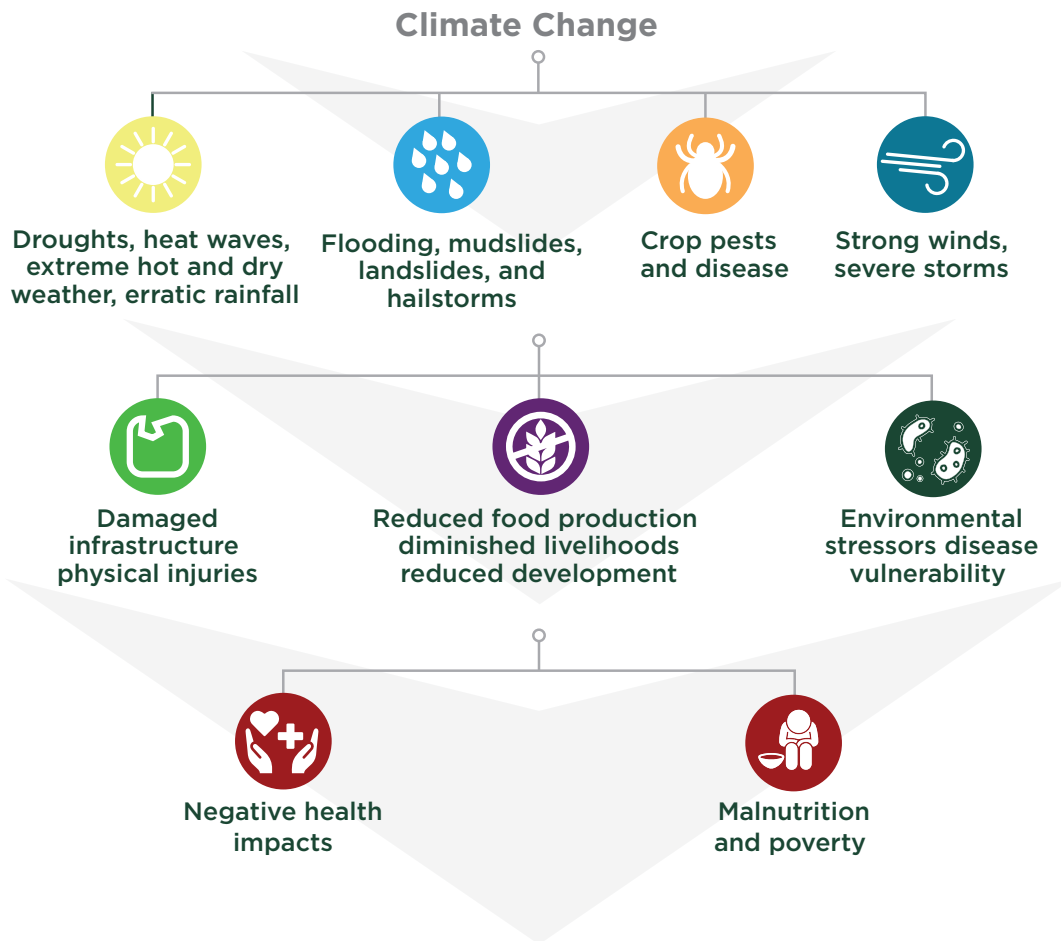


Climate Change Impacts on Health

This factsheet highlights notable climate change impacts on health, especially disease patterns, to inform climate action in the nexus with sexual and reproductive health and rights/family planning (SRHR/FP). Climate change has increased the frequency and severity of extreme weather events, such as droughts, extreme hot and dry weather, flooding, erratic rainfall, mudslides, landslides, heat waves, wildfires, and brush fires. These events damage infrastructure, negatively impact food generation and livelihoods, create environmental stressors and expose populations to increased risk of physical injury, disease vulnerability, and reduced development. Widespread poverty and malnutrition are two outcomes of climate change that render significant negative impacts on health and are themselves interrelated.



Climate Change Effects that Negatively Impact Malnutrition, Poverty, and Health





Uganda is ranked 13th in the world for climate vulnerability, with a high degree of exposure, high sensitivity, and low adaptive capacity. Future expectations predict increased temperature and rains.

Climate Change Creates Environmental Stressors that Exacerbate Malnutrition and Poverty, Leading to Multiple Negative Health Outcomes

Malnutrition is the greatest threat to health due to its persistence and impact on other aspects of well-being. Malnutrition negatively impacts development, increases vulnerability to infection, and diminishes healing capacity. The following climate-induced stressors threaten increased malnutrition:

- Droughts, heat waves, extreme hot and dry weather, and erratic rainfall result in low crop yields and loss of livestock.
- Flooding, mudslides, landslides, and hailstorms deplete soil, uproot and damage crops, and cause loss of livestock.
- Crop pests and disease are more prevalent as global temperatures rise.
- Strong winds make fishing more difficult and increase the likelihood of injury from capsizing.

Each of these environmental factors lead to widespread malnutrition from reduced harvests and food shortages, which weakens immune systems and the body's overall resilience through the following pathways:

- Malnourished people are more susceptible to infection.
- Insufficient nutrients impact response to medications and other treatments.
- Malnutrition impedes recovery from chronic illnesses like HIV and lowers the ability to fight additional opportunistic infections.

Insufficient nutrients limit the productive capacity of people. This effect, in addition to the physical loss of productive outputs and damage to property due to extreme weather events, results in a vicious cycle of worsening poverty and malnutrition. Poverty also increases the likelihood that females will turn

to transactional sex to afford basic necessities and limits their access to SRHR/FP, exposing them to heightened risk of sexually transmitted infections and unwanted pregnancies. Furthermore, the emotional and financial hardships of poverty negatively impact mental health, which can lead to substance abuse and increased gender-based violence.

Climate change also increases health risks by impacting daily activities:

- Droughts and extreme heat waves are associated with increased respiratory infection due to dustier conditions.
- Females experience increased risk of physical violence due to the greater distances required to collect water and firewood.
- Decreased access to clean water results in degraded menstrual hygiene.

Changing Environmental Characteristics Increase the Threat of Disease by Creating Conducive Conditions for Accelerated and Expanded Spread of Disease

Rising temperatures and changing humidity are introducing diseases, parasites, and vectors to populations in which they were not previously threats. For example, there has been an increased prevalence of mosquitoes in highland areas where their numbers were previously much lower. These conditions create breeding grounds for disease vectors and lengthen transmission seasons. They also increase the vectorial capacity of arthropods and are associated with increased biting rates, which accelerates infection in humans by expediting the development of pathogens within vectors. Further concerning, anopheles malaria vectors and aedes arbovirus vectors are developing resistance to insecticides.

Diseases Associated with Climate Change: Fast Facts

At the global level, the largest health burden from climate change is associated with:



Malaria

219 million cases and 400,000 deaths per year



Dengue fever

3.9 billion at risk, 96 million cases, and 40,000 deaths per year



Vector-borne diseases

account for more than 17% of all infectious diseases (700,000 deaths per year)



Other major threatening vector-borne diseases

include yellow fever, chikungunya, Zika virus fever, West Nile fever, Japanese encephalitis, Chagas disease, and leishmaniasis (hundreds of millions affected worldwide)

Sources: Obame-Nkoghe J, et al. Climate-influenced vector-borne diseases in Africa: a call to empower the next generation of African researchers for sustainable solutions. *Infect Dis Poverty*. 2024 Mar 14;13(1):26. doi: 10.1186/s40249-024-01193-5. PMID: 38486340; PMCID: PMC10938833. WHO. Vector-borne diseases. 2020. <https://www.who.int/news-room/fact-sheets/detail/vector-borne-diseases#:~:text=Key%20facts,infection%20transmitted%20by%20Anopheleline%20mosquitoes>.

Severe storms and flooding advance the spread of waterborne and epidemic diseases (e.g., cholera, malaria, dysentery, typhoid) and cause the collapse of pit latrines, sanitary pits, and garbage pits in communities, which increases infection rates due to poor sanitation. Sanitation conditions are especially precarious for populations that have to migrate due to environmental degradation, as they experience decreased livelihoods and unplanned urbanisation.

- Climate susceptibility has been associated with increased early marriages due to financial strain or when girls drop out of school due to financial limitations or degraded infrastructure complicating access. These behaviour trends also burden the healthcare system as early marriages increase child-bearing years leading to population growth and teenage pregnancies increase the incidence of fistula cases.

Destruction of Infrastructure and Exposure to Environmental Stressors Pose Multiple Challenges to Families and Communities

Extreme weather events associated with climate change destroy infrastructure, impeding access to healthcare. They also increase the vulnerability of certain populations, both directly and indirectly:

- Severe storms and flooding destroy health facilities, medical supplies, water and sanitation systems, and transportation infrastructure, resulting in lack of access to SRHR/FP resources and inconsistent disease treatment, which is associated with the development of drug-resistant pathogens.
- Population migration and displacement due to environmental degradation or loss of livelihood results in increased burden on some health facilities or lack of treatment and SRHR/FP, especially in refugee camps.
- Displaced persons experience increased health vulnerability, such as those affected by the Lake Victoria water rise and flooding of areas in the basin.

Mothers and Children Experience Heightened Vulnerability to the Negative Health Effects of Climate Change

Pregnant women and youth have an increased need for nutrients for development, which means that climate change effects on this population can have outsized, permanent impacts:

- Malnourishment in mothers can manifest as preeclampsia, low birth weights, premature births, and stunted development, which impacts the entire growth trajectory of unborn children.
- Degraded infrastructure impedes access to healthcare facilities, leading to increased maternal and neonatal deaths as more women deliver at home or en route to facilities. It also limits access to sufficient antenatal healthcare.
- Rises in climate change-related infectious diseases are especially dangerous for pregnant women. Malaria, for example, can result in miscarriage, anaemia, stillbirth, low birth weight, or maternal and foetal death.

Recommendations for Policy Makers and Program Planners

The recommendations are based on evidence and the analysis of key experts at Regenerate Africa, as detailed in the report “Advancing and Scaling-up Sexual Reproductive Health Rights/Family Planning for Climate Adaptation and Resilience in Uganda: A Readiness Study.”

- Streamline and strengthen climate action coordination among key actors and stakeholders that responds to and addresses the interconnected issues of environment, population dynamics, SRHR/FP, and agriculture to develop holistic adaptation plans.
- Develop greater understanding of issue intersectionality through more targeted and contextualised training and promote a critical lens that encourages government and organisational entities to look for shared equity with other entities and seek cooperation.
- Emphasise intersectional collaboration on climate action proposals to improve the comprehensiveness of the plans, benefit from more inclusive inputs, and increase the competitiveness for award of climate funds.
- Develop and implement responsive programmes for delivery of services that integrate strategies to address SRHR/FP within climate actions.



The full research report is available at:

<https://regenerateafrica.org/2024/02/15/final-study-report-scaling-up-srhr-fp-for-climate-adaptation-and-resilience-in-uganda/>

REFERENCES

- Bauserman, M., et al. (2019). An overview of malaria in pregnancy. *Seminars in perinatology* 43(5) 282-290. <https://doi.org/10.1053/j.semperi.2019.03.018>.
- Brady OJ, et al. (2013). Modelling adult *Aedes aegypti* and *Aedes albopictus* survival at different temperatures in laboratory and field settings. *Parasit Vectors* 6:351.
- Caminade C, McIntyre KM, Jones AE. (2019). Impact of recent and future climate change on vector-borne diseases. *Ann N Y Acad Sci.* 1436(1):157-73.
- Lafferty KD, Mordecai EA. (2016). The rise and fall of infectious disease in a warmer world [version 1; referees: 2 approved]. F1000Res.;5(F1000 Faculty Rev): 2040. <https://doi.org/10.12688/f1000research.8766.1>.
- Lorenz C, et al. (2017). Impact of environmental factors on neglected emerging arboviral diseases. *PLOS Negl Trop Dis.*; 11(9): e0005959.
- Ministry of Water and Environment (September 2022). Updated Nationally Determined Contribution (NDC). Kampala.
- Regenerate Africa (2024). Advancing and Scaling-up Sexual Reproductive Health Rights/Family Planning for Climate Adaptation and Resilience in Uganda. A Readiness Study. Kampala.
- Reisen WK, Fang Y, Martinez VM. (2014). Effects of temperature on the transmission of West Nile virus by *Culex tarsalis* (Diptera: Culicidae). *J Med Entomol.* 43(2):309-17.
- Thomson MC, Stanberry LR. (2022). Climate change and vector borne diseases. *N Engl J Med.* 387(21):1969-78.
- United Nations (2 June 2021). Invasive pest spread another fallout from climate change, UN-backed study finds. 2024 May 28. <https://news.un.org/en/story/2021/06/1093202>.
- Vreysen MJB, et al. (2021). The insect pest control laboratory of the joint FAO/IAEA programme: ten years (2010–2020) of research and development, achievements and challenges in support of the sterile insect technique. *Insects.* 12(4):346.
- WHO. Antimicrobial resistance. 2023 November 21. <https://www.who.int/news-room/fact-sheets/detail/antimicrobial-resistance>.
- WHO. Low birth weight. 2024 May 28. <https://www.who.int/data/nutrition/nlis/info/low-birth-weight>.

