



Distribution of Diarrhoea and Associated Factors
in Kericho County
A Geospatial Analysis

June 2018



This report is the result of the study entitled *Understanding the Effects of Poor Sanitation on Public Health, the Environment and Well-being*, commissioned by SNV Netherlands Development Organisation (SNV) as part of the Voice for Change Partnership (V4CP) programme which advocates for county governments to address water, sanitation and hygiene (WASH) issues affecting their communities.

The V4CP programme is implemented by SNV in collaboration with the Institute of Economic Affairs (IEA). The research was conducted by the Centre for Population Health Research & Management (CPHRM).

Introduction

Access to clean water and proper sanitation facilities is important in safeguarding the health of people and communities. Poor sanitation and unsafe drinking water are known to cause illness and death through diarrhoeal diseases.

This geospatial analysis report contributes to the findings of a research study. The study used a mixed methods design that comprised a case-control quantitative study, qualitative interviews in the community (key informant interviews and focus group discussions), observation, review of health facility data on under-five morbidity and mortality and water sampling and testing.

The sample size across the three counties was 1174 children under the age of five (613 cases and 561 controls). The study used convenience sampling to select all children under five attending the selected health facilities from February 1-10, 2018. Cases were children under five years of age who presented to the participating health facilities with diarrhoea (as defined by the health worker, with a minimum requirement of three or more loose or watery stools in the previous 24 hours). Controls were children in the same age range who reported with any other infection or trauma but without diarrhoea.

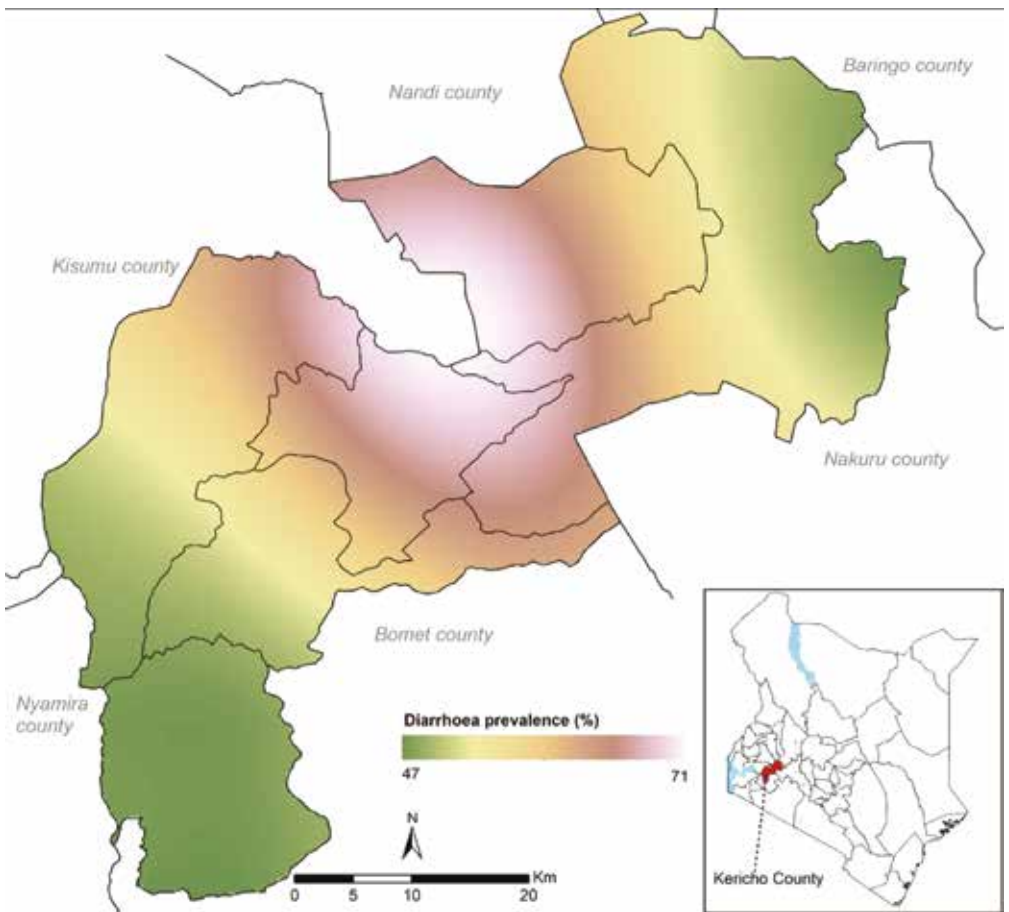
From the findings in Kericho county, in five of the 357 homesteads surveyed the respondent said the family did not have a toilet, but instead used the bush or field for defecation. Disposal of children's stools was also poor in some households; 5.2% of the respondents in the case households and 2.4% of the control group said that the stool was rinsed off into a ditch or drain.

As part of the study, spatial analysis was conducted to build a model of the environment to explain the relationship between diarrhoea and other factors in the county. The spatial data collection method used GPS enabled devices powered by the open data kit (ODK) application to obtain coordinates of the respondents' households and water, sanitation and hygiene (WASH) facilities. The geospatial mapping shows a clear relationship between the proximity of households to water sources and open defecation sites and cases of diarrhoea among children.

Research sample by county

	Total		Controls		Cases	
	n	%	n	%	n	%
Elgeyo Marakwet	344	29.3	162	28.9	182	29.7
Homa Bay	473	40.3	233	41.5	240	39.2
Kericho	357	30.4	166	29.6	191	31.2

Figure 1: Prevalence of diarrhoea in Kericho county

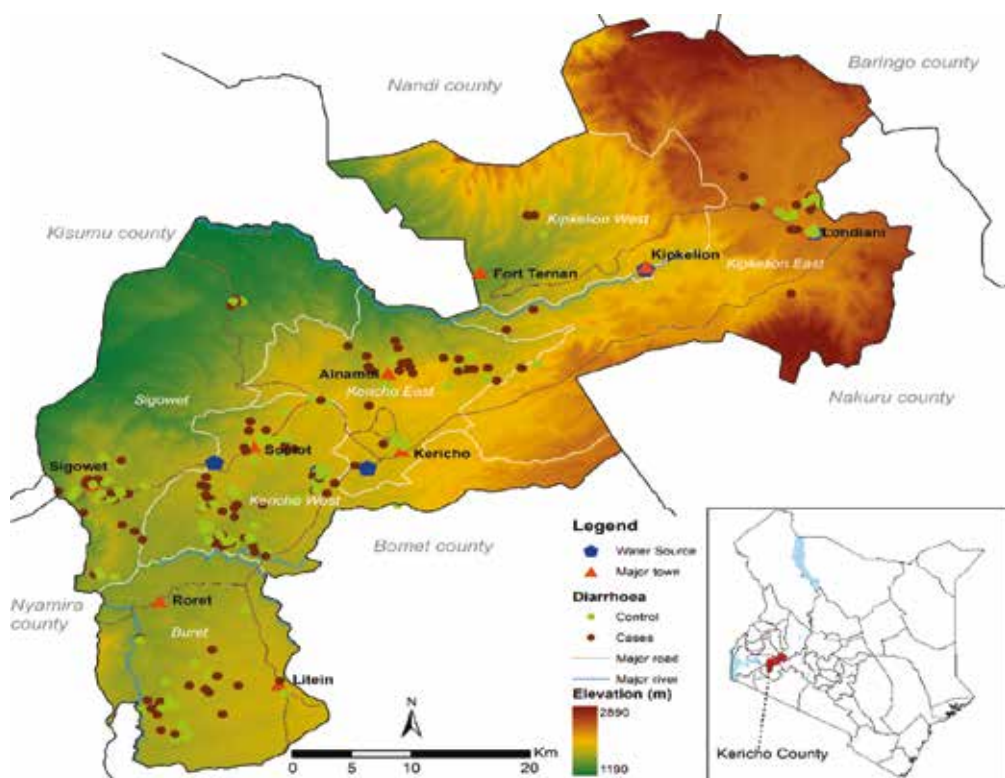


Key Findings

Diarrhoea prevalence varies with the elevation, i.e. highlands and lowlands. In this county, the regions with low elevation have more cases of diarrhoea.

This suggests a relationship between groundwater availability and quality of water for human consumption. Contaminated water might also be present.

Figure 2: Topography and diarrhoea distribution



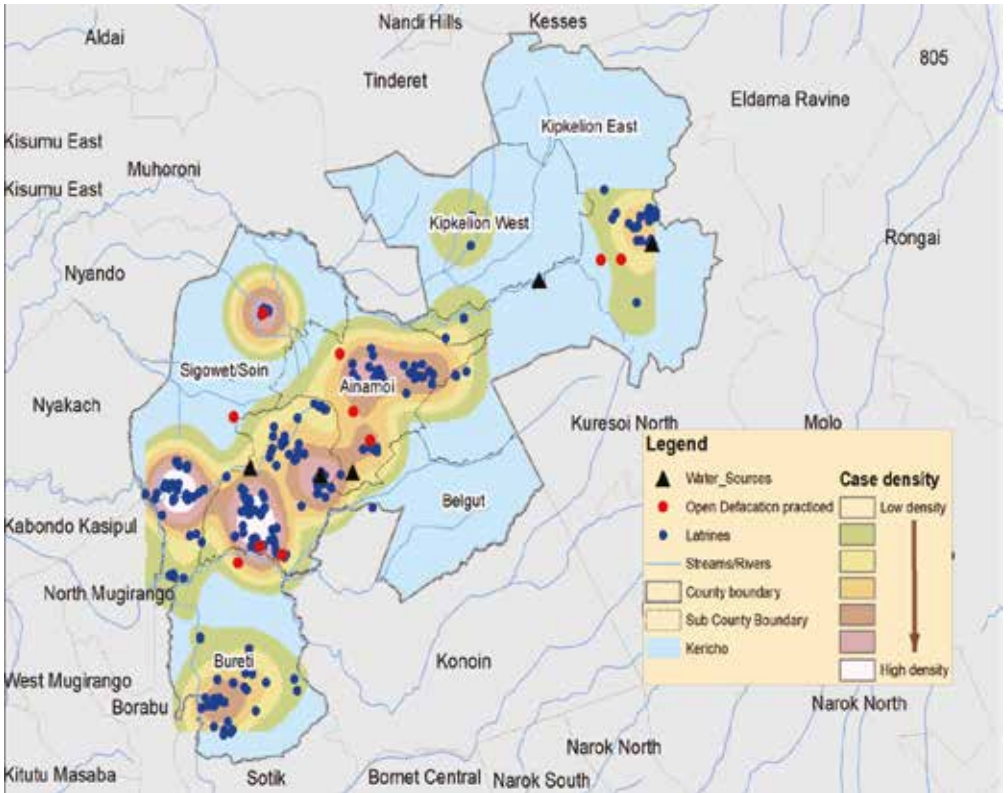
Key Findings

The concentration of children under five with diarrhoea in the county is high near the major water sources and the roads. This suggests the contamination of water sources by practices such as open defecation.

The clustering of households with children with diarrhoea near the roads and water sources is an indication of a common risk factor.

This can be supported by the water testing findings, as all the major water sources sampled tested positive for *E. coli*.

Figure 3: Distribution of latrines and open defecation



Key Findings

Areas with high density cases have poor latrine coverage. They are the areas with open defecation. Some areas with high latrine coverage have a high density of diarrhoea cases. This can be attributed to factors such as lack of use of sanitation facilities and cultural barriers.

The coverage of latrines is high near major towns and low in rural areas where open defecation is prevalent.

Kipkelion West and East have the lowest coverage of latrines.

Conclusions

- The risk factors for diarrhoea in the county are: open defecation, especially in the tea plantations and forest covered areas; poor sanitation facilities; water contamination; and poor waste disposal.
- The county has high latrine coverage, especially in urban and semi-urban areas but sewer connectivity is only available in the urban and peri-urban areas, contributing to poor sanitation practices.
- Open defecation is common near water sources such as rivers, tea plantations, bushes and forests.
- Diarrhoea cases are concentrated near major water sources, indicating a common risk factor of contamination.
- The highland areas with forest coverage, such as Sigowet Soin and Litein, have many open defecation sites.

Recommendations

- County public health must compel the multinational companies that own the large tea plantations to improve latrine coverage to reduce open defecation.
- Water monitoring should be made routine for public health officers. They should be given weekly targets for testing to improve quality.
- County government and other partners should focus on building user-friendly latrines to improve the quality of sanitation for people living with disabilities (PLWDs).
- Lack of user-friendly latrines contributes to the practice of open defecation.
- Hygiene promotion is recommended through behaviour change communication to increase the use of latrines, promote good sanitation practices and eliminate open defecation, especially in rural areas.
- Affordable and suitable public sanitation options should be established in urban areas and near forests and major roads to curb open defecation.

For more information on these findings, see report: *Understanding the Effects of Poor Sanitation on Public Health, the Environment and Well-being. Kericho - Report of research findings. 2018.* Published by the V4CP programme.

Further information

Contact: SNV Kenya Country Office Ngong Lane, off Ngong Road Nairobi, Kenya

Tel.: +254 724 463355

Email: kenya@snv.org

