

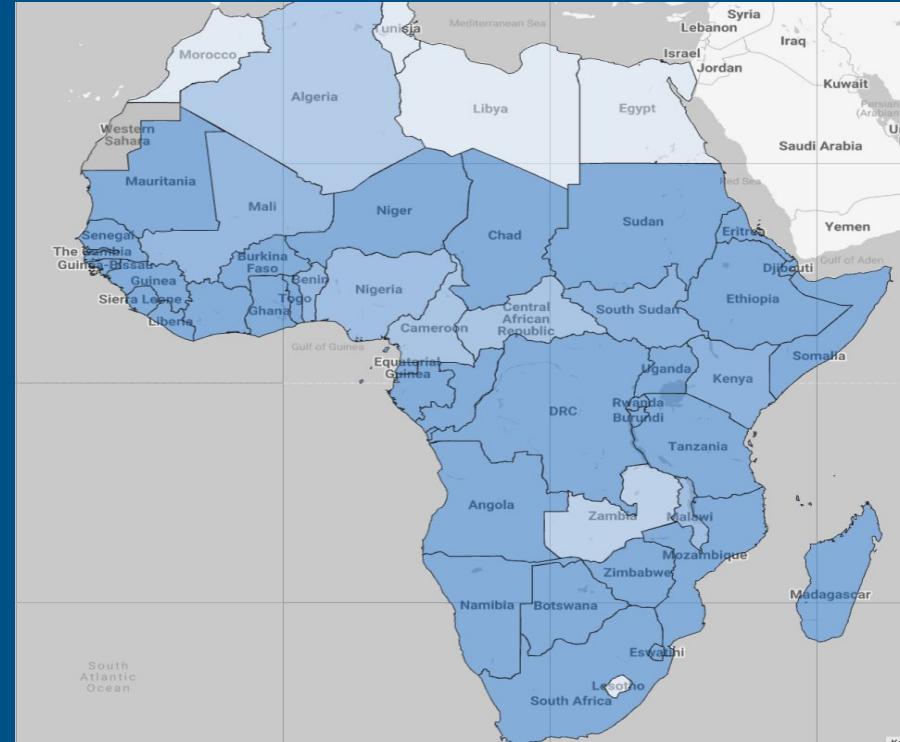
# Tracking Malaria in Africa

Progress, Challenges & Insights  
(2007–2017)

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# OUTLINE

1. Project Overview
2. Objectives
3. Methodology
4. Findings & Insights
5. Limitations
6. Recommendations
7. Conclusion
8. Appendix



# PROJECT OVERVIEW

Malaria is still a significant public health issue till date, most especially in sub-Saharan Africa, accounting for the vast majority of global malaria cases and deaths, with over half a million deaths annually, mostly among children under five.

This project aims to look through the malaria trends in Africa gotten from public datasets which cover malaria occurrence from 2007 to 2017.

Through this analysis, we will see the progress made by some African countries and the countries still battling with high burdens.

# OBJECTIVE

Analyse malaria trends across African countries.

Timeframe: 2007–2017

Key Questions:

- How have malaria trends evolved?
- Which countries succeeded in elimination?
- Where is the burden still high?



# METHODOLOGY

Datasets were sourced from a Kaggle dataset aggregated from WHO.

A lot of columns were irrelevant to the analysis.

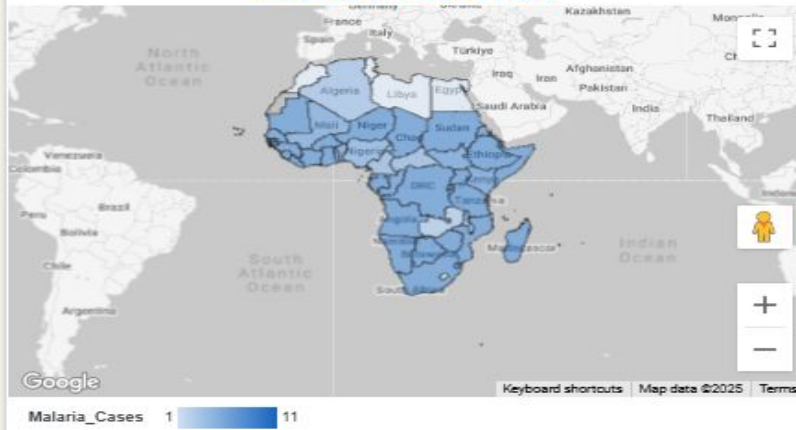
Actions taken:

- Cleaned missing/inconsistent values
- Created a pivot table on Excel
- Focused on confirmed cases by year and country
- Used Python for exploratory data analysis

Tools Used: Excel, Python, Looker

# DATA AT A GLANCE

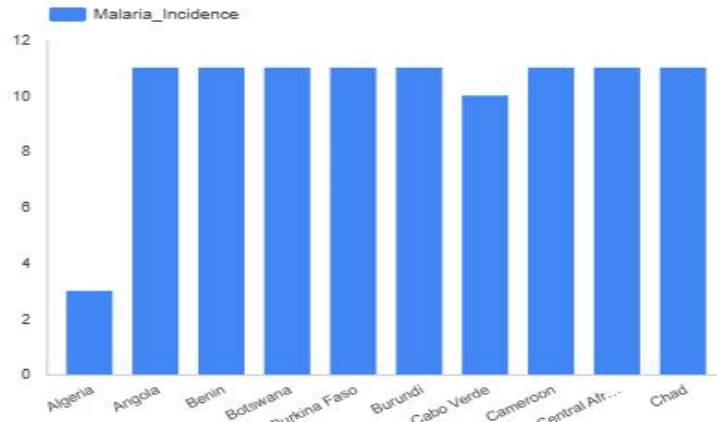
## Malaria Cases by Country



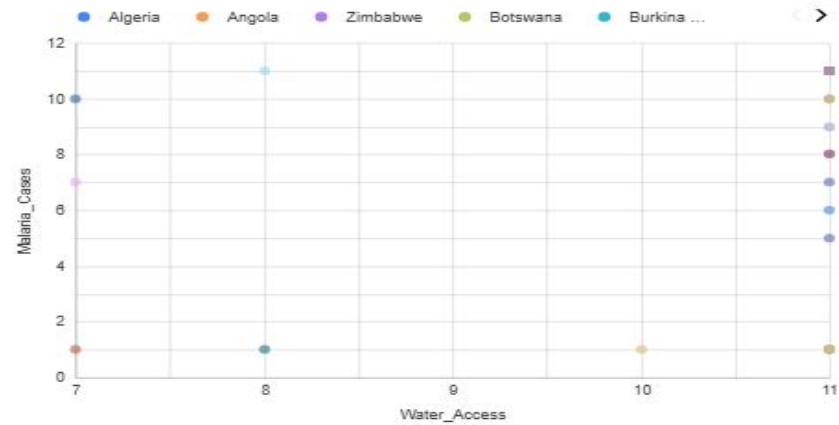
## Malaria Cases Reported Over Time



## Malaria Incidence by Country



## Distribution of Water Access by Malaria Cases

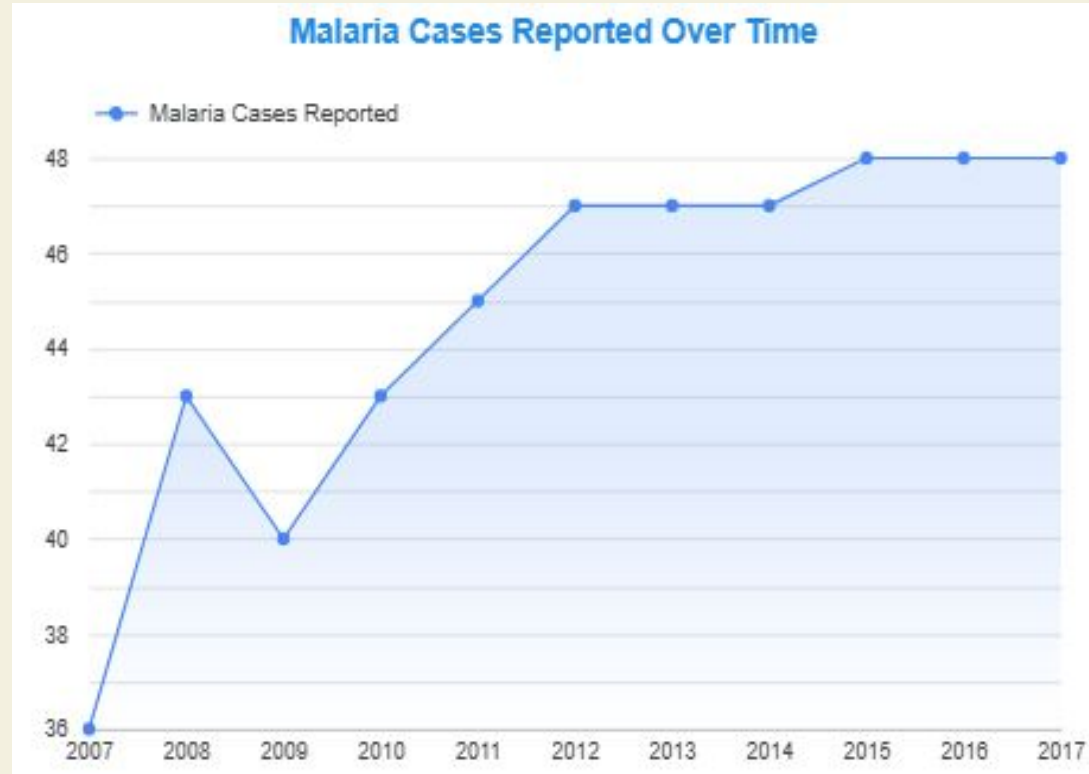




# FINDINGS & INSIGHTS

# How have malaria trends evolved?

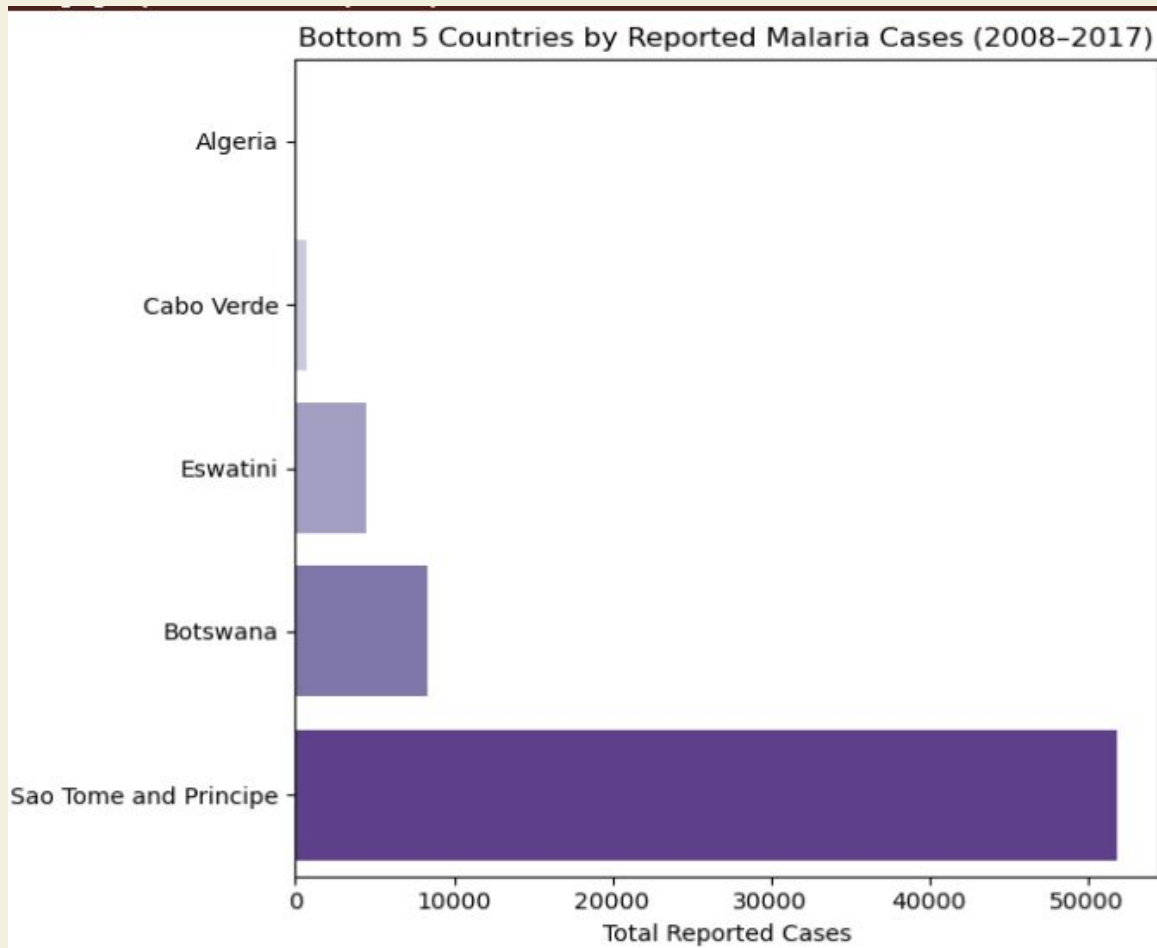
There is an upward trend of the reported malaria cases over the years in Africa, with no significant progress made in terms of elimination.





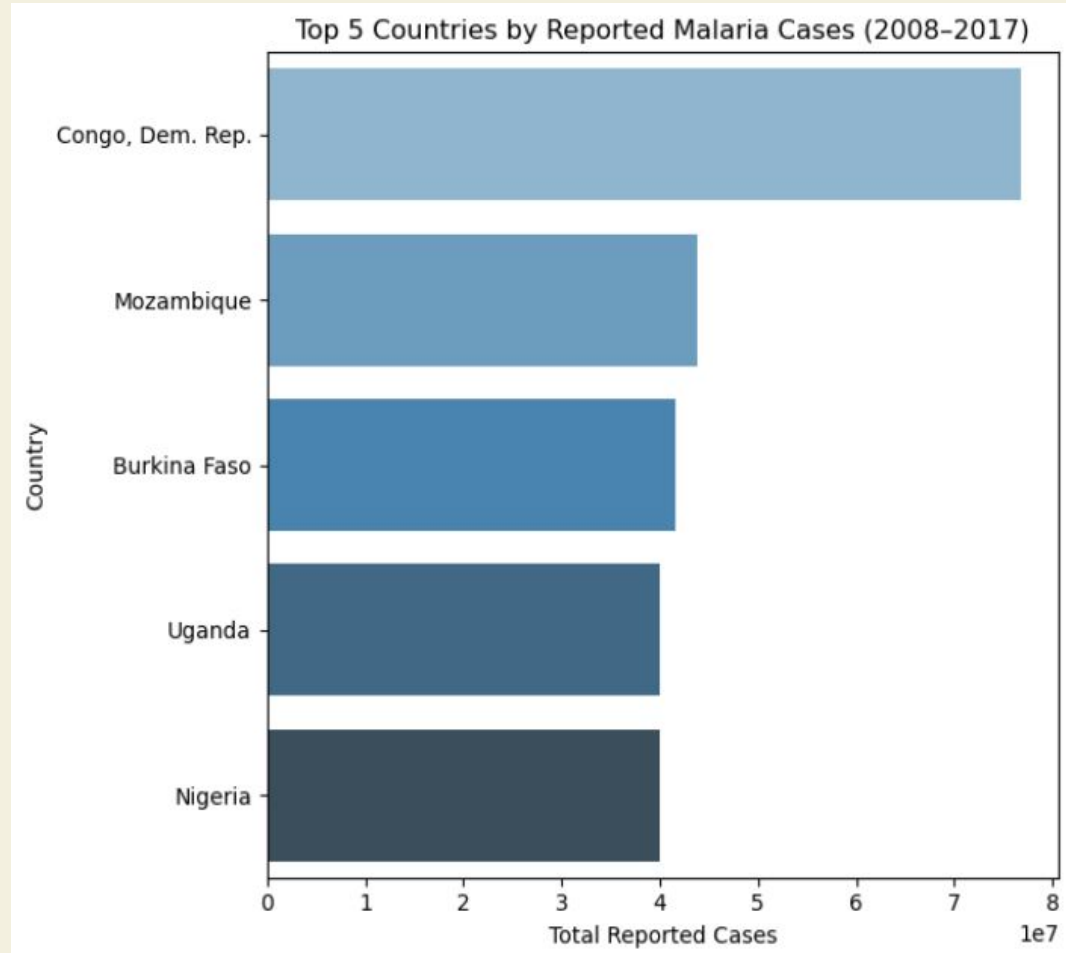
# What countries succeeded in elimination?

Countries like Algeria and Cabo Verde have successfully achieved malaria elimination, while countries like Eswatini and Botswana have achieved a high reduction in malaria cases reported and are well on the journey to malaria elimination.



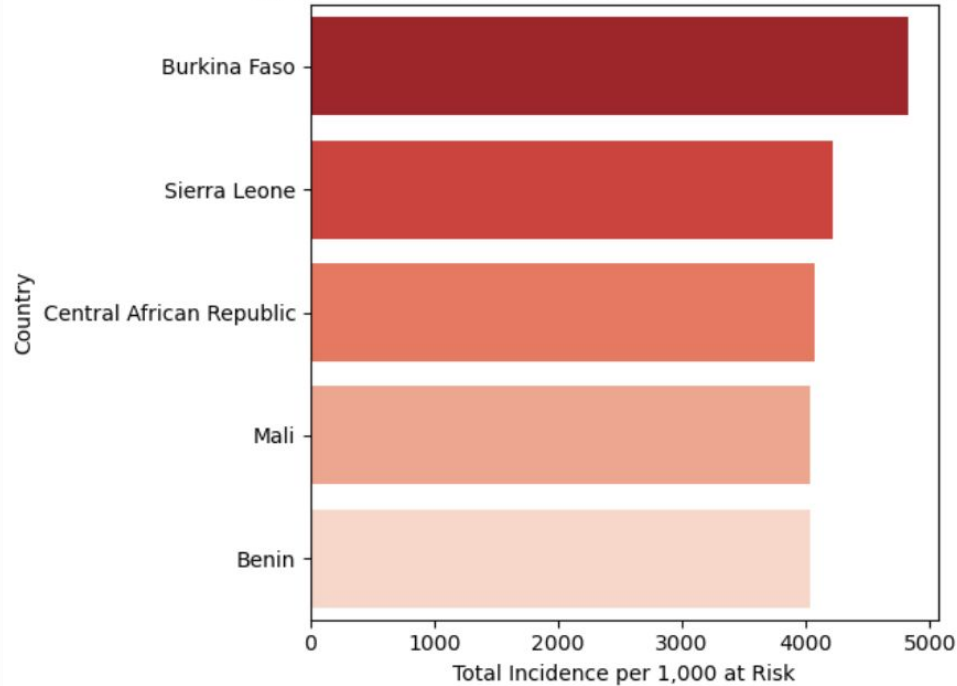
# Where is the burden still high?

The top 5 countries with the most malaria cases as of 2008–2017 are the Democratic Republic of Congo (DRC), Mozambique, Burkina Faso, Uganda, and Nigeria.

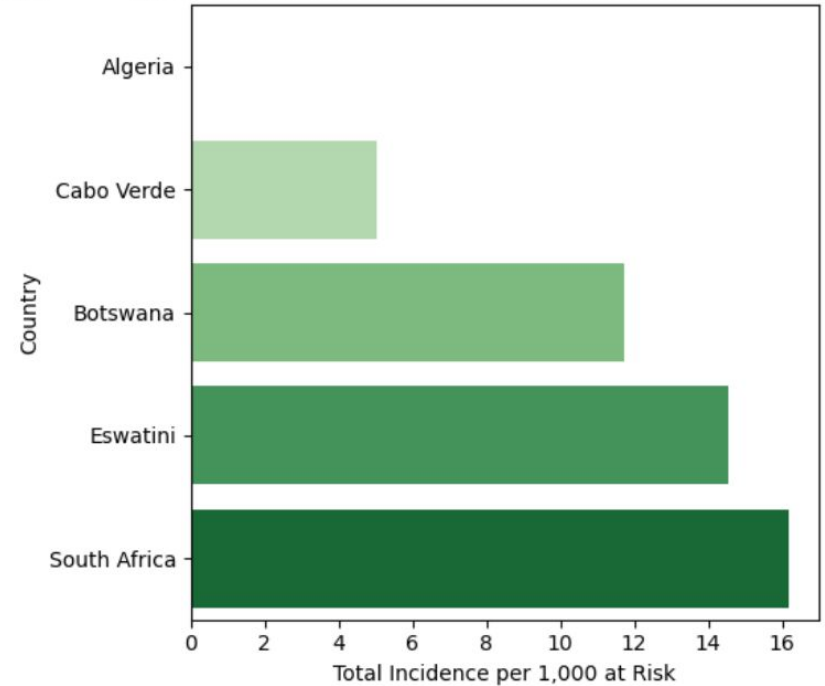


## MALARIA INCIDENCE IN HIGH BURDEN COUNTRIES VS. LOW BURDEN COUNTRIES

Top 5 Countries with Highest Malaria Incidence (2008–2017)



Top 5 Countries with Lowest Malaria Incidence (2008–2017)



## FINDINGS & INSIGHTS

Between 2008 and 2017, Burkina Faso appeared to have one of the highest reported malaria cases and also had the highest malaria incidence rate, meaning that new cases were occurring rapidly within that period.

While Sierra Leone, Central African Republic, Mali, and Benin had the highest incidence rates on the continent, none of them were among the top 5 countries with the highest reported cases, indicating that the malaria incidence in these countries was handled critically.

# FACTORS CONTRIBUTING TO RELATED MALARIA CASES

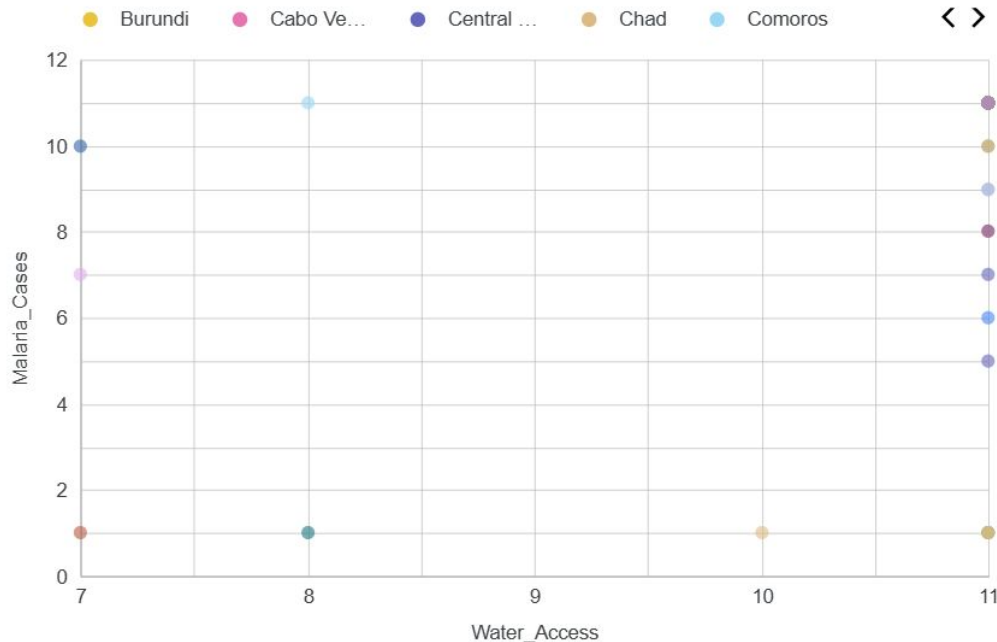
```
•[16]: # Correlation matrix
corr = df[['Malaria_Cases', 'Water_Access']].corr()
corr
```

```
[16]:
```

	Malaria_Cases	Water_Access
Malaria_Cases	1.00000	-0.25725
Water_Access	-0.25725	1.00000

An attempt to find factors contributing to malaria cases, using access to clean drinking water as one of the metrics, proved that there is no correlation between access to drinking water and malaria cases.

Distribution of Water Access by Malaria Cases



# LIMITATIONS WITH THE DATA

```
•[12]: # Number of missing values  
df[['Bed_Net_Usage', 'Antimalarial_Treatment', 'Water_Access']].isnull().sum()
```

```
[12]: Bed_Net_Usage      462  
      Antimalarial_Treatment  472  
      Water_Access        6  
      dtype: int64
```

The goal was to work with datasets up till 2022 and to also find a correlation between several factors that could lead to the rate of malaria cases in high-burden and low-burden countries.

However, the data was limited in the sense that

1. The dataset wasn't up-to-date (only available until 2017)
2. The supposedly most important columns like antimalarial treatment and bed net usage, had a high number of missing values such that it'd be a risk to manipulate such values.

# RECOMMENDATIONS

1. Strengthened surveillance in high-burden countries
2. Data standardization by health authorities
3. Focused interventions based on regional trends
4. Expand bed net distribution and malaria treatment access
5. Invest in creating sanitable communities as stagnant water and poor water drainage systems breed mosquitoes, which can lead to high malaria incidence in endemic regions.

# CONCLUSION

The fact that this analysis only covers 2007-2017 data, yet, 8 years later, the malaria burden for countries like Nigeria, Mozambique and DRC has only gotten worse.

There is a need for serious policy intervention by government and stakeholders. Lack of sufficient data on the distribution of mosquito nets and antimalarial treatment shows that these factors are not being accounted for as they should.

The successful elimination of malaria by countries like Algeria and Cabo Verde further proves that a malaria-free Africa is possible.





### Data Source

[Malaria in Africa](#)

### Interactive Dashboard

[Looker Dashboard](#)

### Python libraries used

Pandas, Matplotlib, Seaborn

### Repository

[GitHub Repository](#)

### Excel Workbook

[Pivot Table](#)

### Cabo Verde's Success

[Article](#)

[WHO Certified Elimination](#)