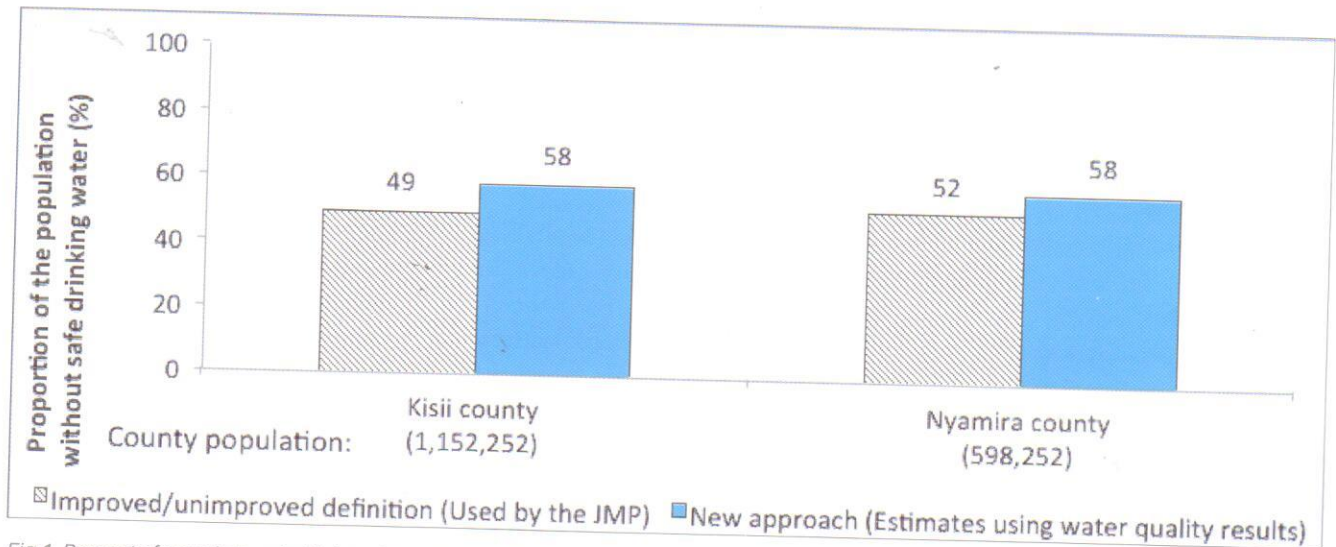


Fig 1. Percent of populations in Kisii and Nyamira counties without access to safe water according to categorization by improved or unimproved source type (left bars) and estimation using water quality data from Kisii county (right bars).

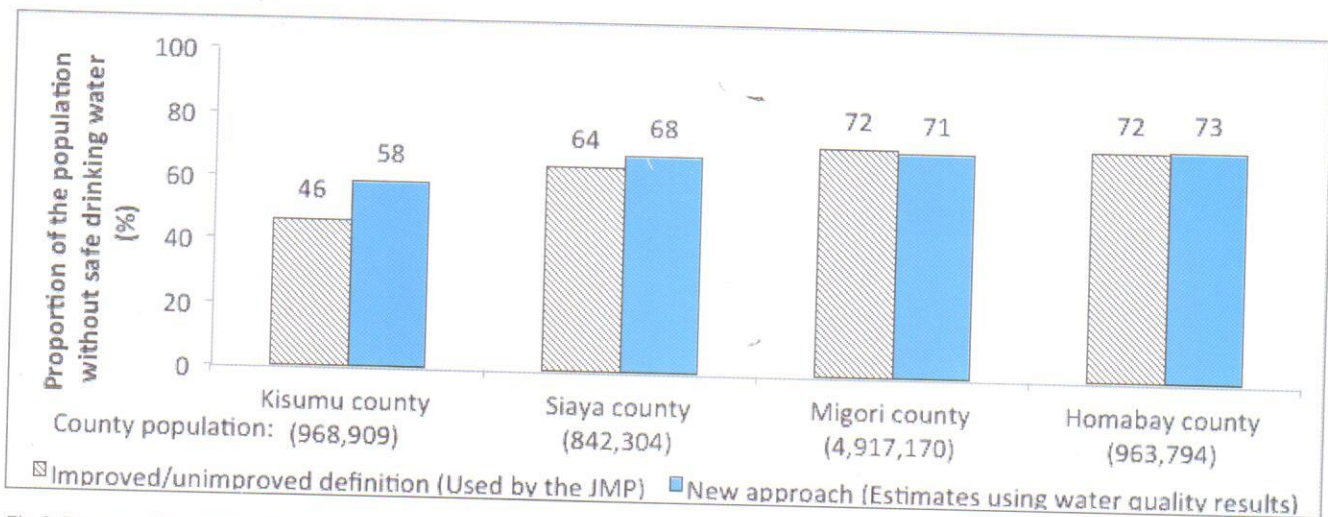


Fig 2. Percent of the population in Kisumu, Siaya, Migori, and Homa ay counties without access to safe water according to categorization by improved or unimproved source type (left bars) and estimation using water quality data from Kisumu county (right bars).