Ideas

1. Maps

a) choropleth map

- colour shade : total economic loss (% of GDP)

b) Proportional symbol map

- colour : type of disaster
- size : number of casualities

c) small multiples map

1960 - 1999

2000 - 2009

2010 - 2015

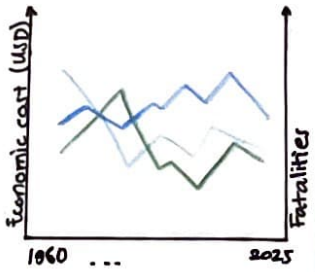
- Colour : disaster intensity and cost by decade

d) Heat density Map

- color : frequency or weighted cost of disaster.

2. Temporal

a) Dual-axis line chart



- compares whether financial losses aligns with human impact.

b) Timeline stream graph

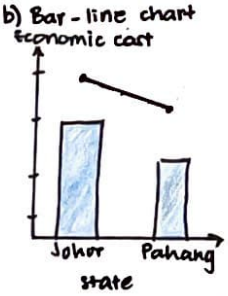
- Each stream : one disaster
- show frequency changing overtime.

4. Comparative

a) Radar chart

- Each polygon: different states.

b) Bar-line chart



- Bar : cost (% of GDP)
- line : casualities
- state level comparicon

Categorise

Spatial Focus
- choropleth, proportional, small multiples, Heat.
- shows where disasters hit and its severity.

↓

Temporal Focus
- Stream, Dual-line graph
- shows when disasters cause an increase or decrease in cost and casualities.

↓

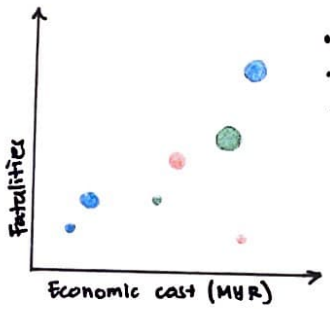
Relational Focus
- Scatter, Bubble chart
- compares impact.

↓

Comparative focus
- Radar, bar line

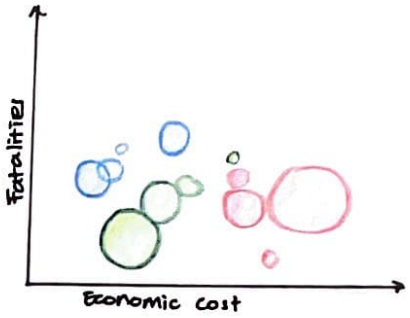
3. Relational

a) scatter plot



- color : type of disaster
- size : year
- direct correlation between casualities and cost.

b) Bubble chart

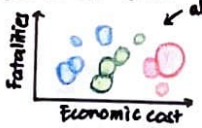


FILTER

1a.

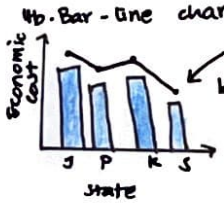
- colour shade : total economic loss (% of GDP)
- shows where disasters hit and how severe each state's losses are.

3b. Bubble chart



- colour : disaster type
- size : year
- Reveals which disasters are most destructive.

4b. Bar-line chart



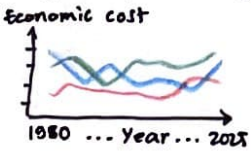
- shows both economic and human impact.

Combine and Refine

1. Instead of showing both choropleth and proportional map seperately, we can combine both maps into one main map.

- color can represent the severity of the disaster by the number of casualities
- size of circle can show the total economic cost as a result of these disasters.
- Tooltip: statename, costs and deaths.
- combines human and economic impact.

2. Timeline stream graph can be confusing for viewers. Instead we can use a Multi-line chart to add temporal storytelling.



- colour : disaster type (floods/landslide,etc)
- shows how certain disasters rise or fall by time.
- allows viewers to analyse patterns as well as the economic impact these disasters caused.

Question

- Is combining cost and casualities in a dual-axis chart too confusing? - 2a
- In the temporal multi-line chart would it better to use decades instead of years to avoid cluttering.
- How many disaster types should we use, all, or 3 most impactful

Author : Brian Christopher Tamara

Date : 08/10/2025

Sheet : 1

Task : Brainstorm

LAYOUT

Narrative storytelling

Malaysia's Disaster : It's human and economic impact.

Title : Malaysia's Dicaltets : Human and Economic Impact.
Name : Brian Christhopher Tamara
Date : 10/10/2025
Sheet : 1
Task : Interactive dashboard with narrative storytelling.

OPERATIONS

For the choropleth map, the color of the state represents the severity of the casualities. And, size of circles represent total economic lost.

FILTER

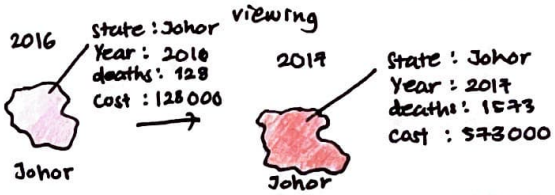
☑ Landslide ☑ Flood ☑ Earthquake...

↑ allows viewer to filter disaster types shown o map

and 2016

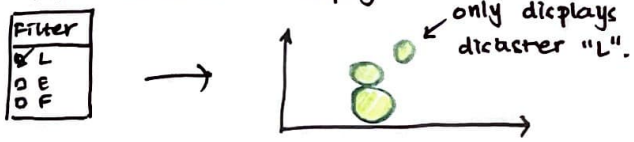
← year slider to show data for each year, allows personalized viewing

e.g.,



In the Bubble chart, the filter allows viewers to choose which disasters to display.

e.g.,



Discussions

- Could the narrative flow be improved?
- Filter for disaster type in the choropleth needed?
- Too much text, causes readability issues?
- sufficient data (1980-2025)?
- keep narrative captions short.
- Avoid text crowding.
- Add summary stats?

FOCUS

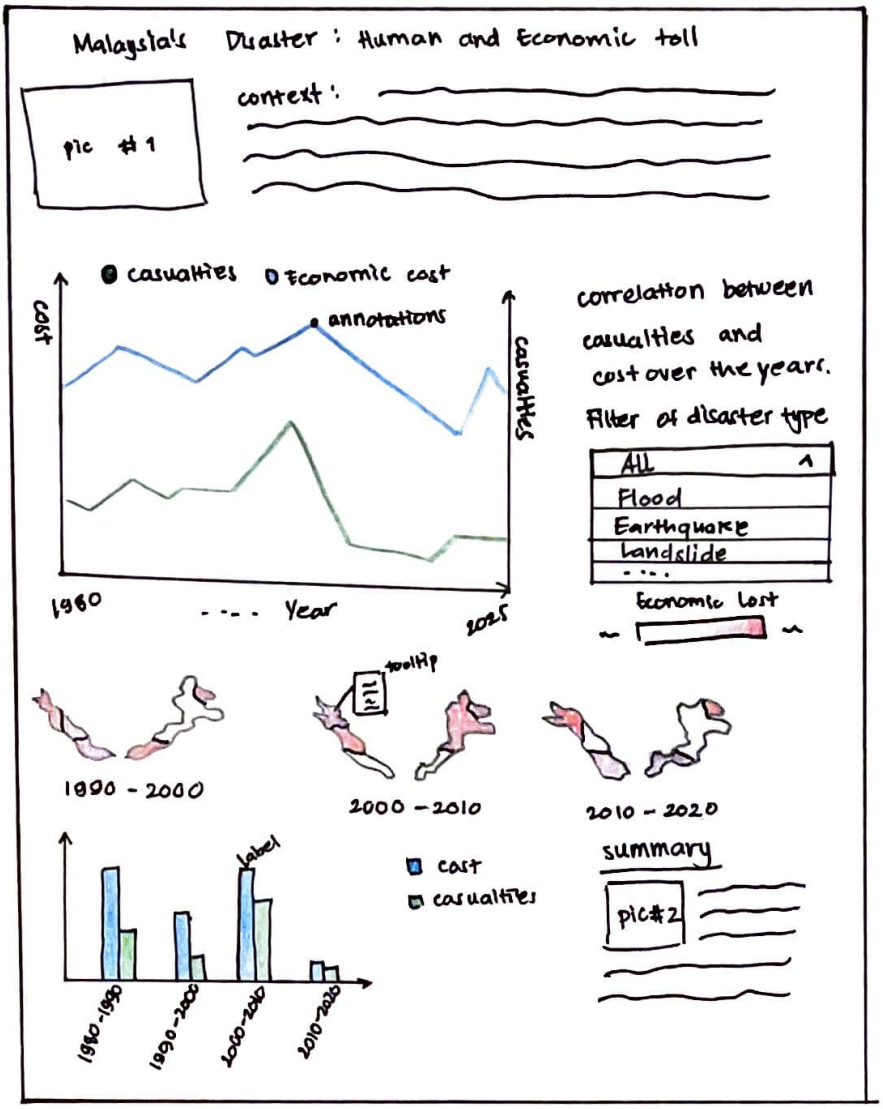
- The focus is on narrative storytelling — a data driven story page that gives viewers a guide through the impact of Natural Disasters; both human and Economic Impact.
- Aim is to show how disasters affect Malaysia over the years, and as a citizen what can we do to prevent these disasters.

- The main piece of this vis is the choropleth map that represents the severity of casualities by color, and the circle size shows the total Economic Lost for that state.

- The Bubble chart gives the viewers a prespective on the direct correlation between the number of casualities and cost.
  colour = type of disaster
  size = year
- Bar + line chart gives state by state comparison

LAYOUT

Dashboard View



Title : Malaysia's Disaster : Human and Economic toll

Author : Brian Christopher Tamara

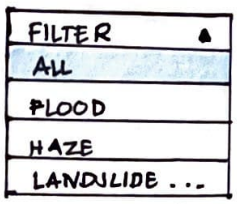
Date : 10/10/2025

Sheet : 3

Task : Timeline focused visualisation.

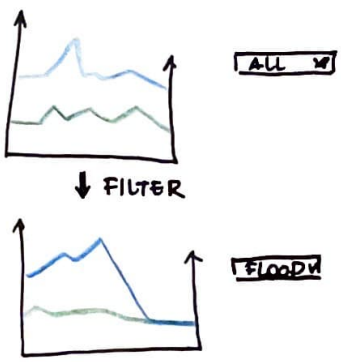
OPERATIONS

- A dropdown filter the main visualisation - Dual axis multi line chart.



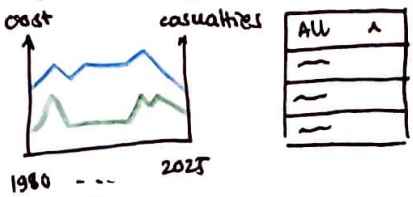
← allows viewers to choose type of disaster, for more personal viewing.

e.g.,



FOCUS

- The focus is to explore the impact of natural disasters in Malaysia, and how it has changed overtime (1980)
- There is no main visualisation, as all three charts visualises temporal change.



← Dropdown filter to allow viewers to dynamically shift their focus into different disaster types.

↑ The dual line chart allows viewers to see the trend and correlation between cost and casualties.

- The small multiple maps and bar chart gives a comparative aspect decade by decade. Helps identify peak years and period of major disasters.
- Emphasis on clarity and temporal storytelling.

DISCUSSION

- layout of dual line chart and maps must be vertically align to aid readibility.
- standardized font sizes.
- Would the Dual line chart create confusion among readers?
- Use tooltips on small choropleth maps (state, year, cost, death) and annotations / labels on other charts.
- Year slider needed?
- Use same constant coloring among charts.

LAYOUT

Dashboard View

Malaysia Under Pressure : Finding Balance Between Nature and Economy (1980 - 2025)

context :

pie #1

economic lost

disaster type

1980 ... 2025

1980 years 2025

Analysis for 2025

- major events
- major economic lost
- Headline disasters.

Flood Landslide Earthquake

casualties

cost

summary :

1980 2000

1980 2010

Title: Finding Balance Nature and Economy

Name: Brian Christopher Tamara

Date: 10/10/2025

Sheet: 4

Task : comparative and analytical Dashboard

Operations

Year slider to choose which Year to display on heatmap. to allow dynamic viewing

type

Year

dropdown filter to allow viewers to choose which disaster type to display on heatmap.

Years

year slider will also affect the content displayed on informative text box.

Info. on the chosen year.

Text box displays major events of chosen year, major disasters and correlation to the economy.

Focus

- The main visualization is the heatmap displayed on the top section of the dashboard. → color : weighted cost of disaster.
- charts chosen for multiple perspective, into this analytical dashboard.

Title:

Timeline stream graph

info.

Scatter plot

Radar chart

summary.

Timeline stream graph displays fatality contribution by disaster type, recognised by different colors.

Direct comparison between cost and fatalities.

Provides insightful information to readers that dynamically shift accordingly to the slider.

Summaries overall pressure per decade, shows the changing balance between human vs economic impact.

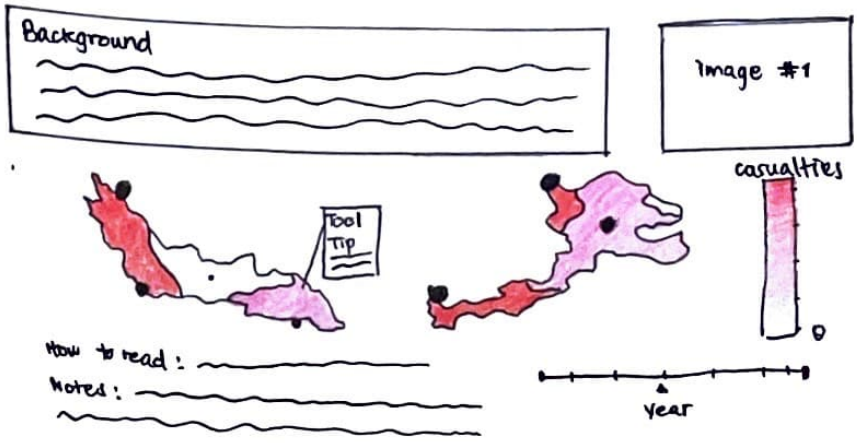
provides summary of dashboard, what we know, why we need to know these info. and what can we do.

Discussions

- can the average viewer digest all the different prespectives without confusion?
- Can the viewer obtain a clear analysis from all these charts?

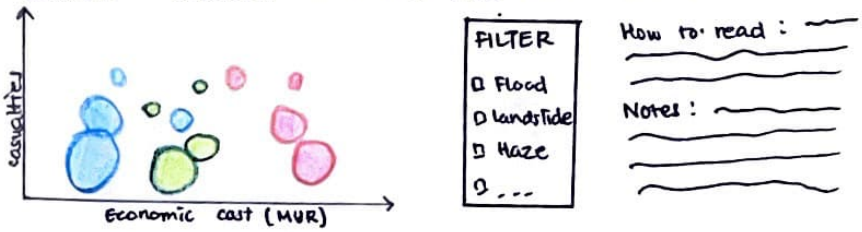
Layout

Malaysia's Disasters : It's Human and Economic Impact

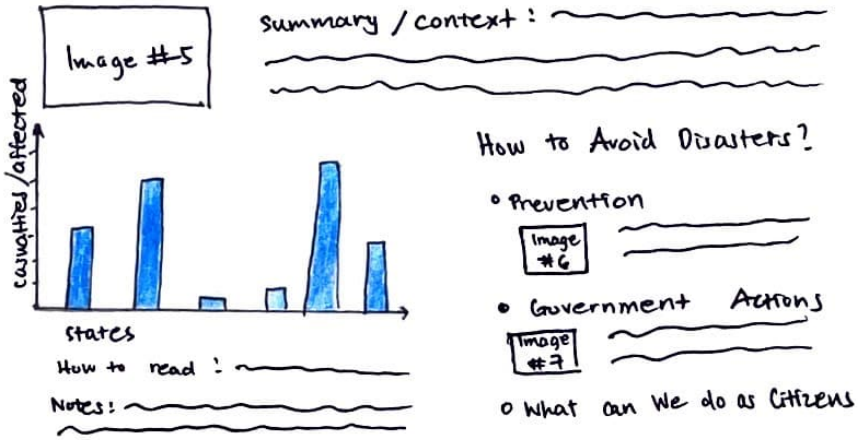


Major Disaster's in Malaysia (1980 - 2025)

Relation Between Casualties and Economic Lost



Which States Had It Worst ?



How to Avoid Disasters?

- Prevention
  - Image #6
- Government Actions
  - Image #7
- What can We do as Citizens

Title: Malaysia Disasters : Human and Economic
Name: Brian Christopher Tamara
Date : 12/10/2025
Sheet: 5
Task : Final Realisation Design.

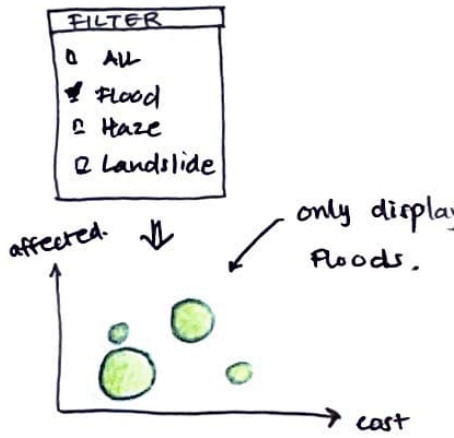
OPERATIONS

→ Map visualisation :

- year slider allowing the viewer to dynamically change the choropleth map with the data of the years accordingly.
- Tooltip when viewer hovers over the different states a tooltip will be displayed showing — state, year, affected, economic lost, etc.

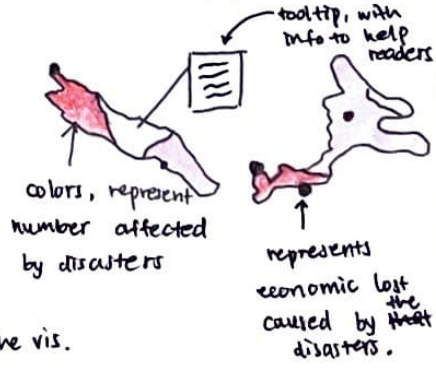
→ Bubble chart :

- This bubble chart has a filter to allow viewer to choose which disaster types to compare. Allows a more personalised view experience and analysis.



Focus

- The main focus is on the narrative storytelling, an interactive dashboard page that gives viewers a guide through the history of Natural Disasters in Malaysia, It's human and economic impact through maps and charts, and a guide on how to avoid / prevent these Disasters.
- The main visualisation is the choroplethe map with the bubble overlay. The colors represents the severity of casualties / affected and size of bubbles represent economic lost caused by the disaster.
- Bubble chart and Bar chart supports the vis.



Discussions

- Is there too much text?
- Could there be more interactive charts, to allow for more

Detail

- Vegalite Javascript for creating maps and charts.
- Use HTML, CSS and Javascript for visualisation dashboard.
- Github for hosting final visualisation.