





# How does weather conditions affect Mosquitoes

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# OBJECTIVE

- **Introduce the Significance of Dengue Fever**  
To provide a general understanding of dengue fever and why it's a public health concern.
- **Examine the Prevalence of Dengue in Singapore**  
To present statistics and trends of dengue fever in Singapore, emphasizing its endemic nature.
- **Discuss Rainfall Patterns in Singapore**  
To explain the climate of Singapore, focusing on rainfall and how it might be connected to dengue outbreaks.
- **Establish the Correlation between Rainfall, Temperature and Dengue Cases**  
To present data that show a correlation between periods of heavy rainfall and spikes in dengue cases.
- **Highlight Preventive Measures**  
To discuss what actions are being taken by authorities and what individuals can do to prevent dengue fever
- **Summarize Key Findings**  
To emphasize its significance and what more can be done to mitigate risks.





# Economic Impact From 2010 - 2020

S\$2.295Bil

# Epidemiological Overview

13206

Average of Dengue  
cases per year

32325

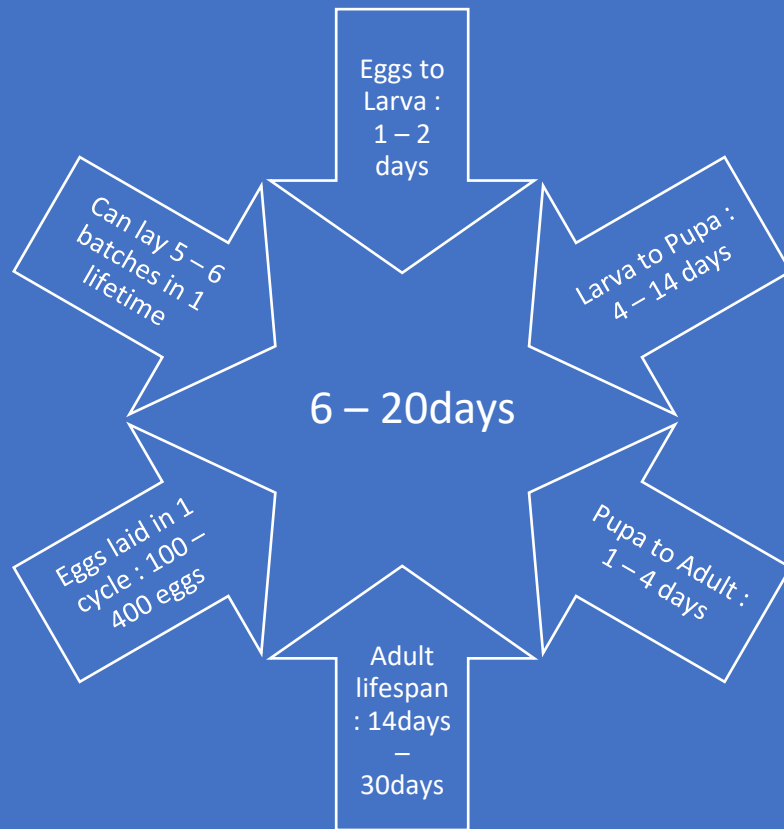
Total cases in  
2022

41

Ongoing Clusters

# Mosquito rate of development

## Standard rate of development




## Accelerated rate of development

- Eggs to Larva : 12 – 24hrs
- Larva to Pupa : 2 -5 days
- Pupa to Adult : 1 -2 days
- Adult lifespan : 7 days – 14 days
- Eggs laid in 1 cycle : 100 – 400 eggs
- Can lay 12 – 15 batches in 1 lifetime

3.5days – 8 days





What is an  
accelerated  
environment?

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Temperature:  
29.4deg.C

A.Temperature:  
34.0deg.C

Singapore's  
Temperature:  
31 – 33deg.C

Humidity:  
42%

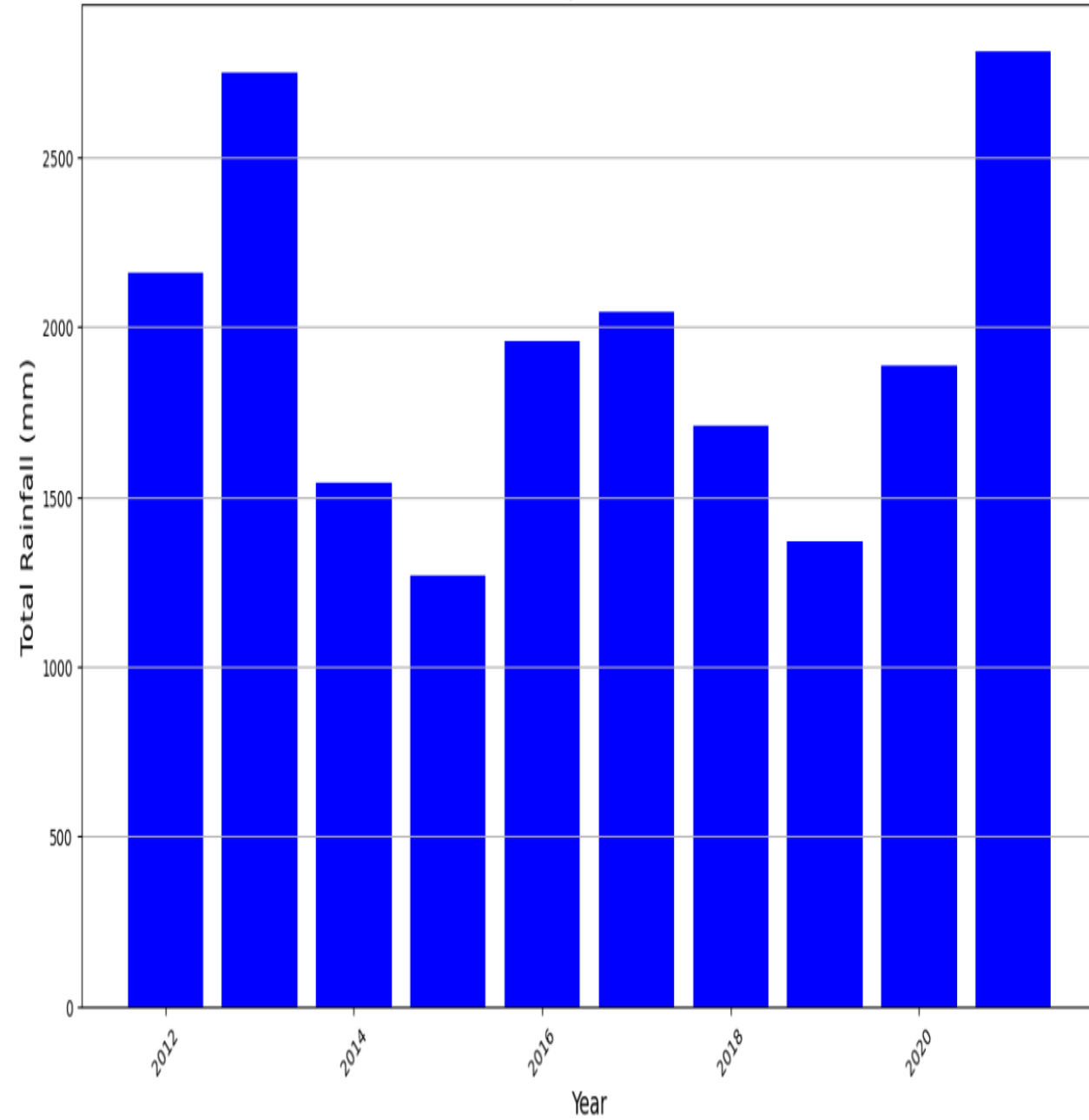
A.Humidity  
70%

Singapore's  
Humidity:  
72%

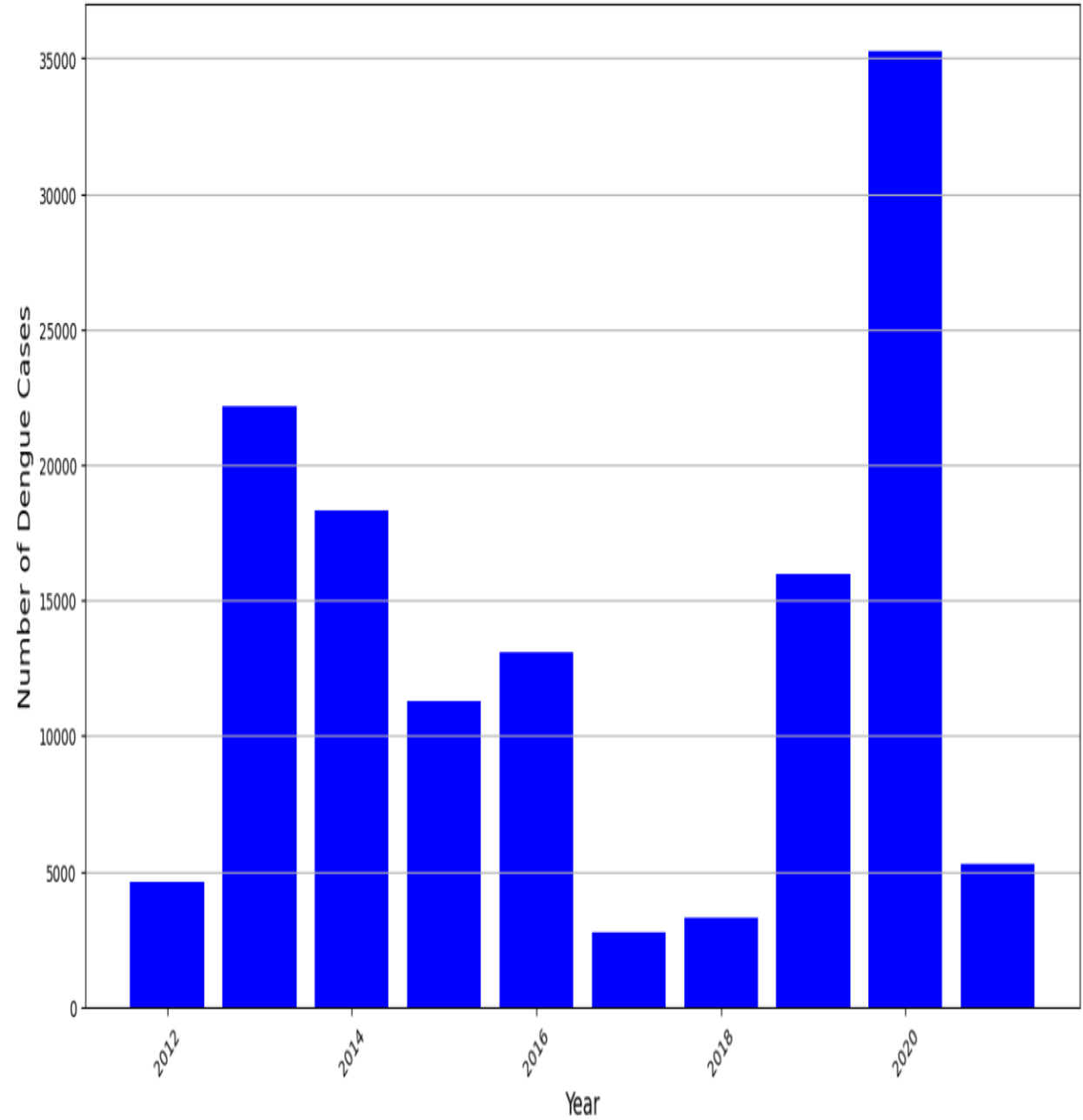




Total Rainfall by Year (2012-2021)



Number of Dengue Cases by Year



Mean Daily Temperature Jul 2023



Temperature (°C)



Monthly Total Rainfall Jul 2023



Rainfall (mm)



# Prevention is better than cure

**32,325**

Cases in 2022

715 active reported  
cases



MOSQUITO FOGGING

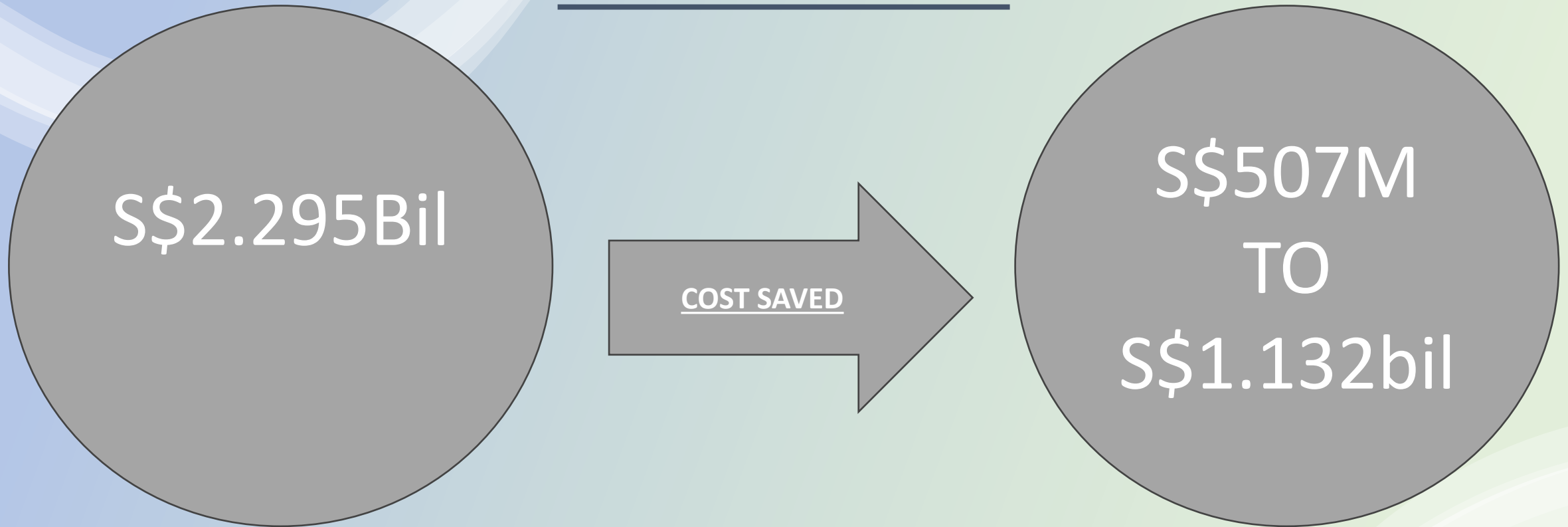


# Predictive analysis model

- **Early warnings**
  - **Resource allocation**
  - **Focused Intervention**
  - **Public awareness**
  - **Policy planning**
  - **Monitor & Adapt**
- **Environmental Data**
  - **Healthcare Data**
  - **Social Data**
  - **Geospatial Data**



# SUMMARY



Money saved=Total economic impact×(100Percentage of risk mitigated)

The background is a deep space scene. A bright spiral galaxy with a glowing blue and white core is positioned in the upper left. A colorful nebula with shades of blue, purple, and pink stretches across the upper half. The right side of the image shows the curved horizon of the Earth, with a thin blue line of the atmosphere and dark, swirling clouds below. Several stars of different colors (blue, white, orange) are scattered throughout the dark space.

**THANK YOU**